

# LEXICAL ROOTS FOR THE ITHKUIL REVISION — v.0.4 (October 3, 2020) by John Q.

This document updates the previous version 0.3.2 of May 17, 2020. There are now approximately 4000 roots. **New or revised/amended material is marked in blue**, while roots with associated Bias Affixes are **marked in green**.

Beginning with this version of the document, the ordering and categorization of the roots has been completely revised. The sections on roots associated with Bias categories and  $V_xC_s$  affixes have been eliminated and their roots moved to the remaining categories as appropriate.

The revised category structure is shown below:

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## 1.0 ROOTS ASSOCIATED WITH ITHKUIL GRAMMATICAL FUNCTIONS

### 1.1 The Carrier Root: -S-

-S- [the “carrier” root]				
	STEM 1	STEM 2	STEM 3	STEM ZERO
<b>BSC</b>	[carrier stem representing an animate being named by the succeeding foreign or proper name/phrase]	[stem representing inanimate object or abstract entity named by the succeeding foreign or proper name/phrase]	[stem representing geographical or geo-demographic place/location named by the succeeding foreign or proper name/phrase]	Used to create a formative concept from the first <b>V<sub>x</sub>C<sub>s</sub></b> affix found in Slot VIII.
<b>CTE</b>	[carrier stem representing the identity of the animate being named by the succeeding foreign or proper name/phrase]	[stem representing the identity of the inanimate object or abstract entity named by the succeeding foreign or proper name/phrase]	[stem representing the identity of the geographical or geo-demographic place/location named by the succeeding foreign or proper name/phrase]	
<b>CSV</b>	[carrier stem representing the physical presence/body of the animate being named by the succeeding foreign or proper name/phrase]	[stem representing the physical presence or body of the inanimate entity or tangible manifestation/effect of the abstract entity named by the succeeding foreign or proper name/phrase]	[stem representing the physical/tangible praxes and/or tangible infrastructure of the geographical or geo-demographic place/location named by the succeeding foreign or proper name/phrase]	
<b>OBJ</b>	that which is impacted/targeted or a patient of the animate being named named by the succeeding foreign or proper name/phrase	that which is impacted/targeted or a patient of the inanimate or abstract entity named by the succeeding foreign or proper name/phrase	that which is impacted/targeted or a patient of the geographical or geo-demographic place/location named by the succeeding foreign or proper name/phrase	

## 1.2 The Two Personal Reference Roots: -N- .and -D-

There are two personal-reference roots, for use when it is necessary to express the concept of a particular personal referent as a full formative. Because the meaning of each stem changes based on what Perspective it carries, the meanings listed below are grouped by Stem and Perspective:

-N- ‘ANIMATE PERSONAL REFERENT’			
	STEM 1	STEM 2	STEM 3
<b>MONADIC</b>	1m — “I” = monadic speaker	2m — “you (sg.)” = monadic addressee	ma — “he/she/‘they(sg.)’ = monadic animate 3rd party
<b>POLYADIC</b>	1p — “we” = polyadic speaker (i.e., party speaking for oneself and others -- whether inclusive or exclusive of addressee)	2p — “you (pl.)” = polyadic addressee	pa — “they(pl.)” = polyadic animate 3rd party
<b>NOMIC</b>	“I” as a timeless manifestation, i.e., speaking of oneself in a hypothetical or timeless context	“you” as a timeless manifestation, i.e., speaking of the addressee in a hypothetical or timeless context [whether monadic or polyadic]	IPa — “one” = impersonal animate (e.g., French <i>on</i> , German <i>man</i> )
<b>ABSTRACT</b>	“all that I am”, “all that makes me <i>me</i> ”, “everything about me”	“all that you are”, “all that makes you <i>you</i> ”, “everything about you” [whether monadic or polyadic]	“all that (s)he/they are”, “everything about him/her/them” [whether monadic or polyadic]

-D- ‘INANIMATE or MIXED ANIMATE + INANIMATE PERSONAL REFERENT’			
	STEM 1	STEM 2	STEM 3
<b>MONADIC</b>	mi — “it” = monadic inanimate 3rd party	mObv — Obviative/monadic, referring to a previously mentioned monadic party (use SWR affix to specify if necessary)	mMx — mixed monadic animate+ monadic inanimate , e.g., “I and it”, “you(sg.) and it”, “s/he and it”,
<b>POLYADIC</b>	pi — “them/those” = polyadic inanimate 3rd party	pObv — Obviative/polyadic, referring to a previously mentioned polyadic party (use SWR affix to specify if necessary)	pMx — mixed polyadic animate+inanimate, e.g., “we+it”, “I+those”, “you(sg.)+those”, “you(pl.)+it”, “they+those”, “it+they”, “those+s/he”, etc.
<b>NOMIC</b>	IPi — “something”, “a thing”, “things” = impersonal inanimate referent	Nai — “it” as a nomic referent, e.g., a referent as a generic concept; all examples of X throughout time	IPx — impersonal animate+inanimate “one+something”, “people and things”
<b>ABSTRACT</b>	“all that it/they are”, “everything about it/them” [inanimate, whether monadic or polyadic]	Aai — “it” as an abstract referent, e.g., an idea, a concept, a situation	“everything and everyone”, “all that is”, “everything about the world”

The Specifications of the two roots above are illustrated below for Stem 1 of -N-:

<b>-N-</b> [generic personal referent]		
	STEM 1 Nominal meaning	STEM 1 Verbal meaning
<b>BSC</b>	‘I (myself)’	‘to be me/to be myself’, ‘to do/act what/how I do [because it’s me]’
<b>CTE</b>	‘I (myself)’ (as being my personality, mind, psyche, sentient thoughts, psychological sense of individuality, or “essence”; irrespective of my physical body)’	[same as above applied to Content meaning at left]
<b>CSV</b>	‘I (myself)’ (as my physical body/embodiment/person, irrespective of personality, mind, psyche, sentient thoughts, psychological sense of individuality, or “essence”)’	[same as above applied to Constitutive meaning at left]
<b>OBJ</b>	‘entity with/on which I act or with which I associate (i.e., place, thing, person, etc. with/in/on which/whom I [inter-]act)’; ‘something/someone from/in my life/niche/environment’	‘to be an entity in my life/niche/environment; to be something/someone that/who is in my life/niche/environment’

### 1.3 General Demonstrative Root: -T-

<b>-T- [General Demonstrative Root]</b>		Associated Affix: <b>DCD</b>
<b>BSC</b>	(to be) ‘this / the one at-hand / the one in question’ referring to entities, situations, abstract notions, etc. (depending on the <b>C<sub>A</sub></b> complex); [STA:] to be this/what is under discussion / [DYN:] to do this/what is under discussion	<b>STEM 1:</b> this (one) near, at, by, or associated w/ speaker
<b>CTE</b>	(to be) that which is the essence or essential point or meaning of this/what is at-hand	<b>STEM 2:</b> that (one), near, at, by or associated w/ addressee
<b>CSV</b>	(to be) that which is the form/structure or physical manifestation of this/what is at-hand	<b>STEM 3:</b> that (one yonder), not near, at, by or associated with either speaker or addressee
<b>OBJ</b>	(to be) the object/entity/situation/idea, etc. being referred to by this/what is under discussion or at-hand	

Using cases, the above root provides translations for phrases such as “thus”/”in this/that manner”, “there”/”in that place/location”, “Yes”/”It is that”, “No”/”It is not that”, “some / some of that”, etc.

## 1.4 The Copular Root: -Č-

The scope of this root's usage is narrow. It is used only in contexts requiring ontological or epistemic equivalence/identity. e.g., "I am your father." It is **not to be used** in the following circumstances:

- when "be" means "be named/called", e.g., "*My dog is [named/called] Toto.*" (Use stem meaning "be named; be called; have an appellation")
- when "be" initiates an adjectival phrase, e.g., "*Rain is beneficial.*" (Use adjectival case or an appropriate verbal stem, e.g., "to (be of) benefit")
- when "be" indicates a spatio-temporal relation, e.g., "*The box is on the table*" (Use stem signifying the specific relation, e.g., "be on the top surface of")
- when "be" means "occur / happen / take place", e.g., "*Wednesday is the best day for shopping.*" (Use stem meaning "occur, take place, happen")
- when "be" means "exist (ontologically)", e.g., "*Such is life*", "*I think, therefore I am.*" (Use stem meaning "existent entity; to ontologically exist")
- when "be" indicates exemplary membership in a set, e.g., "*A hammer is a tool.*" (Use stem meaning "exemplify; be an example of" or "be a type of")
- when "be" indicates composition, e.g., "*Rain is water.*" (Use stem meaning "to consist of")

**IFL** Stems: the copular relation/equivalence is circumstantial/contextual; **FML** Stems: the copular relation/equivalence is inherent/inalienable/permanent

-Č- 'BE (i.e., copular identification only) / EQUIVALENCE / IDENTIFICATION'			
	STEM 1	STEM 2	STEM 3
<b>BSC</b>	(to be ontologically the) self-same entity (as) (i.e., [to be] simply another name for the self-same entity)	be epistemologically equivalent to or (functionally) identified/identifiable as; be (functionally) the same as; be equal to	to be epistemologically synonymous/tantamount/convertible to
<b>CTE</b>	(to be ontologically the) self-same entity (as) in terms of essence, sense of identity, behavior, personality, mind, etc.	be epistemologically equivalent to or (functionally) identif(ied/-iable) as in terms of essence, sense of identity, behavior, personality, mind, etc.	to be epistemologically synonymous/tantamount/convertible in terms of essence, sense of identity, behavior, personality, mind, etc.
<b>CSV</b>	to be ontologically the self-same entity (as) in terms of appearance, physical manifestation or construction	to be epistemologically equivalent to or (functionally) identif(ied/-iable) as in terms of appearance, physical manifestation or construction	to be epistemologically synonymous/tantamount/convertible to in terms of appearance or outward physical manifestation
<b>OBJ</b>	what X ontologically is (as opposed to being something else), X's natural identity, X's existence as X; to be X as itself (as opposed to something else)	what X is epistemologically equivalent to (as opposed to something else), X's natural identity, X's existence as X; to be X as itself (as opposed to something else)	(to be )what X is epistemologically synonymous, tantamount, or convertible to (as opposed to something else), X's convertibility to

## 2.0 COMMON STATES AND ACTS

<b>-PS- ‘HAPPEN / OCCUR(ENCE) / MANIFEST / EVENT’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an occurrence of something; to happen / occur / take place / transpire / to “pass” [both the content/nature of the event and its transpiring]	<b>STEM 2:</b> a state/act of manifesting; be or make real / reify  <b>STEM 3:</b> event (spatio-temporal context)
<b>CTE</b>	(to be) a state of something occurring/transpiring of an act/event/state	
<b>CSV</b>	(to be) an act of (causing) something to happen/occur	
<b>OBJ</b>	(to be) that which happens/occurs/transpires	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-PSM- ‘STEP / ACT / ACTION / PHENOMENON / INCIDENT’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a step/act/action (to be) taken; to take a step (to do/accomplish something), to act (in order to do/accomplish something), to take an action (to do something)	<b>STEM 2:</b> (to be) a phenomenon; for a phenomenon to happen [i.e., an event/occurrence/state so unusual, surprising, unlikely, or consequential as to be significant]  <b>STEM 3:</b> (to be) an incident [i.e., an event/occurrence with significant and (potentially) adverse/undesirable consequences]
<b>CTE</b>	(to be) a state of a step/act/action occurring/transpiring/being taken	
<b>CSV</b>	(to be) an act of taking a step or action to cause something to happen/occur	
<b>OBJ</b>	(to be) the step/act/action one takes to do something	

<b>-TT- ‘FACT / KNOW’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act of knowing an ontological fact; to know an ontological fact [ = have awareness/understanding of and ability to recall an ontological fact]	<b>STEM 2:</b> (to be) epistemological/conventionalized fact; know [ = have awareness/understanding and ability to recall] an epistemological/conventionalized fact  <b>STEM 3:</b> (to be) something known via experience/proficiency; know via familiarity or experience]
<b>CTE</b>	(to be) the ability/capacity to know an ontological fact	
<b>CSV</b>	(to be) the physical/mental process of (an act of) knowing an ontological fact	
<b>OBJ</b>	(to be) an ontological fact; (to be) the ontological fact one knows	

Derivations: find out, discover, determine, wisdom, insight, enlightenment, scholar

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:



<b>-RṬṬ- ‘STUDY / LEARN / KNOWLEDGE SOURCE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act of studying/learning knowledge; to study [CPT version = learn] *	<b>STEM 2:</b> (to be) an act of practicing; to practice CPT = be proficient at; have proficiency in
<b>CTE</b>	(to be) the ability/capacity to study [CPT version = learn]	
<b>CSV</b>	(to be) a physical act/process of studying [CPT version = learning]	<b>STEM 3:</b> (to be) a source of knowledge, a resource from which facts can be learned, a knowledge base
<b>OBJ</b>	(to be) what one studies or learns about	

\* This stem signifies learning from static knowledge sources (e.g., books/documents and/or personal research; for learning from a teacher, see **-DDY-** ‘TEACHING ↔ BEING A STUDENT’

<b>-LṬṬ- ‘TEST / EVALUATION / VETTING / EXPERIMENT’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of testing a party/entity (i.e., subjecting a party/entity to a process by which it/they must prove/demonstrate that it /they meet some standard or expected level of performance/knowledge/skill/talent, etc.)	<b>STEM 2:</b> (to be) a vetting/evaluation process (i.e., a process of investigating/evaluating a party/entity to determine that they meet some standard or expected level of performance/skill/background, etc.); to vet, to evaluate
<b>CTE</b>	(to be) a state of being subject to testing	
<b>CSV</b>	(to be) the physical act/process of testing a party/entity; to test, to give a test/exam	<b>STEM 3:</b> (to be) an experiment/test (i.e., a clinical procedure to determine the validity of a specific hypothesis, to determine the presence/absence of (a) particular substance(s), etc.; to conduct an experiment or clinical test
<b>OBJ</b>	(to be) the test/exam itself which the party/entity takes or is subjected to	

<b>-NṬṬ- ‘SUBJECT / TOPIC / MATTER / THEME / POINT / THESIS’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) the topic / subject / subject matter / matter at hand; to address/discuss/ deal with a particular topic / subject (i.e., what is at hand, in mind, under consideration, under advisement, at issue, in question, etc.)	<b>STEM 2:</b> (to be) the point one wishes/tries to make (e.g., in a discussion, an essay, an article, a speech, a briefing, etc.); to try to make one’s point [i.e., try to get one’s audience to understand or accept one’s opinion or conclusions]. CPT Version = succeed in making one’s point
<b>CTE</b>	(to be) a state of there being a topic/subject/subject matter/theme	
<b>CSV</b>	(to be) an act/process of addressing or dealing with a particular topic/subject/theme	<b>STEM 3:</b> (to be) a thesis; to present a thesis (i.e., a conclusion about something based on a formal analysis and presentation of evidence)
<b>OBJ</b>	(to be) one’s opinion/take/contribution on a topic/subject/theme	

<b>-VL- ‘REALIZATION / UNDERSTANDING / COMPREHENSION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act of realizing something; to realize [ = understand via act of insight/intuition]	<b>STEM 2:</b> (to be) an act of understanding/comprehending something; to understand or comprehend something [ = know via a process of personal and/or shared analysis/contemplation/introspection/discussion]
<b>CTE</b>	(to be) the ability/capacity to realize something	
<b>CSV</b>	(to be) the physical/mental process of (an act of) realizing something	<b>STEM 3:</b> (to be) an act of understanding/comprehending something: understand or comprehend something [ = due to intelligibility/distinctness/clarity/coherence/legibility/lucidity of input/medium/message/material]
<b>OBJ</b>	(to be) what one realizes	

<b>-TK- ‘MAKE / CONSTRUCT / INTEGRATE / FORM’</b> Associated affix: <b>MAK</b> (NOTE: This root does not refer to ‘make/create’ meaning ‘emit/secrete/produce’ as in ‘make noise’ or ‘make milk’, etc.)		
<b>BSC</b>	<b>STEM 1:</b> (to be) an instance/act of making/constructing/creating something via integration of material resources according to an implicit or explicit plan/instinct/motive/design	<b>STEM 2:</b> (to be) an instance/act of forming or fashioning something via a combination of ingredients, e.g., cooking, mixing together, combining melodies from instruments to make music, tinkering with a variety of parts, etc.
<b>CTE</b>	(to be) the existential state of creating/making/constructing	
<b>CSV</b>	(to be) the method/steps employed/manifested in making/creating/constructing something	<b>STEM 3:</b> (to be) an instance/act of bringing something into being via organizing disparate parts into a coherent whole
<b>OBJ</b>	(to be) that which is made/created/constructed; the product of an act of making/creating/constructing	

<b>-MPR- ‘TERMINATION / FINISH / END / FINALITY / COMPLETION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of ending/finishing/ being over/concluded; to be ending, be at an end, to be about over, to be about finished/concluded (i.e., no longer taking place, no longer extant/present/active, etc.) [CPT version = ended, finished, concluded, over]	<b>Stem 2:</b> (to be) a state/act of bringing to a final/ultimate state; to bring to a final/ultimate state, to finalize, to be final, to be reaching a final/ultimate (i.e., quasi-permanent) state [CPT version = be in a final/ultimate state]
<b>CTE</b>	(to be) the state of being at an end, being finished/concluded	
<b>CSV</b>	(to be) a physical act of finishing, bringing to an end, concluding; to finish, to end, to conclude, to be done (with), to be over	<b>Stem 3:</b> (to be) a state/act of completing; to be reaching a state of completion (i.e., of a goal-oriented process) [CPT version = a completed state; to complete, to reach/achieve completion]
<b>OBJ</b>	(to be) that which is ended/finished/over	

<b>-NY- ‘CHOICE / PREFERENCE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a choice (to be) made; to choose [= both the state of having a choice to make and the choices available to choose from]	<b>STEM 2:</b> (to be) a preference; to prefer something (over something else) *
<b>CTE</b>	(to be in) a state of having to choose; to face a choice; to have a choice to make	
<b>CSV</b>	(to be) the act/process of choosing from one’s available options/alternatives	<b>STEM 3:</b> (to be) an state/act of settling for something (i.e., reluctant choice to avoid the alternative)
<b>OBJ</b>	(to be) the choice made; to be the entity/alternative/option chosen or selected	

\* for the translation of ‘preference’ refer to one’s tastes/proclivities/inclinations, see the root **-JKF-**.

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RNY- ‘SELECTION / ALTERNATIVE / OPTION / VOTING’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a selection (to be) made (from limited choices); to select/pick (from limited choices) [= both the state of having a selection to make and the choices available to select from] *	<b>STEM 2:</b> (to be) a state of having an alternative or available option; to have an alternative or available option
<b>CTE</b>	(to be in) a state of having to choose; to face a choice; to have a choice to make	
<b>CSV</b>	(to be) the act/process of choosing from one’s available options/alternatives	<b>STEM 3:</b> (to be) an act of voting; to vote
<b>OBJ</b>	(to be) the choice made; to be the entity/alternative/option chosen or selected	

\* This stem is distinguished from Stem 1 of the the root **-NY-** above in that it implies a limited number of choices available

<b>-SN- ‘CHANGE / VARIATION / DEVIATION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a change (from one state to another); to change (from one state to another)	<b>STEM 2:</b> (to be) an act of variance; to vary
<b>CTE</b>	(to be) the state of transformation which occurs during a change	
<b>CSV</b>	(to be) the physical/tangible process of an act of change (i.e., what an entity physically undergoes while changing)	<b>STEM 3:</b> (to be) an act of deviation; to deviate
<b>OBJ</b>	(to be) that aspect of an entity which changes; what gets changed about an entity	

Derivations: mutate, convert, shift, tamper with, transform, transition

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RSN- ‘ALTERATION / MODIFICATION / DIVERSIFICATION / MODULATION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/process of alteration, modification; to alter, to modify (i.e., a small change that does not significantly alter the identity or basic nature/essence/form, etc. of an entity)	<b>STEM 2:</b> (to be) a state/act of diversification/permutation; to diversify, permutate  <b>STEM 3:</b> (to be) a state/act of modulation; to modulate (i.e., control the variance in the state of an entity)
<b>CTE</b>	(to be) the state of transformation which occurs during an alteration/modification,	
<b>CSV</b>	(to be) the physical/tangible process of an act of alteration/modification (i.e., what an entity physically undergoes while changing)	
<b>OBJ</b>	(to be) what changes during an alteration/modification, what gets altered/modified, the alteration/modification itself	

<b>-PT- ‘SEEK / SEARCH’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act of searching/seeking/looking for something <b>specific whose location is</b> unknown; a search for something <b>specific whose location is</b> ; to search/seek/look for something unknown (i.e., its location/existence is uncertain)	<b>STEM 2:</b> (to be a) search, seek, look for something lost [i.e., something known to exist which is missing]  <b>STEM 3:</b> quest / seek to accomplish/achieve something
<b>CTE</b>	(to be in) the psychological state of searching/seeking; to be driven by the need/desire to search/seek	
<b>CSV</b>	(to be) the process or physical act itself of searching/seeking	
<b>OBJ</b>	(to be) what one is seeking or searching/looking for	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-PTR- ‘EXPLORATION / PURSUIT / HUNTING’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of exploration; to explore [i.e., to sensorily observe and/or examine something unknown or previously unencountered to learn/discover its nature/structure/attributes, etc.]	<b>STEM 2:</b> (to be) a state/act of pursuit; to pursue, to track down (i.e., the existence of which is certain but whose location is uncertain)  <b>STEM 3:</b> (to be) a state/act of hunting; to hunt for (i.e., with the goal of capturing/killing/detaining, etc. that which is hunted)
<b>CTE</b>	(to be) the psychological state of exploration; to be driven by the need/desire to explore	
<b>CSV</b>	(to be) a physical act/process of exploring; to perform the physical act(s) of exploring	
<b>OBJ</b>	(to be) what one explores (i.e., the place/area/realm/surface/volume, etc. one explores through or in)	

<b>-ZD-    ‘COMPARISON / CONTRAST / DISTINGUISH’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a[n act of] comparison/contrasting; to compare/contrast	<b>STEM 2:</b> (to be) an act of distinguishing; to distinguish (= process of careful selection from among various alternatives)
<b>CTE</b>	(to be) the state of being compared/contrasted	
<b>CSV</b>	(to be) the physical act/process of comparison/contrasting (i.e., step(s) taken to conduct the comparison)	
<b>OBJ</b>	(to be) the object/entity compared or contrasted with something else, that which is (being) compared	<b>STEM 3:</b> (to be) an act of “weighing”/pondering of a choice; conduct a pro-vs.-con analysis

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-ZDR-    ‘MEASUREMENT / DISCERNMENT / COLLATION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/process of measuring; to measure [i.e., to quantify an amount or degree of some attribute of an entity]	<b>STEM 2:</b> (to be) an act/process of discerning; to discern [i.e., to carefully observe a pattern or patterns or sub-phenomenon within an entity or phenomenon]
<b>CTE</b>	(to be) the state of being measured	
<b>CSV</b>	(to be) the physical act/process of measuring	<b>STEM 3:</b> (to be) an act/process of collation; to collate [i.e., determine the relationships between entities]
<b>OBJ</b>	(to be) that which is measured	

<b>-ŠT-    ‘WAIT / AWAIT / EXPECTATION / VIGIL’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state of waiting (for), waiting, a wait; to wait for, to await	<b>STEM 2:</b> (to be) a state of expectation; expect; to be impending
<b>CTE</b>	(to be) the mental/psychological state of a process of waiting; be in a state of waiting	
<b>CSV</b>	(to be) the physical manifestation of a process of waiting; what one does while waiting; to do while waiting	<b>STEM 3:</b> (to be) a state of vigilance, a vigil, a watch; to be vigilant/watchful, to conduct a vigil
<b>OBJ</b>	(to be) that which one awaits, what/whom one is waiting for	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RŠT- ‘PREDICTION / FORESEE / FORECAST’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) state/act of prediction; to predict	<b>STEM 2:</b> (to be) a state/act of foresight; to be something prospective, to be something foreseeable; to foresee
<b>CTE</b>	(to be) a psychological state of a process of prediction; undergo a state of predicting	
<b>CSV</b>	(to be) the physical act of predicting; to make a prediction	<b>STEM 3:</b> (to be) a state/act of prognostication/forecasting; to forecast
<b>OBJ</b>	(to be) what one predicts	

<b>-G- ‘AMBULATION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) and instance of bodily ambulation; to ambulate (= to use one’s body’s natural method of translative motion along a surface, e.g., walk, hop, crawl, swim, slither, etc.)	<b>STEM 2:</b> (to be) an instance of rapid ambulation; to run, gallop, scamper, scurry, etc.
<b>CTE</b>	(to be) the translative/directed movement through spacetime from one point to another as accomplished via ambulation	
<b>CSV</b>	(to be) a single iteration/cycle of the particular pattern of bodily movement(s) used in ambulation; to make/undergo a single iteration of the body’s natural ambulatory cycle	<b>STEM 3:</b> (to be) an instance of unnatural/affected ambulation, e.g., limp, stagger
<b>OBJ</b>	(to be) the surface upon which one ambulates (e.g., the ground, the floor, the firmament, the ramp, the stairs, etc.)	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-GTH- ‘MARCHING / PRANCING / RACING / SWAGGERING / SAUNTERING’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) and instance of marching or prancing; to march or prance (= to ambulate in a deliberately formal and structured way)	<b>STEM 2:</b> (to be) an instance of racing [i.e., competitive speed running]
<b>CTE</b>	(to be) the translative/directed movement through spacetime from one point to another as accomplished via marching or prancing	
<b>CSV</b>	(to be) a single iteration/cycle of the particular pattern of bodily movement(s) used in marching or prancing; to make/undergo a single iteration of the body’s ambulatory cycle while marching or prancing	<b>STEM 3:</b> (to be) an instance of swaggering or sauntering [i.e., affected ambulation in a deliberately exaggerated manner]
<b>OBJ</b>	(to be) the surface upon which one marches or prances (e.g., the ground, the floor, the firmament, the ramp, the stairs, etc.)	

<b>-MZ- ‘REMEMBER / RECALL / MEMORY / MEMORIZATION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a memory; to remember something (= recall something) [whether unwilled/affective or self-willed/voluntary]	<b>STEM 2:</b> (to be) the retention of something past into present; to retain something from the past into the present  <b>STEM 3:</b> (to be) an act of memorization; to memorize, to remember [i.e., commit to memory]
<b>CTE</b>	(to be) the content of a memory or recollection, what is remembered or recalled	
<b>CSV</b>	(to be) the act/process of recalling something; to recall	
<b>OBJ</b>	(to be) the entity/circumstance/event/state which a memory is about	

MORPHOLOGICAL DERIVATIONS: recollect(ion), remind, memorize, memento, monument, archive, commemorate, commemoration, souvenir/keepsake, relic, to bear in mind, ponder/relish a memory, sear into one's memory, visual record / recorded image, camera, movie

**NOTE:** for the meaning of the old FORMAL stems previously associated with the above root, use the following new root:

<b>-MZM- ‘TRACK / TRACE / VESTIGE / MEMORIAL / ARCHIVAL RECORD’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state of there being a track/trace/vestige of something occurring [i.e., a physical indication left behind of a previous state or that something has previously occurred]	<b>STEM 1:</b> (to be) a memorial (i.e., an (object/action formally recognizing or acknowledging something/someone past)  <b>STEM 3:</b> (to be) a state/act of having/making a record of something; to have/make a record of something, to archive
<b>CTE</b>	(to be) the track/trace/vestige itself	
<b>CSV</b>	(to be) the act of leaving a trace/track/vestige behind	
<b>OBJ</b>	(to be) that which the track/trace/vestige indicates has occurred	

<b>-ŃL- ‘SOLVE / FIGURE OUT’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/process of trying to solve a mystery or puzzle, trying to figure out a riddlesome problem; to attempt to solve a mystery/puzzle/dilemma/ riddlesome problem [CPT Version = to solve it, to figure it out ]	<b>STEM 2:</b> (to be) an act of analytical reasoning/logic as applied to attempting to solve a mystery/puzzle/riddlesome problem/dilemma  <b>STEM 3:</b> (to be) an act/state of insight/inspiration as part of one's attempt to solve a puzzle/mystery/riddlesome problem, dilemma
<b>CTE</b>	(to be) a state of mystery, being faced with an unsolved puzzle/mystery/problem/dilemma	
<b>CSV</b>	(to be) the act/process of trying to figure out an explanation/solution; to try to figure something out	
<b>OBJ</b>	(to be) the puzzle/mystery/unsolved issue/dilemma/riddlesome problem itself	

**-LLT- ‘WONDERING’**

<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of wondering about something that is potentially knowable; to wonder about something [i.e., desire to know something that can (presumably/theoretically) be known, e.g., “ <i>I wonder what papaya tastes like</i> ”, “ <i>I wonder if she is religious.</i> ”]	<b>STEM 2:</b> (to be) a state act of wondering about something no longer knowable; to wonder about something [i.e., desire to know something that (presumably/theoretically) can no longer be known, e.g., “ <i>I wonder what cooked dinosaur tasted like</i> ”, “ <i>I wonder what Newton would think of quantum theory.</i> ”]
<b>CTE</b>	(to be in) a state of wondering, i.e., the desire to know something that can (presumably/theoretically) be known	<b>STEM 3:</b> (to be) a state/act of wondering about something not yet knowable [i.e., desire to know something unknowable until some future time, e.g., “ <i>I wonder if I’ll ever be able to walk again</i> ”, “ <i>I wonder if humankind will ever colonize another planet.</i> ”]
<b>CSV</b>	(to be) the act/process of asking oneself (either verbally or in one’s thoughts) something which one desires to know that can (presumably/theoretically) be known; to ask oneself such a question	
<b>OBJ</b>	(to be) what one wonders about	

**-CC- ‘MISTAKE / ERROR / MISCONCEPTION / MISCALCULATION’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being mistaken or in error regarding something; to be wrong about something, to be mistaken or in error about something	<b>Stem 2:</b> (to be) a state/act of misconception; to be under a misconception, to act/do something based upon a misconception
<b>CTE</b>	(to be) a state of erroneousness, a state of being wrong about something	
<b>CSV</b>	(to be) an act of being mistaken or in error; to make a mistake, to be in error	<b>Stem 3:</b> (to be) a state/act of miscalculation or misjudgement; to misjudge or miscalculate something
<b>OBJ</b>	(to be) that which one is mistaken about; that which one makes/has made an error concerning	

**-CT- ‘LOOK OVER / EXAMINE / INSPECT’**

<b>BSC</b>	<b>Stem 1:</b> (to be) an act of looking something over; to give something a lookover (i.e., perform a casual or brief visual/tactile observation of an entity in order to form an initial reaction/appraisal)	<b>Stem 2:</b> (to be) an act of examination; to examine (i.e., to observe/inspect something in order to determine its physical condition and/or character(istics).)
<b>CTE</b>	(to be) the state of being looked over	
<b>CSV</b>	(to be) the physical process of looking over (i.e., the physical act performed which constitutes looking something over)	<b>Stem 3:</b> (to be) an act of inspection; to inspect (i.e., examine something to determine the degree to which it complies with, adheres to, or deviates from some expectation or standard)
<b>OBJ</b>	(to be) that which is looked over	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:



<b>-RCT- ‘OBSERVE / SCRUTINIZE / RECONNAISSANCE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act of observation; to observe (to watch something closely for the purpose of determining what it does/how it behaves/what happens to it, etc.	<b>STEM 2:</b> (to be) an act of scrutiny; to scrutinize  <b>STEM 3:</b> (to be) an act of reconnaissance; to reconnoiter
<b>CTE</b>	(to be) a state of being under observation	
<b>CSV</b>	(to be) the physical act/process of observing; to make/conduct an act/process of observation	
<b>OBJ</b>	(to be) the object/entity being observed	

<b>-GŠ- ‘LOSE / MISPLACE / SQUANDER / DEPRIVATION / FORFEITURE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of something being lost (i.e., misplaced); to lose something (i.e., to misplace), to misplace	<b>STEM 2:</b> (to be) a state/act of losing something/someone; to lose (i.e., to have something taken away or for something to go away and not be accessible or potentially recoverable)  <b>STEM 3:</b> a state/act of squandering or wasting something; to squander, to waste (i.e., to allow something to become lost via neglect or irresponsibility)
<b>CTE</b>	(to be) a state of being lost/misplaced	
<b>CSV</b>	(to be) an act of misplacing/losing something; to do something which causes an entity to be(come) lost/misplaced	
<b>OBJ</b>	(to be) that which is/has been misplaced/lost	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-GŠT- ‘DEPRIVATION / BEREAVEMENT / FORFEITURE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state of deprivation; to be deprived of, to (have to) do without something	<b>STEM 2:</b> (to be) a state/act of bereavement; to be bereft/bereaved  <b>STEM 3:</b> (to be) a state/act of forfeiture; to forfeit
<b>CTE</b>	(to be) a state of there being something that is not available	
<b>CSV</b>	(to be) an act of depriving, to do something which causes one to experience deprivation	
<b>OBJ</b>	(to be) that which one is deprived of, that which one must do without	

<b>-XP- ‘SUBSTITUTION / TRANSPOSITION / REPLACEMENT’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act of substitution (= having one entity take the place of another)	<b>STEM 2:</b> (to be) an act of transposition/ interchange (= switching places)  <b>STEM 3:</b> (to be) an act of supplanting/replacement/change-out (= refresh/renew)
<b>CTE</b>	(to be) the concept being able to continue providing an expected value underlying that underlies an act of substitution	
<b>CSV</b>	(to be) the physical (trans-)action of substitution	
<b>OBJ</b>	(to be) that which is substituted	

<b>-ČV- ‘TRANSPORT STOP / STATION / HARBOR’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a stop on a transport route; to make a stop at (i.e., where one embarks/disembarks from a means of local transport)	<b>STEM 2:</b> (to be) transport station (i.e., centralized one goes to purchase tickets and embark/disembark from a form of local transport)  <b>STEM 3:</b> (to be) harbor, place of anchorage
<b>CTE</b>	(to be) state of embarkation/disembarkation on local transport line	
<b>CSV</b>	(to be) a physical act of embarking/boarding or disembarking/getting out or off of a form of local transport	
<b>OBJ</b>	(to be) a particular stop on a transport route/line	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-RČV- ‘AIRPORT / SEAPORT / TRANSPORTATION TERMINAL OR HUB’</b>
<b>Stem1.</b> (to be) a location served by a commercial sea line or airline
<b>Stem 2.</b> (to be) a transport terminal
<b>Stem 3.</b> (to be) a port (e.g., airport, seaport, heliport, etc.) or transportation hub

<b>-ÇL-      ‘PREPARATION / PRELIMINARY MEASURE / READINESS</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of preparation (for something); to prepare (for something) [i.e., to take steps or measures that make one (more) ready to deal with something] (CPT version = ‘state of readiness; be ready’)	<b>STEM 2:</b> (to be) a state/act of establishing preliminary measures necessary for something else to occur; to perform a preliminary step/task/measure, “lay the groundwork for”, “lay a foundation for”  <b>STEM 3:</b> (to be) a state/act of preparing/readying something, putting something together, assembling, making something ready for use or consumption; to prepare/ready something for use (e.g., food, a tent, wood in a fireplace, a painter’s pallette, a surgeon’s operating room, etc.)
<b>CTE</b>	(to be) state of desire to prepare [CPT verion = preparedness/readiness]	
<b>CSV</b>	(to be) a physical act of preparation; to do something that prepares an entity for something	
<b>OBJ</b>	(to be) what one is preparing for	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-RÇL-      ‘PRECAUTIONARY MEASURE / PRECAUTIONARY TRAINING’</b>	
<b>Stem 1:</b> (to be) a state/act of having precaution; take precautionary measure	
<b>Stem 2:</b> (to be) a state/act of equipping, providing resources for the establishment or carrying out of something; to equip, provide resources/equipment for	
<b>Stem 3:</b> (to be) a state/act of instruction/training in order to be prepared/ready for something; to instruct/train (a party to be able to perform some function or duty or skill in order to be prepared/ready for something)	

<b>-CPH-      ‘PRESERVATION / CONSERVATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of saving/preserving something (from decaying or being damaged through neglect/misuse/mistreatment)	<b>Stem 2:</b> (to be) a state/act of saving/preserving something (from being lost or discarded); to save/preserve something (from being lost or discarded)  <b>Stem 3:</b> (to be) a state/act of preserving/conserving something via a chemical or biological transformation (e.g., freezing, dehydration, pickling, embalming, curing, salting, etc.)
<b>CTE</b>	(to be) a state of being/having been saved/preserved (from decay or damage)	
<b>CSV</b>	(to be) a physical act of preserving/saving something (from decaying or being damaged)	
<b>OBJ</b>	(to be) what is being saved/preserved	

<b>-CPR- ‘RESCUE / EXTRICATION / DELIVERANCE / SALVATION / LIBERATION / EMANCIPATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of saving/rescuing a party/entity; to save/rescue a party/entity, to come to the rescue of a party/entity, to extricate a party/entity from an undesirable situation	<b>Stem 2:</b> (to be) a state/act of deliverance/salvation/redemption (i.e., finding a way to end the conditions which keep a party in a state an undesirable social, psychological, spiritual, or personally harmful state); to save/deliver/redeem  <b>Stem 3:</b> (to be) a state/act of liberation/emancipation (i.e. putting an end to socio-political/economic conditions which have kept a party/entity in a state of being oppressed); to liberate, to emancipate
<b>CTE</b>	(to be) a state of being/having been saved/rescued (from a harmful or undesirable situation)	
<b>CSV</b>	(to be) a physical act of saving/rescuing; to physically save/rescue a party/entity; to save/rescue someone/something from danger/harm	
<b>OBJ</b>	(to be) the party/entity being saved/rescued	

<b>-CX- ‘MANNER / BEHAVIOR’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) the manner in which something/someone acts/operates/manifests itself	<b>STEM 2:</b> (to be) the guise/form taken by a party/entity  <b>STEM 3:</b> (to be) one’s behavior/conduct/comport
<b>CTE</b>	(to be) the inner/intrinsic/inherent motivation/drive/instructions, etc. which control one’s manner	
<b>CSV</b>	(to be) the outward physical manifestation or discernible praxes of one’s manner	
<b>OBJ</b>	(to be) that which has or manifests a particular manner	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RCX- ‘METHOD / PROCEDURE / POLICY / PLAN / STRATEGY’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) the method (i.e., proscribed/conventionalized procedure) by which a party/entity performs/accomplishes something	<b>STEM 2:</b> (to be) the practice/policy used by a party/entity in operating/manifesting itself  <b>STEM 3:</b> (to be) a plan (i.e., a series of inter-dependent procedural steps toward accomplishing something)
<b>CTE</b>	(to be) the state of there being a methodical process	
<b>CSV</b>	(to be) a physical step/act in a method(ical procedure); to implment/engage in a step/act that is part of a method(ical procedure)	
<b>OBJ</b>	(to be) that which a method(ical procedure) is intended to accomplish	

Morphological Derivations: process, procedure, regimen, strategy

<b>-ŘK- ‘ALIENABLE POSSESSION / OWNERSHIP’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act of physical possession; to have/possess (temporary/circumstantial and alienable – e.g., a book in one’s hand)	<b>STEM 2:</b> (to be) an act of possession; have/possess/own; possession, piece of property (alienable but quasi-permanent by law/right/permission and in one’s immediate possession-, e.g., a library book which I’ve checked out)
<b>CTE</b>	(to be) the state of <b>alienable</b> possession; possessing something <b>potentially alienable</b>	
<b>CSV</b>	(to be) the physical means by which a state of <b>alienable</b> possession is manifested, e.g., by holding or carrying, by a verbal or written statement, via containment within one’s pocket, etc.)	<b>STEM 3:</b> (to be) an act of possession; have/possess/own; possession, piece of property (alienable but quasi-permanent by law/right, not in one’s immediate possession -e.g., a book I bought/own but am not currently holding/reading)
<b>OBJ</b>	(to be) the object/entity possessed (temporary/circumstantial and alienable)	

**NOTE:** the old INFORMAL and FORMAL stems previously associated with this root have been newly distributed between the above root and the following new root:

<b>-ŘKW- ‘INALIENABLE POSSESSION / OWNERSHIP’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act of physical possession; to have/possess (circumstantial and affective + (quasi-) inalienable, either permanent or temporary – e.g., a medical condition, an office at work I occupy, a seat at a cinema showing)	<b>STEM 2:</b> (to be) an act of possession/ownership; have/possess/own; possession, piece of property (quasi-permanent and legally inalienable except through formal/legal separation process – e.g., a house I own, a pet dog I registered)
<b>CTE</b>	(to be) the state of inalienable possession; possessing something that is potentially inalienable	
<b>CSV</b>	(to be) the physical means by which a state of inalienable possession is manifested, e.g., by biological/genetic association, by physical connection, by law, etc.)	<b>STEM 3:</b> (to be) an act of physical possession; to have/possess (genetic, intrinsic and inalienable, but not considered property – e.g., a sibling, a child, a limb, a memory)
<b>OBJ</b>	(to be) the object/entity inalienably possessed	

<b>-ŠV- ‘PLAY / RECREATION / RELAXATION</b> Associated affix: <b>DRE</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/instance of play or recreation [both the act and the motivating desire for self-amusement or relaxation]	<b>STEM 2:</b> (to be) an act/instance of a participatory or self-involved leisure/ <b>relaxation</b> activity (activity + psychological motivations behind it), e.g., a dance, a hike, fishing, camping
<b>CTE</b>	(to be) the motivating desire for self-amusement behind an act/instance of play/recreation	
<b>CSV</b>	(to be) the physical act of engaging in play or recreation	<b>STEM 3:</b> (to be/manifest) the practice of a hobby or pastime (activity + psychological motivations behind it))
<b>OBJ</b>	(to be) particular activity/form of play in which one engages (e.g., a game, contest, puzzle, prank, etc.)	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-NZV- ‘PLAY FORMAL GAME / SPORTING ACTIVITY’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/instance of playing a formal rule-oriented recreational activity, e.g., a board game, a sport, etc. (activity + feeling of amusement/enjoyment derived)	<b>STEM 2:</b> (to be) an act/instance of engaging in an individual (non-team) sporting activity (activity + feeling of competitive spirit) for motive of formal competition, e.g., an individual race, an individual track-and-field event, skiing, competitive shooting, etc.  <b>STEM 3:</b> (to be) a team-oriented sporting activity normally involving equipment (e.g., a court, a playing field, a ball, goal area, projectile playing piece, horse, racket, clubs, etc.)
<b>CTE</b>	(to be) the motivating desire for self-amusement behind an act/instance of playing a formal rule-oriented activity, board game, sport, etc.	
<b>CSV</b>	(to be) the physical act of engaging in a formal rule-oriented recreational activity	
<b>OBJ</b>	(to be) particular activity/form of play in which one engages (e.g., a board game, individual sport, etc.)	

To name a particular sport, incorporate an appropriate stem into one of the above stems.

<b>-ŽV- ‘GOOD / BENEFICIAL / ADVANTAGEOUS’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) something good ( = materially beneficial to the context at hand) [both the act/event/situation and its beneficent quality]	<b>STEM 2:</b> (to be) something good [ = morally right; beneficial in a metaphysical sense]  <b>STEM 3:</b> (to be) something good [ = advantageous or effective]
<b>CTE</b>	(to be) the essential state/quality of material goodness/beneficence manifested in a particular act/state/event/situation/entity, etc.	
<b>CSV</b>	(to be) a particular act/state/event/situation/entity, etc. identified as being good; to do something materially/tangibly good/beneficial	
<b>OBJ</b>	(to be) the particular element(s) (e.g., word(s), action(s), emanation(s), appearance, product, presence of something, lack of something, etc.) which makes something describable/identifiable as being materially/tangibly “good/beneficial”	

<b>-TM- ‘POWER / EFFORT / OPERATION / FUNCTIONING’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an instance/act of energy expenditure in a particular form; to manifest a display/use of energy in a particular form/manner; exert energy in a particular form/manner	<b>STEM 2:</b> (to be) an instance/manifestation of action or effort; to act, to perform, to do, make an effort (i.e., energy expenditure focused on a specific task)  <b>STEM 3:</b> (to be) an act/state of an entity operating or functioning or “working” (i.e., the proper or expected functioning of a device or machine or process as in “ <i>Does the washing machine work?</i> ”); to operate, to function
<b>CTE</b>	(to be) the process of energy being expended (i.e., conversion of source fuel into power)	
<b>CSV</b>	(to be) a physical manifestation of energy expenditure (i.e., what action(s) an entity actually does that requires energy to do)	
<b>OBJ</b>	(to be) that to/for which energy is being used/exerted	

**NOTE:** the old INFORMAL and FORMAL stems previously associated with this root have been newly distributed between the above root and the following new root:

<b>-RTM- ‘WORK / LABOR / JOB’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an instance of work/labor; to work, to labor (i.e., organized/planned effort over time associated with a commercial or community endeavor)	<b>STEM 2:</b> (to be) an act of producing a tangible product via labor/effort  <b>STEM 3:</b> (to be) a job task; employment-related task; do one’s job
<b>CTE</b>	(to be) the process of energy/effort expended via labor	
<b>CSV</b>	(to be) a physical manifestation of labor/working; to physically do work/labor; to labor	
<b>OBJ</b>	(to be) that which one works on or attempts to accomplish/build/make/change via one’s labor	

<b>-TV- ‘APPEAR / MANIFEST / SHOW / EXHIBIT / DISPLAY’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an appearance/manifestation/showing of something; to appear, manifest, show something (= be/make something observable to the senses of others; manifestation, appearance)	<b>STEM 2:</b> (to be) an act/state of exhibiting or displaying something; to exhibit something, to display something  <b>STEM 3:</b> (to be) an act/state of showing off or flaunting something; to show off something, to flaunt something
<b>CTE</b>	(to be) the state of appearing/manifesting/showing; being observable	
<b>CSV</b>	(to be) the method/manner of making something appear/manifest/show	
<b>OBJ</b>	(to be) that which appears/manifests or is shown	

Derivations: demonstrate, flourish, spectacle, parade, promenade, procession, ostentation, gaudy, garish, pomp, pompous

**NOTE:** the old INFORMAL and FORMAL stems previously associated with this root have been newly distributed between the above root and the following new root:

<b>-RTV- ‘SUMMONING OF ATTENTION / EXPOSURE / ANNOUNCING / ADVERTISING’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an instance of bringing/calling attention to something; to bring/call attention to something (= make others aware of the presence/appearance of something)	<b>STEM 2:</b> (to be) an instance/act of exposing something; to expose something  <b>STEM 3:</b> (to be) an act/instance of announcing/advertising something; to announce or advertise something
<b>CTE</b>	(to be) a state of attention on something	
<b>CSV</b>	(to be) the physical act/process of summoning other’s attention to something; to summon the attention of	
<b>OBJ</b>	(to be) what one draws others’ attention to	

<b>-TP- ‘FACULTY / ATTRIBUTE / QUALITY / TRAIT / PROPERTY / CHARACTERISTIC / FEATURE / ATTRIBUTE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of having a particular faculty/capacity/ability; to have a particular faculty/capacity for something or ability to do something	<b>Stem 2:</b> (to be) a state/act of having a particular quality, trait, or property (i.e., an inherent and necessary characteristic that is intrinsic to one’s identity), e.g., mass, spherical shape, being alive, being toxic to certain life-forms, being gelatinous, being a vertebrate, etc.)  <b>Stem 3:</b> (to be) a state/act of having a particular superficial <a href="#">feature, attribute, or</a> characteristic (out of multiple possibilities, e.g., blue-eyed, having freckles, being fat, having stripes, etc.)
<b>CTE</b>	(to be) a faculty as an existential state	
<b>CSV</b>	(to be) a physical act that demonstrates/manifests a particular faculty	
<b>OBJ</b>	(to be) the particular faculty/ability itself	

<b>-ÇD- ‘IMPRESSION / APPEARANCE / “LOOK” / SEMBLANCE / ASPECT / GUISE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an impression; to give off an impression (i.e., to incite a ` reaction or belief in another based upon one’s appearance/behavior/words/actions, etc., whether intentionally or not)	<b>STEM 2:</b> (to be) the appearance or “look” or semblance or aspect of an entity [i.e., the outward subjective impression upon on observer given off by one’s visual dress, physique, manner]; to appear, to look [= have the appearance/look/semblance/aspect of]  <b>STEM 3:</b> (to be) the guise of an entity; to be in the guise of, have the guise of
<b>CTE</b>	(to be) an impression experienced/received by observing/noticing something; to receive/experience and impression given off by some entity/party	
<b>CSV</b>	(to be) an act/state of giving off/creating an impression to another	
<b>OBJ</b>	(to be) the entity/person/party who gives off an impression or whom one has an impression about	

<b>-GT- OVERSIGHT / RESPONSIBILITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act/process of oversight of something/someone; to oversee something/someone (i.e., be aware and mindful of how something or someone functions/behaves/transpires)	<b>Stem 2:</b> (to be) a state/act of being responsible for something/someone; to look after, to be responsible for (i.e., oversight which carries negative consequences if not performed adequately)  <b>Stem 3:</b> (to be) an act of oversight/governance taken in order to maintain one’s responsibility for
<b>CTE</b>	<a href="#">(to be) a state of there being oversight</a>	
<b>CSV</b>	(to be) a rule/procedure/custom/praxis associated with the process of overseeing; to carry out a rule/procedure/custom/praxis associated with oversight	
<b>OBJ</b>	(to be) a party who is subject to oversight	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:



<b>-GTR- ‘SUPERVISION / REGULATION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act/process of being in charge of something; to be in charge, to take charge of something/someone	<b>STEM 2:</b> (to be) a state/act/process of supervision; to supervise, have supervisory responsibility for something/someone  <b>STEM 3:</b> (to be) a state/act/process of regulation; to regulate something (i.e., exercise the authority to make rules for the oversight/functioning of something)
<b>CTE</b>	(to be) a state of there being someone in charge	
<b>CSV</b>	(to be) a rule/procedure/custom/praxis associated with being in charge; to do/perform an act which demonstrates one being in charge	
<b>OBJ</b>	(to be) what one is in charge of	

<b>-MČ- ‘POWER / EFFICACY / POTENCY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of power (i.e., puissant force derived from energy utilization/expenditure); to (em)power, to energize, galvanize	<b>Stem 2:</b> (to be) a state/act of efficacy; be efficacious, be effectual (i.e., ability/capacity to get things done effectively)  <b>Stem 3:</b> (to be) state/act of potency; be/make potent/powerful
<b>CTE</b>	(to be) a state of having physical power/puissance/might/strength; be powerful/puissant/mighty (in terms of strength/degree of forceful utilization of energy)	
<b>CSV</b>	(to be) an act of physical power; to act in a manner demonstrating/manifesting physical power	
<b>OBJ</b>	(to be) that which is (em)powered	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RMC- ‘FORCE / EFFECTIVENESS / PRODUCTIVITY’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of force; use force, act forcefully/with force (i.e., delineated/directed application/utilization of energy)	<b>STEM 2:</b> (to be) a state of effectiveness; be/make effective  <b>STEM 3:</b> (to be) a state/act of productivity; be/make productive
<b>CTE</b>	(to be) a state of being under force, subjected to force	
<b>CSV</b>	(to be) an act of using/applying force; to use/apply force	
<b>OBJ</b>	(to be) the force one uses/applies	

<b>-KSM- GEOPOLITICAL COUNTRY/LAND/ TERRITORY/REGION</b>	
<b>BSC</b>	<b>Stem 1:</b> (to be) a geopolitical country/land/territory, i.e., the tangible area of land, bodies of water, and airspace subject to control/rule by a governmental entity, often associated or (quasi-)contiguous with a specific ethno-cultural society of people.
<b>CTE</b>	(to be) the state of being a geopolitical country/land/territory
<b>CSV</b>	(to be) the particular location and/or geographic/terrestrial features/terrain associated with a geopolitical country/land/territory
<b>OBJ</b>	(to be) a particular (i.e., named) geopolitical country/land/territory
<b>Stem 2:</b> (to be) a state or province or subdivision of Stem 1, subject to some degree of regional autonomous governmental administration  <b>Stem 3:</b> (to be) a geopolitical or cultural region delineated by a distinct culture, ethnicity, language, history, etc. which does not necessarily align with or have its own separate sovereignty or quasi-autonomous governmental administration.	

<b>-RC- COINCIDENCE / SIMULTANEITY</b>	
<b>(NOTE:</b> The stems of this root, given that they imply a second, associated, or corollary event/act/state, are generally used with an accompanying clause marked by the COMPARATIVE case-frame)	
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/instance of coinciding, a coincidence; to coincide [not necessarily simultaneous but auspiciously timed in relation to another event]
<b>CTE</b>	(to be) a state of coincidence
<b>CSV</b>	(to be) an act which constitutes a coincidence; to do something that creates/constitutes a coincidence (with something else)
<b>OBJ</b>	(to be) the other “half” of a coincidence, the other coinciding event/entity or circumstance
<b>Stem 2:</b> (to be) a state/instance of simultaneity; to occur simultaneously without knowledge/awareness of the other state/event occurring at the same time  <b>Stem 3:</b> (to be) a state/instance of synchronicity (i.e., a coincidence so unlikely but nevertheless having significant personal impact on a situation, that one can only marvel and/or be suspicious of its occurrence)	

<b>-ZK- ‘STRANGENESS / ODDITY / WEIRDNESS’</b>	
<b>BSC</b>	<b>Stem 1:</b> (to be) something strange/odd/weird [i.e., having the effect of being unfamiliar, unknown, not previously expected or encountered, and which defies immediate explanation and inspires curiosity]
<b>CTE</b>	(to be) strange/odd/weird as a characteristic
<b>CSV</b>	(to be) a particular behavior or physical aspect which characterizes something or someone as strange/odd/weird
<b>OBJ</b>	(to be) the sense/feeling that something is strange/odd/weird
<b>Stem 2:</b> (to be) something strange/odd/weird/disconcerting [i.e., unfamiliar and inexplicable with the effect of inspiring caution, trepidation, apprehension due to being seen as a potential threat]  <b>Stem 3:</b> (to be) something scary/creepy/frightening [i.e., unfamiliar and inexplicable with the effect of inspiring fear at a perceived threat]	

<b>-SX- ‘COMPLAINT / GRIEVANCE</b>		
<b>BSC</b>	Stem 1: (be) a act/instance of complaining, (be) a complaint; to complain, to make a complaint	Stem 2: (be) a grievance (requiring compensation/accommodation/recompense), i.e., a formal or legalistic complaint
<b>CTE</b>	(be) the content of a complaint, i.e., what one is complaining about	
<b>CSV</b>	(be) the physical act (verbal, written, processual, etc.) of making a complaint (irrespective of the content of the complaint	Stem 3: (be) a criminal complaint (i.e., a charge/allegation of a criminal offense perpetrated against a party, requiring justice)
<b>OBJ</b>	(be) the party to whom one complains; the party from whom relief/resolution of the complaint is requested	

<b>-ÇPL- ‘SECRETION / RESIN / SAP</b>		
<b>BSC</b>	Stem 1: (be) a act/instance of a bodily secretion	Stem 2: (be) an act/instance of sap secretion from a tree or sap-producing plant
<b>CTE</b>	(be (in)) the state of having secreted	
<b>CSV</b>	(be) the physical process of secreting	Stem 3: (be) an act/instance of secretion of a resin
<b>OBJ</b>	(be) an amount of a secreted substance	

<b>-PP- ‘PICK UP / TAKE (IN) / AMASSING / ACQUISITION / PROCUREMENT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/instance of taking or picking something up for the purpose of (temporarily/circumstantially) keeping/guarding/using it or conveying it elsewhere; to pick something up, take something (in), to obtain something	<b>Stem 2:</b> (to be) an act/process of amassing/piling up, adding to, growing in number/amount; to amass, to pile up, to add to, to grow in number/amount  <b>Stem 3:</b> (to be) an act/instance of procurement or acquiring; to procure/acquire something
<b>CTE</b>	(to be) a state of (temporary/circumstantial) possession as a result of being picked up or taken in	
<b>CSV</b>	(to be) a physical act of picking up or taking in; to pick up, to take in	
<b>OBJ</b>	(to be) that which is picked up or taken (in) or obtained	

**NOTE:** the old INFORMAL and FORMAL stems previously associated with this root have been newly distributed between the above root and the following new root:

<b>-RPP- ‘GATHERING / COLLECTION / ACCUMULATION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an instance of gathering something (up/in) [i.e., bringing separate entities together to form a grouping thereof]	<b>STEM 2:</b> (to be) an act/process of collection; to collect  <b>STEM 3:</b> (to be) an act/process of accumulation/accretion
<b>CTE</b>	(to be) an act/instance of taking (temporary) possession, oversight or guardianship of something/someone	
<b>CSV</b>	(to be) a physical act of gathering (up/in); to gather (up/in)	
<b>OBJ</b>	(to be) that which is gathered (up/in)	

<b>-LPP- ‘ACCRUAL / SAVING UP / HOARDING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act/process of accrual of something; to accrue something [i.e., a periodic or constant obtaining and holding onto (a supply of) something so that its amount/number continues to increase]	<b>Stem 2:</b> (to be) a state/act/process of saving money or other financial/monetary resources; to accrue (monetary) savings, to save up  <b>Stem 3:</b> (to be) a state/act/process of hoarding; to hoard [i.e., obsessive and excessive accrual without a rational basis]
<b>CTE</b>	(to be) a state of there being something that has (been) accrued	
<b>CSV</b>	(to be) a physical act of accruing; to take action to accrue something	
<b>OBJ</b>	(to be) what one accrues	

<b>-LÇM- ‘SIGNATURE / PERSONAL AUTHORIZATION / PERSONAL AUTHENTICATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of personally authorization or authentication via signature; to personally authorize something by signing one’s written signature	<b>Stem 2:</b> (to be) a state/act personal authorization by means other than signature, e.g., sworn oath, voice command, thumbprint, retinal scan, etc.  <b>Stem 3:</b> (to be) a state/act of personal authentication (i.e., a process to ensure one’s identity), e.g., signature, fingerprints, voiceprint, DNA test, retinal scan, visual identification by others, etc.
<b>CTE</b>	(to be) a state of personal authorization or authentication via signature	
<b>CSV</b>	(to be) a physical act of signing one’s written signature; to sign one’s written signature	
<b>OBJ</b>	(to be) what one signs (e.g., a contract, a personal check, a document, etc.)	

<b>-ŇF- ‘PROBLEM / MYSTERY’</b>		
<b>BSC</b>	Stem 1: (to be) a problem/issue causing inconvenience/impediment; have an issue/problem with	Stem 2: (to be) a mystery or puzzling situation with no readily apparent explanation/solution
<b>CTE</b>	(to be) the issue/problem requiring resolution caused/created by an entity/party or situation	
<b>CSV</b>	(to be) the entity/party or situation itself which has caused/created an issue/problem	Stem 3: (to be) something irksome, i.e., an entity or situation that causes annoyance and gives rise to the need/desire to resolve/eliminate the annoyance
<b>OBJ</b>	(to be) the entity/party affected by or experiencing /perceiving the issue/problem caused/created by another entity/party/situation	

The following root has the same Specification pattern as the above root:

<b>-ŇFL- ‘TROUBLE / MISFORTUNE / DISASTER / CALAMITY’</b>	
<b>Stem 1:</b> (to be) a state of being in trouble (i.e., a situation which places/has placed a party in adverse circumstances, e.g., physical danger, legal difficulties, under threat of losing one’s livelihood/possessions/reputation/loved ones, etc.); to be in trouble, to be threatened by adverse circumstances, to be facing an adverse situation	
<b>Stem 2:</b> (to be) a state of suffering misfortune; to suffer from misfortune, to be in unfortunate circumstances	
<b>Stem 3:</b> (to be) a state of suffering disastrous/calamitous circumstances; to be facing a disaster/calamity, to suffer a disaster/calamity	

<b>-ŠY- ‘RAISE / FOSTER / NURTURE / CULTIVATE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act of raising/fostering/being guardian to someone; to raise, foster, function as guardian over	<b>Stem 2:</b> (to be) an act of nurturing; to nurture (i.e., provide an environment and resources for an entity’s growth and well-being)
<b>CTE</b>	(to be) the state of being fostered/raised by someone	
<b>CSV</b>	(to be) a physical act of raising/fostering	<b>Stem 3:</b> (to be) an act of cultivation; to cultivate, to garden
<b>OBJ</b>	(to be) the person/entity raised/fostered	

<b>-ÇTR- ‘PUZZLE / RIDDLE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a puzzle (i.e., a recreational game/activity requiring one to resolve/figure out/piece together a solution)	<b>Stem 2:</b> (to be) a riddle (i.e., a word-based recreational puzzle usually designed to be witty on its initial face)
<b>CTE</b>	(to be) the specific content/nature of a puzzle	
<b>CSV</b>	(to be) the form/type/structure of a puzzle	<b>Stem 3:</b> (to be) charade (i.e., a recreational puzzle acted out in real-time)
<b>OBJ</b>	(to be) the party who undertakes to solve a puzzle	

Derivation: ‘maze’ = Stem 1 above plus the Type-2 incorporated stem for ‘pathway/trail’

<b>-RBR-    ‘DEFINITION / EXPLANATION / EXPOSITION / ELUCIDATION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/instance of defining something; to define (i.e., a formal explanation of the meaning of an entity]	<b>STEM 2:</b> (to be) an act/instance of explaining something; to explain something  <b>STEM 3:</b> (to be) an act/instance of expounding upon or elucidating something; to expound, elucidate
<b>CTE</b>	(to be) the definition of something, how something is defined	
<b>CSV</b>	(to be) an act of conveying/communicating/indicating a definition; to express/convey a definition	
<b>OBJ</b>	(to be) that which has a definition	

<b>-ZJ-    ‘CONCEALMENT / SECRECY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of concealing/hiding something, act of concealment; to conceal, to hide something [i.e., by being placed somewhere so as not to be found/discovered/encountered/accessible]	<b>Stem 2:</b> (to be) a state/act of concealing/hiding/masking something; act of concealment; to conceal/hide/mask [i.e., by masking, covering up, disguising, enclosing so as not to be directly observed, etc.]  <b>Stem 3:</b> (to be) a state/act of secrecy; to keep something secret [OBJ Specification = ‘a secret’]
<b>CTE</b>	(to be) a state of concealment/being hidden	
<b>CSV</b>	(to be) a physical act of concealing/hiding; to do something to conceal/hide an entity	
<b>OBJ</b>	(to be) what is (to be) concealed	

<b>-FH-    ‘FIND / DISCOVER / ENCOUNTER / MEET’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of finding/discovering something (by chance)	<b>Stem 2:</b> (to be) a state/act of encountering, coming upon/across something; to encounter or come across/upon something/someone (by chance)  <b>Stem 3:</b> (to be) a state/act of meeting someone (i.e., mutual encounter by chance)
<b>CTE</b>	(to be) a state of discovery (i.e., the state one is in upon having discovered something.	
<b>CSV</b>	(to be) a physical act of finding/discovering something by chance	
<b>OBJ</b>	(to be) that which is found/discovered by chance	

NOTE: For a find/discovery made through a directed process of inquiry/investigation, see the root **-ND-**.

<b>-ML- ‘OBSCURITY / AMBIGUITY / STEALTH / SURRPETITIOUSNESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of obscuring; render something obscure or unclear [i.e., so that it is not clear or easily discernible as to what it is exactly]	<b>Stem 2:</b> (to be) a state/act of ambiguity; to render something ambiguous, to obfuscate  <b>Stem 3:</b> (to be) a state/act of stealth/surreptitiousness; to act stealthily/surreptitiously, be stealthful/surreptitious (i.e., so as to render something difficult to observe or notice)
<b>CTE</b>	(to be) a state of obscurity/being obscure	
<b>CSV</b>	(to be) a physical act of obscuring; to do something that makes an entity obscure or unclear	
<b>OBJ</b>	(to be) what is (made) obscure/unclear	

<b>-ZŘ- ‘SLOT / GROOVE / FURROW’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a linear indentation/groove/channel; to make a linear indentation/groove/channel	<b>Stem 2:</b> (to be) a slot; to make a slot (i.e., a linear opening into which something can be placed/fitted; does NOT mean ‘slot’ in a classificatory/schematic sense as in “ <i>Can we be slotted in between those appointments?</i> ” or “ <i>The morpho-phonology of the Ithkuil formative has a slot structure.</i> ”)
<b>CTE</b>	(to be) the state of being grooved, having a linear indentation/channel/groove	
<b>CSV</b>	(to be) a physical act of making/fashioning a linear indentation/groove/channel	
<b>OBJ</b>	(to be) an implement for use with or placement into a linear indentation/groove/channel	<b>Stem 3:</b> (to be) a furrow

<b>-GN- ‘SOURCE / ORIGIN / BEGINNING / INITIATION / CAUSE’</b>		
(NOTE: This root refers to origination, first-time occurrence, first-time causation; for ‘beginning/initiation’ meaning ‘activate, start/initiate from a stopped/dormant state, or the commencement of a common/recurring/pre-arranged activity, see the root -TL-.		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of origination; to come into being, to get one’s start, to originate	<b>Stem 2:</b> (to be) a state/act of beginning, initiating, starting; to begin, to start, to initiate  <b>Stem 3:</b> (to be) a state/act of causation; to cause (i.e., primary/direct, not secondary or enabling cause)
<b>CTE</b>	(to be) a state of being the source or point of origin	
<b>CSV</b>	(to be) a physical act of originating; to originate [i.e., come into existence or be formed at a particular place and time]	
<b>OBJ</b>	(to be) a source, place and/or point in time where/when something originates	

<b>-NTR- ‘USEFULNESS / SERVICE / ASSISTIVENESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being potentially useful or an act of usefulness to one; to be useful to one, to be of use to one, be utilitative [i.e., utilizing an entity that helps one to do something]	<b>Stem 2:</b> (to be) a state of potentially serving a function/purpose to one; to be of potential service, to potentially serve a function, be serviceable [i.e., available to perform a function/operation/act which is helpful/assistive/useful to another]  <b>Stem 3:</b> (to be) a state/act of being of potential assistance/assistiveness to one or in a situation (e.g., an assistive device, an assistive hand-railing, an assistive feature in an automobile, etc.)
<b>CTE</b>	(to be) a state of usefulness	
<b>CSV</b>	(to be) a physical act of using something that is useful	
<b>OBJ</b>	(to be) that which is useful	

<b>-RÇ- ‘AESTHETIC APPEAL / PRETTINESS / LOVELINESS / BEAUTY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of perceiving/experiencing something aesthetically appealing; to perceive/experience something aesthetically appealing; to like something aesthetically-speaking	<b>Stem 2:</b> (to be) a state/act of perceiving/experiencing something pretty/fair/lovely; to perceive/experience something pretty/fair/lovely  <b>Stem 3:</b> (to be) a state/act of perceiving/experiencing something beautiful; to perceive/experience something beautiful
<b>CTE</b>	(to be) a state of aesthetic appeal, a state of something being aesthetically appealing	
<b>CSV</b>	(to be) an act of perceiving/contemplating/experiencing something aesthetically appealing; to like something aesthetically-speaking	
<b>OBJ</b>	(to be) something aesthetically appealing	

<b>-LN- ‘VALUE / EXPEDIENCE / SUITABILITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of something being potentially worthwhile or of worth/value, something worth pursuing / to be something potentially worthwhile; to pursue something potentially worthwhile or of worth/value	<b>Stem 2:</b> (to be) a state of something being expedient or opportune; to be/do something expedient or opportune  <b>Stem 3:</b> (to be) a state of something being fitting, apropos or suitable; to be/do something fitting, apropos or suitable
<b>CTE</b>	(to be) a state of having value/being worthwhile	
<b>CSV</b>	(to be) a physical act of doing/pursuing something worthwhile/of value	
<b>OBJ</b>	(to be) something worthwhile; (be) something of value	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:



<b>-RĻN- ‘ADVANTAGE / OPPORTUNITY / CONVENIENCE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state of something being advantageous/favorable; to be advantageous, be to one’s advantage, to be in favorable or advantageous circumstances	<b>STEM 2:</b> (to be) a state of something being an opportunity / a chance to experience or do something normally unavailable; to pursue an opportunity, take advantage of an opportunity
<b>CTE</b>	(to be) a state of being advantageous/favorable	
<b>CSV</b>	(to be) a physical act of pursuing an advantage; to pursue an advantage	<b>STEM 3:</b> (to be) a state of something being a convenience / something convenient; to be convenient / do something convenient
<b>OBJ</b>	(to be) something advantageous/favorable	

<b>-MÇ- ‘WELL-FORMEDNESS / AESTHETIC APPEAL / STYLISHNESS / PERFECTION / SPLENDOR’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being well-formed/shapely/well-proportioned; to be/make well-formed/shapely/well-proportioned	<b>Stem 2:</b> (to be) a state of something being aesthetically/sensually pleasing or satisfying (e.g., a fine meal, a glass of wine, a thrill ride, a sexual experience, etc.); to experience a sense of aesthetic/sensual satisfaction/pleasure from something
<b>CTE</b>	(to be) a state of shapeliness/well-formedness	
<b>CSV</b>	(to be) an act of making something well-formed/shapely/well-proportioned	<b>Stem 3:</b> (to be) a state of something being stylish/decorative/ornamental/fine (as in a “finely”-made, “finely”-crafted); to be/make something stylish/decorative, etc.
<b>OBJ</b>	(to be) that which is shapely/well-formed/well-proportioned	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-MÇK- ‘PERFECTION / OPTIMALITY / EXQUISITENESS / SUBLIMITY / SPLENDIDNESS’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state of something being perfect/optimal; be/make perfect/optimal (i.e., cannot possibly be better)	<b>STEM 2:</b> (to be) a state of something being exquisite/superb/sublime; to be/make something exquisite/superb/sublime
<b>CTE</b>	(to be) a state of perfection/optimality	
<b>CSV</b>	(to be) an act of making something perfect/optimal; to perfect, to optimize	<b>STEM 3:</b> (to be) a state of something being ornate/splendid; be/make something ornate/splendid
<b>OBJ</b>	(to be) that which is perfect/optimal	

<b>-ŽD- ‘SUPERNATURAL OR SPIRITUAL ENTITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being something supernatural (whether substance/presence/entity/being/ability, etc.)	<b>Stem 2:</b> (to be) a state/act of being a ghost or spirit from the afterlife or beyond death (e.g., ghost, spirit, zombie, etc.)  <b>Stem 3:</b> (to be) a state/act of being an entity associated with supernatural, magical, spiritual, or a heavenly/infernal realm (e.g., angel, demon, devil, leprechaun, banshee, etc.)
<b>CTE</b>	(to be) a state of having supernatural ability or essence	
<b>CSV</b>	(to be) an act/state created or performed by supernatural means or by a supernatural entity	
<b>OBJ</b>	(to be) a supernatural entity/being/presence	

Note: for ‘god/deity’ see Stem 3 of -BS- ‘RELIGIOUS BELIEF / RELIGION / RELIGIOUS WORSHIP’

<b>-ŘŘ- ‘INTENSIFICATION / AGGRAVATION / WORSENING / HEIGHTENING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of intensifying “heightening”; to intensify/“heighten” (i.e., make the effect of something stronger or more effective/impactful)	<b>Stem 2:</b> (to be) a state/act ameliorating/bettering; to ameliorate/better (i.e., cause a situation or the condition/state of something to improve or become more desirable/optimal)  <b>Stem 3:</b> (to be) a state/act of aggravation/worsening; to aggravate/worsen
<b>CTE</b>	(to be) a state of intensification	
<b>CSV</b>	(to be) an act of intensifying; to do something that causes intensification	
<b>OBJ</b>	(to be) that which is intensified	

<b>-TJ- ‘EMPHASIS / HIGHLIGHT / UNDERSCORE / IMPRESS UPON / RAVE ABOUT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of highlighting/bringing attention to; to highlight, to bring attention to, to focus upon	<b>Stem 2:</b> (to be) a state/act of emphasizing/underscoring/impressing upon others about; to emphasize, underscore, to impress upon others about (i.e., to make another particularly aware or focused on something/someone)  <b>Stem 3:</b> (to be) a state/act of going on about/raving about, not being able to say enough about; to go on about, rave about, can’t say enough about, sing the praises of
<b>CTE</b>	(to be) a state of being highlighted, having attention upon oneself	
<b>CSV</b>	(to be) an act of highlighting/bringing attention to; to do something that highlights or brings attention to an entity/party	
<b>OBJ</b>	(to be) the party/entity/object highlighted	

<b>-VŠ- ‘SUBTLETY / SLYNESS / SHREWDNESS / GUILLE / CRAFTINESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of subtlety; be/act subtle(ly)	<b>Stem 2:</b> (to be) a state/act of slyness/shrewdness/cunning/artfulness; be/act sly(ly); shrewd(ly)/cunning(ly)/artful(ly) (i.e., accomplish one’s aims in a subtle/covert manner with the intention that others not realize/see/know exactly what one has done or how one has done it)
<b>CTE</b>	(to be) a state of subtlety	
<b>CSV</b>	(to be) an act of subtlety; to do something subtle(ly)	
<b>OBJ</b>	(to be) that which is subtle	<b>Stem 3:</b> (to be) state/act of guile/craftiness/scheming/underhandedness/sneakiness; to act with guile, be crafty/scheming/underhanded, act in a crafty/scheming/underhanded manner (i.e., same as Stem 2 above but with the additional connotation that one’s aims/goals are nefarious)

<b>-LČ- ‘GUESS / SPECULATION / SUPPOSITION / ASSUMPTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of guessing, state/act of speculation; to guess, to speculate, to venture to say (i.e., conclusion reached in the absence of sufficient evidence)	<b>Stem 2:</b> (to be) a state/act of supposition; to suppose (i.e., to consider as a possibility or possible interpretation)  <b>Stem 3:</b> (to be) a state/act of assuming/presuming (i.e., believing one’s interpretation or supposition to be correct in the absence of confirmatory evidence)
<b>CTE</b>	(to be) a state of speculation; ponder a situation as to how it might/should be interpreted or what conclusion one should come to about it	
<b>CSV</b>	(to be) an act of speculating, guessing; to make a guess	
<b>OBJ</b>	(to be) what on is guessing/speculating about	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-LČW- ‘CONJECTURE / POSTULATING / THEORY / HYPOTHESIS’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of postulating/making a conjecture; to postulate, make a conjecture	<b>STEM 2:</b> (to be) a state/act of theorizing; to theorize, create a theorem  <b>STEM 3:</b> (to be) a state/act of hypothesizing; to hypothesize
<b>CTE</b>	(to be) a state of postulating or formulating a conjecture	
<b>CSV</b>	(to be) an act of postulating/conjecturing; to make a conjecture; to make a postulate	
<b>OBJ</b>	(to be) a conjecture, a postulate, what one postulates/conjectures	

<b>-ŠH- ‘IMPORTANCE / SIGNIFICANCE / PREVALENCE / CONSPICUOUSNESS / PROMINENCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of importance/significance; to be/make important or significant	<b>Stem 2:</b> (to be) a state/act of prevailing/prevalance; to prevail upon, to make prevalent  <b>Stem 3:</b> (to be) salience; to be/make salient/prominent/conspicuous/(pre-)eminent
<b>CTE</b>	(to be) a state of importance/significance	
<b>CSV</b>	(to be) an act of importance/significance; to do something important/significant	
<b>OBJ</b>	(to be) that which is important/significant	

<b>-ŇČ- ‘INFLUENCE / PERSUASION / PREDOMINANCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of influencing/influence; to be influential, to influence	<b>Stem 2:</b> (to be) a state/act of persuasion; to persuade, sway, cajole, talk someone into, convince  <b>Stem 3:</b> (to be) a state of being preponderant/predominant, being a preponderance; to have/carry weight/predominance, to hold sway, to be/constitute a preponderance of evidence in favor of
<b>CTE</b>	(to be) a state of influence/being influential	
<b>CSV</b>	(to be) an act of influence; to do/say something that influences, do something influential	
<b>OBJ</b>	(to be) an influence	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RŇČ- ‘INCITING / INSTIGATION / ENCOURAGEMENT / ADVOCACY’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of stimulation/rousing/inciting/instigating; to stimulate/rouse/incite/instigate	<b>STEM 2:</b> (to be) a state/act of encouragement; to encourage  <b>STEM 3:</b> (to be) a state/act of advocacy; to advocate for
<b>CTE</b>	(to be) a state of being stimulated/roused/incited	
<b>CSV</b>	(to be) an act of stimulating/instigating/inciting; to do something that incites/stimulates/instigates	
<b>OBJ</b>	(to be) that which a party/entity is stimulated/incited to be/do	

<b>-JR- ‘RIDE / DRIVE / TRANSPORT / PASSENGER’</b>		
<b>[NOTE:</b> This root focuses on operation/conveyance/carrying of an entity on a mode of transportation, NOT on the physical passage/trajectory through spacetime; for this latter notion, use an appropriate root/stem from Sec. 9.1.		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of riding/drive; to ride/drive (i.e., to operate/control a mechanical device, machine, or animal as a means of conveyance/transportation, e.g., a bike, a horse, an automobile) [NOTE: this stem does not mean ‘ride’ where one is simply being conveyed without being the controller/operator, e.g., ride a bus]	<b>Stem 2:</b> (to be) a state/act of being a passenger conveyed/transported somewhere, riding; to ride (on) something (i.e., conveyance or transportation where one is NOT the one controlling/operating the device/machine/animal, e.g., ride a bus/train/escalator, etc.)  <b>Stem 3:</b> (to be) a state/act of transportation via a means of transportation/conveyance; to transport (i.e., the conveying/carrying of an entity via a device or animal)
<b>CTE</b>	(to be) a state of riding/driving something (i.e., operating the means of conveyance/transportation)	
<b>CSV</b>	(to be) an act of driving/riding (i.e., operating/controlling) a means of personal conveyance/transportation; to perform the physical act(s) of riding/driving something (e.g., a horse, bike, automobile, skateboard, etc.)	
<b>OBJ</b>	(to be) the person being conveyed/transported, the transportee	

<b>-PŠW- ‘STATION-KEEPING / PARKING / HOLDING AREA / WAITING AREA’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of station-keeping, holding in place	<b>STEM 2:</b> (to be) a state/act of place-keeping something when not in use, storage-keeping something when not in use; to store something when not in use, to park (a vehicle)
<b>CTE</b>	(to be) a state of being held in place for station-keeping	
<b>CSV</b>	(to be) an act of holding something in place for station-keeping; to hold in place for station-keeping	<b>STEM 3:</b> (to be) a state/act of temporarily holding or waiting in a holding area or waiting area; to temporarily hold/wait in a holding area/room/space or waiting area/room
<b>OBJ</b>	(to be) where something is held in place for station-keeping	

<b>-SC- ‘WASH / LAVE / BATHE / RINSE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of washing with water or liquid cleansing solution (i.e., to clean the surface of an entity by means of water or liquid cleansing solution)	<b>Stem 2:</b> (to be) a state/act of bathing; to bathe  <b>Stem 3:</b> (to be) a state/act of rinsing/flushing/showering; to rinse/flush/shower (NOTE: by ‘shower’ is meant use of a controlled spray of water/cleansing fluid, not a rainshower or naturally occurring spray/pouring of water/liquid)
<b>CTE</b>	(to be) a state of being washed	
<b>CSV</b>	(to be) a physical act of washing (i.e., the physical motions/actions performed); to perform the physical motions/actions of washing	
<b>OBJ</b>	(to be) what is (being / to be) washed	

-MÇT- ‘EXAMPLE / EXEMPLAR / PRECEDENT / ARCHETYPE’		
<b>BSC</b>	<b>STEM 1:</b> (be) a state/instance of being an example of something; to exemplify something	<b>STEM 2:</b> (be) a precedent; i.e., an entity or situation which establishes a to-be-expected pattern for other/subsequent occurrences or instances of the entity or situation  <b>STEM 3:</b> (be) an archetype; the most prototypical/definitive/desirable example/pattern/design of an entity or idea
<b>CTE</b>	(be) a state of being seen/used as, or performing the function of being, an example; to be an example	
<b>CSV</b>	(be) a state/act/process of exemplification; the perform an act/process of exemplification; to make an example out of	
<b>OBJ</b>	(be) that which is considered an example or made to be an example; an exemplar	

This root is also used as the **ARCHETYPAL (ACH) Bias Affix:** *what (a) ...!; how . . .! ; Boy! Did (does) X ever ...*

-VLL- ‘IMPLICATION / INFERENCE / HINT / CONNOTATION / ALLUSION’		
<b>BSC</b>	<b>STEM 1:</b> (be) a (process of) implication and inference, i.e., a meaning(ful thought/idea) which logically or deductively follows or can be readily inferred from a preceding idea/situation/thought or evidence; to imply and thereby infer	<b>Stem 2:</b> (process of) connotation; to connote  <b>Stem 3:</b> (process of) allusion; to allude (to)
<b>CTE</b>	(be) an inference; that which is inferred/deduced from an implication	
<b>CSV</b>	(be) a process of implying; offer/manifest evidence from which an inference can be made	
<b>OBJ</b>	(be) that which gives rise to, or is the basis for, an implication (and subsequent inference); a hint, a “tip”	

This root is also used as the **IMPLICATIVE (IPL) Bias affix:** = ‘*of course,*’ ‘*after all,*’ or ‘*needless to say*’

-ÇÇK- ‘MAXIMIZATION / OPTIMALITY / SUPREMACY’		
<b>BSC</b>	<b>Stem 1:</b> (be at) the maximum point/stage/degree/state; to maximize	<b>Stem 2:</b> (be at) the optimal point/stage/degree/condition/state  <b>Stem 3:</b> (be at) the supreme/utmost/”highest”/foremost point/stage/degree/state
<b>CTE</b>	(be) a state of maximality	
<b>CSV</b>	(be) a process/act of maximizing	
<b>OBJ</b>	(be) the entity which in a maximal state	

This root is also used as the **OPTIMAL (OPT) Bias affix:** = prolonged ‘so’ or ‘totally’ as in ‘*I so don’t care!*’ or ‘*That is totally what I wanted.*’

**-LXL- ‘SCIENCE’**

<b>BSC</b>	<b>Stem 1:</b> (to be) an act/state of utilizing science; to do something scientifically (i.e., employ the analytical/rational/dispassionate methods/tools/resources of clinical science when analyzing, considering, planning, working on something)	<b>Stem 2:</b> (to be) an act/state that is based upon and/or consistent with the scientific method  <b>Stem 3:</b> (to be) an act/state of relying upon science and/or scientific findings/conclusions when analyzing/judging a situation
<b>CTE</b>	(to be) a state of scientific rationality; for a state/act/situation to have science as its basis for existing/happening	
<b>CSV</b>	(to be) an act/state of doing something scientifically; to do something scientifically	
<b>OBJ</b>	(to be) what one does scientifically or the state/act that exists/takes place based upon science	

**-LDR- ‘APPEAR / MANIFEST / SHOW / DISPLAY / EXHIBIT’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a manifestation, a showing, an appearance, i.e., be/make observable/discernible to others; to show, to manifest, to appear	<b>Stem 2:</b> (to be) an act/process of showing off, flaunting; to show off, to flaunt  <b>Stem 3:</b> (to be) an act/process of displaying or exhibiting something; display, exhibition; to display, to exhibit
<b>CTE</b>	(to be) the state of appearing, being shown, being manifest	
<b>CSV</b>	(to be) the physical act/process of making something appear, or be shown, or be manifest	
<b>OBJ</b>	(to be) the object/entity/party being shown/manifested or appearing to others	

**NOTE:** the meanings of the old FORMAL and FORMAL stems previously associated with this root are now distributed between this and the following root:

**-DRR- ‘CALLING ATTENTION TO / EXPOSURE / ANNOUNCING / ADVERTISING’**

<b>BSC</b>	<b>STEM 1:</b> (to be) an act of bringing/calling attention to something, i.e., make others aware of the appearance/showing of something	<b>STEM 2:</b> (to be) an act/process of exposure, i.e., letting others observe/discern something they otherwise would not observe/discern  <b>STEM 3:</b> (to be) an announcement, an advertisement; to announce, to advertise (i.e., utilize means of mass communication to make others aware of something)
<b>CTE</b>	(to be) the state of being a focus of attention	
<b>CSV</b>	(to be) the physical act/process of calling attention to; to do/say something that calls attention to something	
<b>OBJ</b>	(to be) the object/entity/party that one calls attention to	

This root is also used as the **ANNUNCIATIVE (ANN) Bias Affix:** = ‘Guess what!’ or ‘Wait till you hear this!’

<b>-ŽW- ‘KIND / SORT / TYPE / GENRE / CLASS / CATEGORIZATION / MODE / MANNER / WAY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of categorization or being/placing in a category; to categorize, to place/label/identify something into or as being in a category/kind/sort /class/variety	<b>Stem 2:</b> (to be) a state/act of being/placing in a genre/style; to place/label/identify something into or as being in a particular genre/style  <b>Stem 3:</b> (to be) a state/act of doing something in a certain way/manner/mode; to do something in a particular way/manner/mode
<b>CTE</b>	(to be) a kind/sort/class/variety/category	
<b>CSV</b>	(to be) an act of establishing/determining/identifying/creating a kind/sort/genre/category	
<b>OBJ</b>	(to be) a member of a kind/sort/class/variety/category	

<b>-MTF- ‘LIST / SERIES / FILE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act/instance of arranging or being arranged in a list; to list, arrange in a list, create/make a list	<b>Stem 2:</b> (to be) a an act/instance of making/placing in a series; to arrange/order in a sequential series  <b>Stem 3:</b> (to be) an act/instance of arranging in a file; to file, create/make a file
<b>CTE</b>	(to be) a the order of items on a list	
<b>CSV</b>	(to be) an act/process of physically listing or making a list	
<b>OBJ</b>	(to be) an entity named on a list, be a member of a list	

<b>-ŃŤ- ‘DEGREE OF CORRECTNESS/ACCURACY/ERROR/SUITABILITY/FITNESS’ Affix: <b>ERR</b> (use SUF/EXN/EXD, etc. )</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of correctness/accuracy ( = non-erroneous information) — [both the quality and the manifestation thereof]	<b>STEM 2:</b> (to be/manifest a) degree of suitability / fitness / propriety / effectiveness ( = best choice for the context at hand)  <b>STEM 3:</b> (to be/manifest a) degree of legitimacy/orthodoxy ( = adherence to legal / ritualistic / societal conventions)
<b>CTE</b>	(to be) a state of being correct/accurate to a certain degree	
<b>CSV</b>	(to be) a degree of correctness/accuracy; to manifest a certain degree of correctness/accuracy	
<b>OBJ</b>	(to be) something with a degree of correctness/accuracy	

This root is also used as the **CORRECTIVE (CRR) Bias Affix:** *‘that is to say...’, ‘What I mean(t) to say is...’ ‘I mean....’*



<b>-ŘÐ- ‘DEGREE OF EXACTITUDE’</b>		Associated Affix: <b>EXT</b>
<b>BSC</b>	<b>STEM 1:</b> (to be) something having a degree of exactitude [i.e., expected identity/equivalence to some expectation)	<b>STEM 2:</b> (to be) something of a particular degree of exactitude (i.e., accuracy or identical functionality/performance in comparison to some standard)  <b>STEM 3:</b> (to be) something that serves/functions/substitutes [comparably] (in comparison to some standard)
<b>CTE</b>	(to be) the degree to which an entity meets an expectation of exactitude; to perform an appraisal/comparison of such	
<b>CSV</b>	(to be) the expectation of exactitude to which an entity is compared; to apply/establish such an expectation/standard	
<b>OBJ</b>	(to be) the entity so appraised/compared	

This root is usually used with affixes such as **EXN**, **SUF**, **EXD**, or similar to indicate the particular degree of the named quality.

<b>-RX- ‘DEGREE OF SIMILARITY / RESEMBLANCE’</b>		Associated Affix: <b>SIM</b> (use with the EXN, SUF, EXD, etc. affixes if necessary)
<b>BSC</b>	(to be/manifest) something with a particular degree of similarity/resemblance	<b>STEM 1:</b> similarity/resemblance to another/different concrete/tangible entity/instance <b>STEM 2:</b> similarity/resemblance to oneself on another/different occasion <b>STEM 3:</b> similarity/resemblance to another/different abstract situation or set of circumstances
<b>CTE</b>	(to be/manifest) the degree to which an entity meets an expectation of similarity/resemblance	
<b>CSV</b>	(to be/manifest) the expectation of similarity/resemblance to which an entity is compared	
<b>OBJ</b>	(to be) the entity being appraised/compared to the expectation of similarity/resemblance	

<b>-RK- ‘DEGREE/RANGE/EXTENT/INTENSITY’</b>		Associated Affix: <b>EXN</b>
<b>BSC</b>	<b>STEM 1:</b> (to be) the degree/extent of something ( = scalar amount of the effect/impact/capacity of something) [both the degree/extent and the entity manifesting that degree/extent]	<b>STEM 2:</b> (to be) the range of something ( = measure of the “upper” or “outer” limit of the effect/impact of something)  <b>STEM 3:</b> (to be) the intensity of something ( = measure of the strength of the effect/impact of something)
<b>CTE</b>	(to be) something with a degree/extent/amount of effect/impact/capacity [focus on the entity itself]	
<b>CSV</b>	(to be) a degree/extent ( = the amount of effect/impact/capacity)	
<b>OBJ</b>	(to be) the entity/party affected/impacted by the degree/extent of something	

<b>-RT- SUFFICIENCY/ADEQUACY</b> Associated Affix: <b>SUF</b> (Specifications modeled after the DEGREE/EXTENT root <b>-RK-</b> above)	
<b>Stem 1:</b> (to be) a sufficient amount/extent/degree of something; to suffice, to be enough, to be sufficient <b>Stem 2:</b> (to be) an adequate amount/extent/degree of something; to be adequate, to be good enough, to do (= to suffice adequately) <b>Stem 3:</b> (to be) something to a satisfactory degree/extent; to be satisfactory, to meet the requirements	

<b>-MH- ‘DEGREE OF CHANGE/STABILITY/VICISSITUDE/FLUCTUATION’</b> Associated Affix: <b>FLS</b> (use SUF/EXN/EXD, etc.)	
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of change(-ableness)/mutability/constancy/alteration ( = degree to which something becomes altered in form/behavior) [both the degree and the potential for, or nature of, the change]
<b>CTE</b>	(to be) something with a degree/extent/amount of change(-ableness/mutability [focus on the entity itself])
<b>CSV</b>	(to be) the degree/extent of change(-ableness)/mutability ( = the amount/extent of actual or potential change)
<b>OBJ</b>	(to be) the entity/party affected/impacted by the degree/extent of (potential) change
<b>STEM 2:</b> (to be/manifest a) degree of stability/instability/vicissitude ( = degree of predictability of future pattern/behavior based on past pattern/behavior)  <b>STEM 3:</b> (to be/manifest a) degree of fluctuation / wavering / variance / deviation ( = degree to which normally stable/predictable pattern/behavior suddenly fluctuates/varies/wavers/deviates unpredictably)	

<b>-RG- ‘DEGREE OF STEADFASTNESS/MOBILITY/MOTILITY/ACTIVITY/MOVEMENT’</b> Affix: <b>MVT</b> (use SUF/EXN/EXD, etc.)	
(Specifications modeled after the ‘DEGREE OF CHANGE’ root <b>-MH-</b> above)	<b>STEM 1:</b> (to be/manifest a) degree of steadfastness/durability ( = [in]ability to be altered in form/behavior) <b>STEM 2:</b> (to be/manifest a) degree of mobility/motility/activity ( = [in]ability to move or to be made to move) <b>STEM 3:</b> (to be/manifest a) degree of indelibility/fixedness ( = [in]ability to be removed/erased/eliminated)

<b>-ČH- ‘DEGREE OF AFFECT (CUTENESS/GRANDEUR)’</b> Associated Affix: <b>AFT</b> (use SUF/EXN/EXD, etc. to specify degree)	
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of grandeur, grandiosity, greatness [both the quality and the entity manifesting such]
<b>CTE</b>	(to be) something with a degree of grandeur, grandiosity, greatness
<b>CSV</b>	(to be) a degree of grandeur, grandiosity, greatness
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of grandeur, grandiosity, greatness
<b>STEM 2:</b> (to be/manifest a) degree of elegance, loveliness, grace  <b>STEM 3:</b> (to be/manifest a) degree of endearment, cuteness	

<b>-TH- ‘DEGREE OF RELIABILITY/INFALLIBILITY/QUALITY’</b> Affix: <b>QUA</b> (use SUF/EXN/EXD, etc. to specify degree)		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of reliability/infallibility/quality (in terms of ruggedness/durability of workmanship or mechanical craftsmanship) [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of quality, fineness, quality of effort (in terms of artisanry, artistry, artistic craftsmanship)
<b>CTE</b>	(to be) something with a degree of reliability/infallibility/quality	
<b>CSV</b>	(to be) a degree of reliability/infallibility/quality	<b>STEM 3:</b> (to be/manifest a) degree of durability / lastingness / permanence / persistence
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of reliability/infallibility/quality	

<b>-ŘP- ‘DEGREE OF SPECIALNESS/UNIQUENESS/MARVELOUSNESS’</b> Associated Affix: <b>UNQ</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of specialness, extraordinariness (in terms of variance with the usual/expected) [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of uniqueness (= the degree to which something is unlike anything else, one-of-a-kind)
<b>CTE</b>	(to be) something with a degree of specialness, extraordinariness	
<b>CSV</b>	(to be) a degree of specialness, extraordinariness	<b>STEM 3:</b> (to be/manifest a) degree of marvelousness/wonder/awesomeness
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of specialness, extraordinariness	

<b>-ŘV- ‘CONSEQUENCE/OUTCOME/RESULT’</b> Affix: <b>CNQ</b> (use SUF/EXN/EXD, etc. to specify degree)		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest) a consequence of something (= a change in pre-existing circumstances resulting from a state/act/event/occurrence) [both the consequence itself and the state of consequentiality]	<b>STEM 2:</b> (to be/manifest a) result of something (= a concrete/tangible “product” or specific/nameable abstract entity resulting from a state/act/event/occurrence)
<b>CTE</b>	(to be) a specific consequence	
<b>CSV</b>	(to be) a state of consequentiality; a state of there being a consequence; to manifest consequentiality	<b>STEM 3:</b> (to be/manifest a) abstract result/outcome (= an abstract set of non-preexisting circumstances arising out of an occurrence/event/act/state)
<b>OBJ</b>	(to be) an entity/party from which arises a consequence	

<b>-ŘG- ‘DEGREE OF CONFORMITY/TYPICALNESS’</b> Affix: <b>TYP</b> (use SUF/EXN/EXD, etc. to specify degree)		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of conformity to a norm, stereotype or standard [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of being commonplace / typical / run-of-the-mill; to typify to a particular degree, to be typical of to a particular degree  <b>STEM 3:</b> (to be/manifest a) degree of being original / innovative / “out-of-the-box”
<b>CTE</b>	(to be) something with a degree of conformity/typicalness	
<b>CSV</b>	(to be) a degree of conformity/typicalness	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of conformity/typicalness	

<b>-LF- ‘DEGREE OF LUCK/FORTUNE/FATE/CHANCE/PROBABILITY’</b> Associated Affix: <b>LCK</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of luck/fortune ( = unpredictable circumstances/outcome/event based on non-random or quasi-predictable input/circumstances) [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of fate/chance ( = unpredictable circumstances/outcome/event based on unpredictable or random input/circumstances)  <b>STEM 3:</b> (to be/manifest a) degree of probability; the “odds” ( = quasi-predictable circumstances/outcome based on statistical probability)
<b>CTE</b>	(to be) something with a degree of luck/fortune	
<b>CSV</b>	(to be) a degree of luck/fortune	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of luck/fortune	

<b>-RD- ‘DEGREE OF TRUTH/GENUINENESS/VERACITY/VALIDITY/FACTUALITY’</b> Affix: <b>REA</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of truth/veracity/reality (in terms of something actually being ontologically valid as true or real) [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of authenticity/genuineness (in terms of an entity’s identity/nature/behavior/essence actually being what it is purported/assumed/believed to be)  <b>STEM 3:</b> (to be/manifest a) degree of validity/factuality/actuality (in terms of being an accurate assessment, description, representation, or identification)
<b>CTE</b>	(to be) something with a degree of truth/veracity/reality	
<b>CSV</b>	(to be) a degree of truth/veracity/reality	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of truth/veracity/reality	

<b>-ṬṢ- ‘DEGREE OF INTENSITY’</b> Affix: <b>ITY</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of intensity/power ( = ratio of physical manifestation/change/activity/energy to period of time) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of activity/acuteness  <b>STEM 3:</b> (to be/manifest a) degree of agitation/ebullience/bustle
<b>CTE</b>	(to be) something with a degree of intensity/power	
<b>CSV</b>	(to be) a degree of intensity/power	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of intensity/power	

<b>-FT- ‘DEGREE OF EFFICIENCY/ADEQUACY’</b> Affix: <b>EFI</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of efficiency ( = ratio of amount of effort/energy/resources to results)— [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of adequacy ( = extent to which something serves sufficiently)  <b>STEM 3:</b> (to be/manifest a) degree of reward/value/ “pay-off”/ “bang-for-the-buck” ( = extent/value of return on investment of resources/effort/energy)
<b>CTE</b>	(to be) something with a degree of efficiency	
<b>CSV</b>	(to be) a degree of efficiency	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of efficiency	

<b>-ṢṬ- ‘DEGREE OF CORRECTNESS/ACCURACY/SUITABILITY/FITNESS’</b> Affix: <b>ERR</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of correctness/accuracy ( = non-erroneous information) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of suitability / fitness / propriety / effectiveness ( = best choice for the context at hand)  <b>STEM 3:</b> (to be/manifest a) degree of legitimacy/orthodoxy ( = adherence to legal / ritualistic / societal conventions)
<b>CTE</b>	(to be) something with a degree of correctness/accuracy	
<b>CSV</b>	(to be) a degree of correctness/accuracy	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of correctness/accuracy	

<b>-KT- ‘DEVELOPMENT / GROWTH / MATURATION / DECLINE’</b> Affix: <b>MAT</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) developmental stage, stage of developmental or maturational cycle; stage of a life-cycle— [both the stage and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest) goal-oriented development/maturation, growth; develop, grow, mature (growth not necessarily in size, but rather in maturational development as part of a life-cycle); CPT Version = ripe(n), ripening
<b>CTE</b>	(to be) something manifesting a developmental stage, stage of developmental or maturational cycle; stage of a life-cycle	
<b>CSV</b>	(to be/manifest) a developmental stage, stage of developmental or maturational cycle; stage of a life-cycle	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s developmental stage, stage of developmental or maturational cycle; stage of a life-cycle	<b>STEM 3:</b> (to be/manifest) the declining stage(s) of a life-cycle; decline, fade, age; CPT Version = die

<b>-PH- ‘DEGREE OF PRECISION / DEFINITION / SCRUTINY’</b> Affix: <b>PCN</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of precision ( = exactness of fine-tuning, fineness of or attention to detail, carefulness in workmanship/craftsmanship) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of definition, being well-defined ( = exactness of distinction, contrast with background, separability from background milieu)
<b>CTE</b>	(to be) something with a degree of precision	
<b>CSV</b>	(to be) a degree of precision	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of precision	<b>STEM 3:</b> (to be/manifest a) degree of scrutiny / attention / scrupulousness ( = thoroughness/exactitude in procedure / task / activity)

<b>-TX- ‘DEGREE OF SOPHISTICATION/CRUDENESS/REFINEMENT/PRIMITIVENESS’</b> Affix: <b>SPH</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of physical/technical refinement/sophistication (vs. crudeness, i.e., level to which an entity manifests a high level of technical workmanship/craftsmanship/artisanry) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of evolvment (vs. primitiveness, i.e., temporal, evolutionary perspective over time)
<b>CTE</b>	(to be) something with a degree of physical/technical refinement/sophistication	
<b>CSV</b>	(to be) a degree of physical/technical refinement/sophistication	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of physical/technical refinement/sophistication	<b>STEM 3:</b> (to be/manifest a) degree of cultural refinement/sophistication/finesse (vs. cultural primitiveness/savagery/simplicity)

<b>-ŇŘ- ‘IMPEDIMENT / BLOCKAGE / RESTRICTION / RESTRAINT / PREVENTION’</b> Affix: <b>PRV</b>		
<b>BSC</b>	<b>STEM 1.</b> (to be) a state/process of something under restriction; something impeded or blocked from occurring or manifesting — [both the act/process/state of restriction and the method/means used to restrict]	<b>STEM 2.</b> (to be) a state/process of being under restraint or held back/kept from moving/acting/escaping, etc.  <b>STEM 3.</b> (to be) a state/process of preventing something from happening; the prevention of something; to prevent
<b>CTE</b>	(to be) a process/state of restricting/impeding/blocking from manifesting or occurring	
<b>CSV</b>	(to be) a the means/method of restricting/impeding/blocking from manifesting or occurring	
<b>OBJ</b>	(to be) an entity/party/state being restricted/blocked/impeded	

<b>-ČM- ‘DEGREE OF EASE vs. DIFFICULTY’</b> Affix: <b>DFP</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of ease vs. difficulty ( = effort in terms of physical hardship/toil and/or perplexity/complexity/mental challenge involved) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of ease vs. difficulty ( = effort in terms of practicality, return/value-for-energy expended, likelihood of desired outcome)  <b>STEM 3:</b> (to be/manifest a) degree of ease vs. difficulty ( = effort in terms of being faced with a quandary / dilemma / predicament)
<b>CTE</b>	(to be) something with a degree of ease vs. difficulty	
<b>CSV</b>	(to be) a degree of ease vs. difficulty	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of ease vs. difficulty	

<b>-KP- ‘DEGREE OF EFFORT’</b> Affix: <b>EFT</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of effort ( = in terms of physical hardship/toil and/or perplexity/complexity/mental challenge involved) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of effort ( = in terms of mental challenge involved)  <b>STEM 3:</b> (to be/manifest a) degree of effort ( = in terms of organizational complexity)
<b>CTE</b>	(to be) something with a degree of effort	
<b>CSV</b>	(to be) a degree of effort	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of effort	

<b>-VH- ‘DEGREE OF DESIGN / ORDER / ORGANIZATION / SYSTEMATIZATION’</b> Affix: <b>DSG</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of design/planning — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of order(liness) / organization / arrangement / structure  <b>STEM 3:</b> (to be/manifest a) degree of systematization ( = extent to which components/parts are arranged for optimal interrelationships/functionality)
<b>CTE</b>	(to be) something with a degree of design/planning	
<b>CSV</b>	(to be) a degree of design/planning	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of design/planning	

<b>-JH- ‘DEGREE OF PHYSICAL CONTROL’</b> Affix: <b>CRL</b> (use SUF/EXN/EXD, etc. ) NOTE: This root does not mean control in terms of hierarchical authority, oversight or influence.		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of physical control ( = degree of brute strength / agility / prowess / forbearance, etc. needed to physically handle/manipulate something, e.g., a tool, a machine, etc.) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of physical fine motor control / dexterity / finesse ( = degree of ability to manipulate/handle delicate or fragile entity)  <b>STEM 3:</b> (to be/manifest a) degree of control via potential force ( = having the ability/means/resources to physically hold/contain/restrain/restrict something from breaking free, running wild, causing damage, attacking, etc.)
<b>CTE</b>	(to be) something with a degree of physical control	
<b>CSV</b>	(to be) a degree of physical control	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of physical control	

<b>-PT- ‘DEGREE OF RISK / DANGER’</b> Affix: <b>DNG</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of physical risk or danger ( = threat or potential for physical harm) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of emotional risk or danger  <b>STEM 3:</b> (to be/manifest a) degree of socially-oriented risk or danger ( = threat to one’s status, plans, life circumstances, assumptions, finances, property, etc.)
<b>CTE</b>	(to be) something with a degree of physical risk or danger	
<b>CSV</b>	(to be) a degree of physical risk or danger	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of physical risk or danger	

<b>-ŘČ- ‘DEGREE OF OPERATIONAL FUNCTIONALITY / ACTIVITY / EFFICACY’</b> Affix: <b>OPF</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of operational functionality; degree of being in working order ( = extent to which something is functioning/operating/working normally or as per expectation or design) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of activity ( = amount / extent to which entities are acting/functioning/moving)  <b>STEM 3:</b> (to be/manifest a) degree of efficacy ( = extent to which an activity / operation achieves/accomplishes/delivers what it is supposed/expected to)
<b>CTE</b>	(to be) something with a degree of operational functionality; degree of being in working order	
<b>CSV</b>	(to be) a degree of operational functionality; degree of being in working order	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of operational functionality; degree of being in working order	



<b>-ŠF- ‘DEGREE OF NATURAL CAPACITY / TALENT / SKILL’</b> Affix: <b>TAL</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of natural capacity/ability to — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of natural talent / aptitude / “gift” for; be adept at  <b>STEM 3:</b> (to be/manifest a) degree of natural virtue ( = desired behavioral quality/characteristic/attribute)
<b>CTE</b>	(to be) something with a degree of natural capacity/ability to	
<b>CSV</b>	(to be) a degree of natural capacity/ability to	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of natural capacity/ability to	

<b>-SP- ‘DEGREE OF NEWNESS’</b> Affix: <b>NEW</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of newness ( = freshly made/born/developed, newly created, not previously existing, e.g., <i>a new book just published; a new baby; a brand new shirt</i> ) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of newness ( = not previously seen/functioning/experienced in current context, e.g., <i>the new student; a new book, i.e., that I’ve not owned/read before</i> )  <b>STEM 3:</b> (to be/manifest a) degree of newness ( = another / different / replacement / substitute / revision, e.g., <i>Please turn to a new page in your sketchpad; Hand me a new fork, this one is dirty.</i> )
<b>CTE</b>	(to be) something with a degree of newness	
<b>CSV</b>	(to be) a degree of newness	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of newness	

<b>-Ž- ‘CAPACITY / ABILITY / CAPABILITY’</b> Affix: <b>-CPC-</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest) the physical capability/ability to do something particular; to be able (i.e., have the or physical capability/ability) to do something particular	<b>STEM 2:</b> (to have) the physical stamina, fortitude or strength (needed) to do something  <b>STEM 3:</b> (to have) the physical prowess or finesse or specialized physical skill (needed) to do something
<b>CTE</b>	(to be) the physical capability/ability; to be able ( = have the or physical capability/ability)	
<b>CSV</b>	(to be) the particular (nature of the) physical capacity/ability needed	
<b>OBJ</b>	(to be) the task/endeavor requiring a certain physical capacity/ability to perform/accomplish	

**INF stems:** The capability/strength/stamina/prowess/finesse needed is circumstantial, i.e., the party inherently does or does not happen to have such qualities

<b>-ÇN- ‘SOURCE / ORIGIN’</b>		Affix: <b>OAU</b>
<b>BSC</b>	<b>Stem 1:</b> (to be the) origin / source of something — [both the point in spacetime and the fact of being the initial manifestation of something]	<b>Stem 2:</b> (to be) a beginning / start / point of initiation; begin, start, commence, initiate  <b>Stem 3:</b> (to be a) (primary or direct) cause
<b>CTE</b>	(to be) an act/process of origin(ating) or functioning as a/the source	
<b>CSV</b>	(to be) the physical spacetime point/location that is the source of something; where something originates	
<b>OBJ</b>	(to be) that whose source/origin is being identified	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-RÇN- ‘ELEMENT / FUNDAMENTAL BASIS / FOUNDATIONAL PRINCIPLE’</b>
<b>STEM 1:</b> (to be/manifest a) basic element / fundamental starting point or principle
<b>STEM 2:</b> (to be/manifest a) fundamental reason for something; fundamental reason why; a basis for something
<b>STEM 3:</b> (to be a) first principle / foundational principle / axiom

<b>-R- ‘NEGATION / DENIAL / ABSENCE’</b>		Affix: <b>NEG</b>
<b>BSC</b>	<b>Stem 1:</b> (to be/manifest) an instance/act of negation; make something negative; to negate, i.e., to make/render the status of an entity so that it is as if it does not exist / manifest / apply / matter / act / take effect or have relevance [both the act/process of negation and the status of being (rendered) negative]	<b>Stem 2:</b> (to be) an instance/act of denial; to deny -- to act as if something is not true or non-existent or inapplicable  <b>Stem 3:</b> (to be) an instance of being absent; an absence; to be absent
<b>CTE</b>	(to be) an instance/act of denial; to deny -- to act as if something is not true or non-existent or inapplicable	
<b>CSV</b>	(to be) the physical/tangible process of negation, whether verbal, physical, by written proclamation, by memory loss, etc.	
<b>OBJ</b>	(to be) that which is negated	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-RXW- ‘NULLIFICATION / ABROGATION / CONTRADICTION / CONTRAVENTION / ELIMINATION / REMOVAL’</b>
<b>Stem 1:</b> (to be) an instance/act of nullification or abrogation; to nullify, render null, abrogate, render as having no effect
<b>Stem 2:</b> (to be) an instance/act of contradiction or contravention; to contradict or contravene
<b>Stem 3:</b> (to be) an instance/act of elimination/removal; to eliminate, remove

<b>-PŘ-</b> <b>‘ACCESS / PASSAGE(WAY) / DOORWAY / GATEWAY / PORTAL / ENTRY(WAY) / EXIT’</b> Affix: <b>ACS</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest) a 2-way access point or passage way/gateway/portal; to pass through to a different area or physical space — [both the passage way itself and the act of passage]	<b>STEM 2:</b> (to be/manifest a) an entry point, a point of ingress, an entry portal, entry gateway, a passageway by which to enter  <b>STEM 3:</b> (to be/manifest a) an exit point, a point of egress, an exit portal, a passageway by which to exit
<b>CTE</b>	(to be) an act of passage through, an act of accessing another physical space; to pass through, to enter or exit	
<b>CSV</b>	(to be) a passage way or access point or doorway/gateway/portal*	
<b>OBJ</b>	(to be) the party passing through an access point or doorway/gateway/portal *	

\* NOTE: The word for a “door” itself would be the BSC stem for ‘access/passageway’ plus the new MDF<sub>2/3</sub> affix ‘that which impedes/prevents X’, so that a ‘door’ is literally a “passage-impeding implement”. Consequently, one does not say “open door” in the language — one says “unrestricted passageway” or “unrestricted doorway.”

<b>-TD-</b> <b>‘PHYSICAL CONTACT’</b> Affix: <b>CTC</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of physical contact between entities; to make contact; touch — [both the state/act of contact and its effect/consequence]	<b>STEM 2:</b> (to be) an application of physical pressure/force + effect/consequence  <b>STEM 3:</b> (to be) a move or setting in motion via physical contact + resulting motion; to set in motion + resulting motion
<b>CTE</b>	(to be) the effect/consequence of a state/act of physical contact between entities	
<b>CSV</b>	(to be) a state/act of physical contact between entities; make contact; touch	
<b>OBJ</b>	(to be) a party/entity in physical contact with another	

<b>-SK-</b> <b>‘CONTAIN / HOLD / CONTENTS’</b> Associated affix: <b>CNM</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an instance/act/state of containment via gravity (e.g., basin); to contain (via gravity) [both the container and the state of containment]	<b>STEM 2:</b> (to be) an instance/act/state of containment via enclosing medium or surrounding conveyance  <b>STEM 3:</b> (to be) an instance of containment via imbue ment (i.e., as an ingredient/component)
<b>CTE</b>	(to be) the state of containment (via gravity)	
<b>CSV</b>	(to be) the container (via gravity)	
<b>OBJ</b>	(to be) that which is contained (via gravity); the content(s)	

## 2.1 TOOL USE

Rather than have specific roots/stems for the names of tools (e.g., ‘hammer’, ‘saw’, ‘awl’, ‘pliers’, ‘scissors’, etc.), the language will instead simply apply a set of affixes (‘hand-held tool used for...’, ‘device/apparatus used for...’, etc.) to formatives which indicate the action performed/desired. The specific affixes available for such constructions are the TDM, UTE, MEC, MDF, and MAK affixes. The new MNS affix is also important for use with such roots/stems. So rather than have a formative meaning ‘plane’, instead the concept will be signified by the formative for ‘flattening/smoothing/make even’ plus the tool/implement/device affix, i.e., ‘hand-held tool used for flattening/smoothing’.

At the same time, a distinction must be made between the implement used to perform an action which creates a resulting state (e.g., a hammer used for hammering) and the corollary “go-between” object which conveys and maintains the resulting state (e.g., a nail). For example, an act of hammering results in a nail being left behind to maintain the connection/juncture between two entities (e.g., a wooden post and the sign nailed to it). The nail is a separate implement from the hammer, and a nail certainly is not the primary tool used to conduct the act of hammering. This principle of the nail as a corollary object associated with a tool-using act likewise applies to entities such as screws, bolts, nuts, clasps, ties, wires, rope, paste, glue, cement, braces, girders, seals, lids, covers, posts, frames, shackles, reins, muzzles, etc. Notice that, in English at least, such objects are generally considered “tools” only in a secondary or corollary, non-prototypical sense, if at all (a native English speaker does not usually consider the idea of cement, lids, or muzzles as being “tools”). In most cases, this corollary object can be signified by the OBJECTIVE Specification for each stem. In some cases, a dedicated root will be needed.

### 2.1.1 Acts/Processes Accomplished by Means of Tools/Implements

This section lists roots associated with actions/states which readily lend themselves to the various instrumentative/tool-using affixes:

<b>-CŘ- ‘GRIND / PULVERIZE / GRAVEL / GRANULE / POWDER’</b>			
	<b>Stem 1</b>	<b>Stem 2</b>	<b>Stem 3</b>
<b>BSC</b>	(be) an act of grinding to a gravel-like consistency; grind to a gravel-like consistency	(be) an act of grinding to a granular, sand-like consistency; grind to a granular consistency	(be) an act of grinding to a powder; pulverize
<b>CTE</b>	(be) the entity/object/substance that is (to be) ground to a gravel-like consistency	(be) the entity/object/substance that is (to be) ground to granular, sand-like consistency	(be) the entity/object/substance that is (to be) pulverized
<b>CSV</b>	(be) the mechanical process of an act of grinding to a gravel-like consistency	(be) the mechanical process of an act of grinding to a granular, sand-like consistency	(be) the mechanical process of an act of pulverizing
<b>OBJ</b>	(be) a piece of a gravel-like substance; (be) a piece of the product of an act of grinding to a gravel-like consistency	(be) a piece of a granular, sand-like substance; (be) a piece of the product of an act of grinding to a granular, sand-like consistency	(be) a grain of a powder(y substance)

<b>-KÇ- ‘CUT / STAB / CRACK / FISSURE’</b> (i.e., quasi-linear puncturing or quasi-planar breaking of surface integument)		
<b>BSC</b>	<b>Stem 1:</b> (be) an act of cutting something with a (quasi-) bladed instrument or force (“cut” = to make a quasi-linear, parallel-to-the-surface break in the structural/cohesive integrity of the surface integument of an entity/object by means of a bladed (or blade-like) instrument)	<b>Stem 2:</b> (be) an act of stabbing (i.e., puncturing in a quasi-linear manner perpendicular to the surface integument of an object/entity using a sharp-pointed quasi-linear object).  <b>Stem 3:</b> (be) an act of making a quasi-linear rent or crack or fissure in the surface integument of an object/entity; to (make a) rent, to (make a) crack
<b>CTE</b>	(be) the physical cut itself; a quasi-linear break in the structural/cohesive integrity of the surface integument of an entity/object	
<b>CSV</b>	(be) the physical act/process of cutting; to cut	
<b>OBJ</b>	(be) a blade (the portion of a knife/sword/axe/scissors, etc. that effectuates a cut)	

<b>-ÇR- ‘SEPARATION / SEVERANCE / DETACHMENT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act of separation; to separate something from something else; make something be physically situated apart from something else	<b>Stem 2:</b> (be) an act of detachment or physical disjoining/disconnection; to detach/disjoin/disconnect  <b>Stem 3:</b> (be) an act of severance; to sever
<b>CTE</b>	(be) a state of being separated; be apart from something due to being/having been separated	
<b>CSV</b>	(be) an act of separation; the physical act of separating entities	
<b>OBJ</b>	(be) an implement, procedure, process, command, situation, etc. which effectuates an act of separation	

<b>-ZKR- ‘SLICE / PLANE / SHAVE / SHRED’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act of slicing/sectioning something with a bladed (or blade-like) instrument (i.e., cut quasi-perpendicularly relative to the surface plane of an entity into quasi-planar piece/section)	<b>Stem 2:</b> (be) an act of making a planed/shaved slice; to plane; to shave off a piece (i.e., cut parallel to the surface plane of an entity into a quasi-planar piece/strip)  <b>Stem 3:</b> (be) an act of shredding (i.e., using a specialized instrument to render a three-dimensional volume/portion of an object entity into quasi-linear ribbon-like or thread-like pieces)
<b>CTE</b>	(be) the physical gash/divide caused by an act of slicing; a quasi-planar break in the structural/cohesive integrity of the surface integument of an entity/object and the three-dimensional volume beneath	
<b>CSV</b>	(be) the physical act/process of slicing; to slice	
<b>OBJ</b>	(be) a blade (the portion of a knife that effectuates slice/section)	

<b>-PPŠ- ‘SCRATCH / SCRAPE / PEEL’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act of scratching, i.e., using a pointed or (quasi-)chisel-headed instrument or body part (e.g. fingernails) to imbue a surface with shallow quasi-linear rents; to scratch something [ = to make a scratch/scratches in a surface, NOT to relieve an itch]	<b>Stem 2:</b> (be) an act of scraping, i.e., using an implement to remove a shallow layer of material from a surface; to scrape  <b>Stem 3:</b> (be) an act of peeling; to peel
<b>CTE</b>	(be) a scratch	
<b>CSV</b>	(be) the physical act/process of scratching; to scratch	
<b>OBJ</b>	(be) the means (i.e., implement or body part) utilized to effectuate an act of scratching	

<b>-ZC- ‘CHOP / DICE / MINCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act of chopping, i.e., using a (quasi-)bladed instrument to make a quasi-planar gash/divide in the three-dimensional volume of an object/entity, perpendicularly to its surface integument)	<b>Stem 2:</b> (be) an act of dicing (i.e., slicing into quasi-cubic pieces)  <b>Stem 3:</b> (be) an act of mincing (i.e., slicing in cross-hatched fashion to the point of making an entity’s texture a slurry or paste-like)
<b>CTE</b>	(be) the physical gash/divide/separation caused by an act of chopping; a quasi-planar gash/divide in the structural/cohesive integrity of the 3-dimensional volume of an entity/object and the three-dimensional volume beneath	
<b>CSV</b>	(be) the physical act/process of chopping; to chop	
<b>OBJ</b>	(be) a blade (the portion of a knife/cleaver/axe, etc. that effectuates an act of chopping)	

<b>-ZČ- ‘CARVE / GUT / EVISCERATE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act of (surface-)carving, i.e., using a (quasi-)bladed instrument to remove (specific) surface material from an object entity)	<b>Stem 2:</b> (be) an act of interior carving, carving out, i.e., careful/precise removal of specific interior tissue/volume of an entity using a (quasi-)bladed instrument; to carve out  <b>Stem 3:</b> (be) an act of gutting or evisceration; to gut/eviscerate (i.e., remove most or all of the interior volume of an entity
<b>CTE</b>	(be) the surface area/volume removed due to an act of (surface-)carving	
<b>CSV</b>	(be) the physical act/process of surface-carving; to carve the surface of	
<b>OBJ</b>	(be) a blade (the portion of carving implement that effectuates an act of carving)	

<b>-JJ- ‘DIG / HOLE’ *</b>			
	<b>Stem 1</b>	<b>Stem 2</b>	<b>Stem 3</b>
<b>BSC</b>	(be) an act of digging; to dig, i.e., to use an implement or one’s appendage to break the surface of the 3-dimensional volume of a substance or entity, for the purpose of remove an amount of material from the volume, leaving behind a concave depression/pit/hole* )	(be) the act of removing material via digging	(be) an act of creating/leaving behind a depression or concavity by means of an act of digging; to make/create/leave a depression/concavity/pit/hole* by means of digging
<b>CTE</b>	(be) the state/process undergone by an entity when material is dug from it and a depression or concavity left behind	(be) the state/process undergone by an entity when material is removed from it by digging	(be/have) a depression or concavity created by an act of digging
<b>CSV</b>	(be) a physical act of digging; remove material by digging leaving a depression or concavity behind	(be) a physical act of digging; remove material by digging	(be) an act of making a depression/concavity/hole* by digging; make a a depression or concavity by digging
<b>OBJ</b>	(be) the appendage/implement used for digging	(be) the material removed by an act of digging	[same as CTE above]

\* Use of the word “hole” in translating the stems of this root is within the narrow context of being a synonym for “scooped-out depression/concavity within a 3-dimensional medium; it does not mean “hole” as an access point between two spaces or through some two- or 3-dimensional medium as in “a hole in my jeans” or “a hole through the wall” (use the root **-ZF-** below instead).

NOTE: Use the above root with the new **SVS** affix to derive words for scoop, excavate.

NOTE: Use this root with the new **SVS** affix to derive words for ‘drill’, ‘bore’, ‘cavern’. Combine it with other appropriate morphology to render the word for ‘delve’ and ‘worm one’s way into’.

<b>-ZF- ‘PIERCE / PUNCTURE / BREACH / HOLE / TUNNEL’</b>		
<b>BSC</b>	Stem 1: (be) an act of piercing through, puncturing through, punching through, breaching, breaking through, tunnelling (i.e., create an access point/passageway in a 2- or 3-dimensional medium to the other side or to another separate space)	<b>Stem 2:</b> (be) an act of removing material by burrowing or tunneling* [Specification pattern is like Stem 2 of the root ‘DIG’]  <b>Stem 3:</b> (be) an act of leaving behind a hole, puncture, tunnel, i.e., an access point or passageway through a medium to another side or separate space [Specification pattern is like Stem 3 of the root ‘DIG’]
<b>CTE</b>	(be) the material removed via an act of piercing, puncturing	
<b>CSV</b>	(be) an act of piercing, puncturing	
<b>OBJ</b>	(be) the appendage/implement/tool used for piercing, puncturing	

<b>-ZD- ‘BURROW / HOLLOW OUT’</b>		
<b>BSC</b>	Stem 1: (be) an act of hollowing out, burrowing/tunneling*; to burrow/tunnel (i.e., create a tube-like space within a 3-dimensional medium)	<b>Stem 2:</b> (be) an act of removing material by hollowing out, burrowing or tunneling* [Specification pattern is like Stem 2 of the root ‘DIG’]  <b>Stem 3:</b> (be) an act of leaving behind a hollow, burrow or tunnel* [Specification pattern is like Stem 3 of the root ‘DIG’]
<b>CTE</b>	(be) the material removed via an act of hollowing out or burrowing	
<b>CSV</b>	(be) an act of hollowing out or burrowing	
<b>OBJ</b>	(be) the appendage/implement/device/machine used for hollowing/burrowing/tunneling	

\* This root refers to the creation of a tube-like space within a 3-dimensional medium; it does not necessarily imply that the tube-like space functions as a conduit or passageway to another separate space or medium -- thus, use of the translation “tunnel” here is in a limited context. If one wishes to signify a tunnel-like conduit connecting two separate spaces, use the root **-ZF-** above instead.

<b>-GT- ‘TIGHTNESS / FITTEDNESS / COMPATIBILITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) a state of being tight; tightness; be/make tight, i.e., difficult to disjoin or open or separate	<b>Stem 2:</b> (be) a state of one entity physically fitting into/with another  <b>Stem 3:</b> (be) a state of one entity being physically compatible with another so that they operate/function/exist better as, or ideally as, a unit
<b>CTE</b>	(be) the state undergone by an entity or entities having a physical bond/connection/juncture/fitting which is tight	
<b>CSV</b>	(be) the physical act of tightening	
<b>OBJ</b>	(be) the juncture itself which is (to be) tight(ened)	

<b>-FŠ- ‘FITTING / ACCOMMODATION / NICHE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of one entity physically fitting into/with another so that one is “carried” along as the other moves/operates	<b>Stem 2:</b> (be) an act/instance of accommodating something (i.e., finding a place for something within a surrounding context so that it can become a functioning/contributing/associated part of that context)  <b>Stem 3:</b> (be) a act/instance of finding/establishing a niche for something (i.e., establishing an existence/lifestyle/role which becomes part of and contributes to the encompassing contextual environment)
<b>CTE</b>	(be) the state of fitting into another	
<b>CSV</b>	(be) the physical act of fitting	
<b>OBJ</b>	(be) the juncture itself which one establishes or seeks to establish by an act of fitting something into something else	



<b>-JP- 'STRAIGHTENING / ALIGNMENT'</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of making something straight/rectilinear [by design]; mak something straight by design (i.e., make rectilinear as opposed to making it bent, curved, crooked)	<b>Stem 2:</b> (be) an act/instance of straightening something out; to straighten out (i.e., fix something that was crooked/bent/curved/warped by making it rectilinear/straight as it should be )  <b>Stem 3:</b> (be) a act/instance of aligning/alignment; to align (i.e., make an entity or collection of entities line up in a rectilinear shape/pattern for aesthetic reasons or for proper/optimal functioning)
<b>CTE</b>	(be) the state of being straight/rectilinear	
<b>CSV</b>	(be) the physical act of straightening; make something straight/rectilinear	
<b>OBJ</b>	(be) that which is straight(ened)	

<b>-CGV- 'JUNCTURE OF KINEMATIC PAIR'</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of one entity physically being connected to another via a structural juncture or pivot point	<b>Stem 2:</b> (be) an act/instance of being able to pivot due to the placement of a structural juncture  <b>Stem 3:</b> (be) a act/instance of structural/physical tension caused by pivoting within the constraints allowed by a structural juncture
<b>CTE</b>	(be) the state of being connected to another via a structural juncture or pivot point	
<b>CSV</b>	(be) the physical act of connecting via a structural juncture/pivot point	
<b>OBJ</b>	(be) the implement itself which establishes such a juncture or pivot point (e.g., a hinge, a universal joint, a ball joint, prismatic joint, cylindrical joint, snake-like flexible joint, etc.)	

<b>-TKF- 'MECHANICAL JOINT/PIVOT POINT FOR KINEMATIC PAIR' (allowing limited movement in one or two dimensions)</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) a connection utilizing a prismatic joint [allowing linear back-and-forth (or up-and-down) movement only]	<b>Stem 2:</b> (be) a hinge-like joint allowing relative rotation about a single axis, a.k.a. pin joint, revolute joint  <b>Stem 3:</b> (be) a cylindrical joint allowing circular rotation upon an axis
<b>CTE</b>	(be) the state of being connected via a prismatic joint	
<b>CSV</b>	(be) the physical act of connecting via a prismatic joint	
<b>OBJ</b>	(be) the prismatic joint implement itself	

<b>-LTKF- ‘MECHANICAL JOINT/PIVOT POINT FOR KINEMATIC PAIR’</b> (allowing 3-dimensional movement)		
<b>BSC</b>	<b>Stem 1:</b> (be) a ball-and-socket type of bending/swivel point or joint of an entity	<b>Stem 2:</b> (be) a universal joint  <b>Stem 3:</b> (be) a snake-like flexible entity
<b>CTE</b>	(be) the state of being connected via a ball-and-socket type of joint	
<b>CSV</b>	(be) the physical act of connecting via a ball-and-socket type of joint	
<b>OBJ</b>	(be) the ball-and-socket type of joint implement itself	

<b>-MSY- ‘ENERGY OUTPUT DIFFERENTIAL OR REDIRECTION VIA GEAR MECHANISM’</b> (allowing 3-dimensional movement)		
<b>BSC</b>	<b>Stem 1:</b> (be) a change in ratio of speed or energy output caused by a geared differential mechanism	<b>Stem 2:</b> [same as Stem 1 except that the gear mechanism is designed to redirect energy into a different direction as opposed to a change in energy output ratio or speed]  <b>Stem 3:</b> [combination of Stems 1 and 2; both change in energy output ratio or speed plus change in direction of energy output/utilization]
<b>CTE</b>	(be) the state of a having one’s energy output or speed changed via a gear mechanism	
<b>CSV</b>	(be) the physical act of changing the kinematic ratio or speed of energy output via a gear mechanism	
<b>OBJ</b>	(be) the gear mechanism which creates a change in kinematic ratio of energy output or speed	

<b>-ŘN- ‘SUSPEND / HANG (UP) / DANGLE / PENDENCY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of hanging something (up); to hang, suspend (i.e., supporting something continuously against gravity)	<b>Stem 2:</b> (be) an act/instance of dangling something; to dangle  <b>Stem 3:</b> (be) an act/instance of overhanging, jutting (out)
<b>CTE</b>	(be) a state of hanging/suspension; be hanging (up/on) something	
<b>CSV</b>	(be) the physical act of hanging something up or onto	
<b>OBJ</b>	(be) the implement/connecting medium used to keep something hanging (e.g., hook, knotted string/cord/rope, strap, harness, etc.)	

Morphological derivatives: swing

<b>-LX- ‘FLOTATION / HOVERING / DRIFTING / ALOFT’</b>		
<b>BSC</b>	Stem 1: (to be) an act/state/instance of flotation/drift upon the surface of a liquid or semi-liquid medium; to float upon something, to drift upon or along something [i.e., subject to uncontrolled, unpowered, random drifting]	<b>Stem 2:</b> (to be) an act/instance of being/floating/drift aloft; be aloft, soar, swim within or through, i.e., to have free movement or move freely within a 3-dimensional medium (e.g., air, water, space, etc.);  <b>Stem 3:</b> (to be) an act/instance of hovering in place within a medium (e.g., air, water, space, etc.); to hover [i.e., controlled station-keeping in one place within a 3-dimensional medium against the force of gravity]
<b>CTE</b>	(to be) that which floats or drifts	
<b>CSV</b>	(to be) an act/state of flotation/drift upon a (semi-)liquid surface; to (make) float/drift, to be afloat, to be adrift	
<b>OBJ</b>	(to be) the liquid or semi-liquid surface upon which one floats/drifts	

<b>-LR- ‘FLATTEN / SMOOTH / LEVEL’</b>		
<b>BSC</b>	Stem 1: (be) an act/instance of flattening; make flat(ter), render flat(ter) (i.e., make have a more planar surface without significant perturbations)	<b>Stem 2:</b> (be) an act/instance of making smooth (i.e., not having surface roughness, projections, or perturbations)  <b>Stem 3:</b> (be) an act/instance of make (more) level or even or parallel (i.e., make a quasi-linear or quasi-planar surface be as parallel to another surface or measuring line/plane as possible)
<b>CTE</b>	(be) a state of being flat	
<b>CSV</b>	(be) the physical act of flattening	
<b>OBJ</b>	(be) the implement/tool used to flatten something	

Morphological derivatives: polish

<b>-GF- ‘HOLD TOGETHER / HOLD STILL / BIND / RESTRAIN’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of holding something together on a long-term or (quasi-) permanent basis (i.e., so that it doesn’t separate, come apart, or disassemble)	<b>Stem 2:</b> (be) an act/instance of binding something (i.e., keeping it from coming apart, coming loose, or escaping by internal motion in-situ)  <b>Stem 3:</b> (be) an act/instance of holding something still; restrain (i.e., keeping it from moving from one place to another; keeping it in one place)
<b>CTE</b>	(be) a state of being held together	
<b>CSV</b>	(be) the physical act of holding together	
<b>OBJ</b>	(be) the implement/tool/medium used to keep something held together (e.g., clip, clasp, clamp, vice, clothespin, string/cord, rubber band, bookend(s), etc.)	

This root refers to long-term, (quasi-)permanent states of holding things together. For incidental, temporary contexts, see the next root below.

<b>-ÇJ- ‘HOLD UP / SUPPORT / BEAR UP / KEEP ALOFT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of supporting something up or holding something up so that it does not collapse; to support/hold up/bolster something against collapse	<b>Stem 2:</b> (be) an act/instance of bearing something so that it remains raised high, to hold high, to bear up (i.e., keeping it from falling or returning to a lowered height)
<b>CTE</b>	(be) a state of being held up or supported against collapse	
<b>CSV</b>	(be) the physical act of holding up or supporting against collapse	
<b>OBJ</b>	(be) the implement/tool/medium used to keep something held up (e.g., crutch, strut, hanging wire/rope/string, negative pressure, etc.)	<b>Stem 3:</b> (be) an act/instance of holding something aloft; to hold aloft, keep aloft (i.e., keeping it from returning/falling to the ground)

<b>-DJ- ‘ERECT / BRING TO A VERTICAL POSITION / RAISE UP’ (i.e., perpendicular to the ground)</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of erecting something to a vertical position perpendicular to the ground (or parallel to the direction of gravity)	<b>Stem 2:</b> (be) an act/instance of letting rise up to an erect position
<b>CTE</b>	(be) a state of erecting	<b>Stem 3:</b> (be) an act/instance of raising something up to a high(er) level, involving a use of energy and manipulation (as opposed to letting it rise freely on its own); to physically raise something to a high(er) level
<b>CSV</b>	(be) the physical act of erecting	
<b>OBJ</b>	(be) the means/implement/procedure/command used to erect something (e.g., pulley)	

<b>-MJ- ‘FELL / BRING DOWN / LOWER’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of making something fall via gravity from its (quasi-) perpendicular stance; to fell	<b>Stem 2:</b> (be) an act/instance of letting something fall; to drop
<b>CTE</b>	(be) a state of falling	<b>Stem 3:</b> (be) an act/instance of lowering something down to (quasi-) ground level from on high, involving a use of energy and manipulation (as opposed to letting it fall freely via gravity); to physically lower something to one's level
<b>CSV</b>	(be) the physical act of felling	
<b>OBJ</b>	(be) the means/implement/procedure/command used to make something fall	

<b>-PD- ‘GRAB / GRASP / PICK UP / PICK OUT / HANDLE / MANIPULATE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of grabbing/grasping something with one's hand or manipulative appendage(s)	<b>Stem 2:</b> (be) an act/instance of picking something up or picking something out of something else (i.e., physically isolating and removing something from its surface/medium/substrate)
<b>CTE</b>	(be) a state of being in another's grasp	
<b>CSV</b>	(be) the physical act of grabbing/grasping	<b>Stem 3:</b> (be) an act/instance of handling/manipulating something with one's hands or manipulative appendage(s)
<b>OBJ</b>	(be) the hand or appendage with which one grabs/grasps	

<b>-SČ- ‘BREAK APART / BREAK INTO PIECES / CRUMBLE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of breaking something apart or breaking something open	<b>Stem 2:</b> (be) an act/instance of breaking something into multiple pieces  <b>Stem 3:</b> (be) an act/instance of crumbling something into non-discreet pieces (i.e., powder, dust, gravel, crumbs, etc.)
<b>CTE</b>	(be) a state of being broken apart or broken open	
<b>CSV</b>	(be) the physical act of breaking apart or broken open	
<b>OBJ</b>	(be) the implement/tool/medium used to break something apart (e.g., pickaxe, crowbar, sledgehammer, mallet, chisel, etc.	

<b>-RKS- ‘SPLIT IN HALF / DIVIDE INTO PARTS / SPLIT OFF A PIECE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of splitting/dividing something in two/half; to split into two, to split in half	<b>Stem 2:</b> (be) an act/instance of splitting/dividing something into three or more parts/portions  <b>Stem 3:</b> (be) an act/instance of splitting/dividing off a smaller piece of something from the larger whole
<b>CTE</b>	(be) a state of being split/dividing in half	
<b>CSV</b>	(be) the physical act of splitting/dividing in half	
<b>OBJ</b>	(be) the implement/tool/medium used to split/dividing something in half	

<b>-ZN- ‘MANUAL MANIPULATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of incidentally or temporarily holding something together (i.e., so that it doesn’t separate, come apart, or disassemble)	<b>Stem 2:</b> (be) an act/instance of incidentally or temporarily manipulating something (e.g., manually touching, turning, twisting, squeezing, stroking it, etc.)  <b>Stem 3:</b> (be) an act/instance of incidentally or temporarily holding something still; restrain (i.e., keeping it from moving from one place to another; keeping it in one place)
<b>CTE</b>	(be) a state of being incidentally or temporarily held together	
<b>CSV</b>	(be) the physical act of incidentally or temporarily holding together	
<b>OBJ</b>	(be) the implement/tool/medium used to keep something incidentally or temporarily held together (e.g., pliers, tweezers, forceps, etc.)	

<b>-ČN- ‘MOVE APART / DRAW APART / OPEN’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of moving two or more entities apart (to create a gap or opening or passageway)	<b>Stem 2:</b> (be) an act/instance of pushing (i.e., applying force/pressure toward) an entity in order to move it apart so as to create a gap, opening, or passageway  <b>Stem 3:</b> (be) an act/instance of pulling (i.e., drawing force/pressure away from) an entity in order to move it apart so as to create a gap, opening, or passageway
<b>CTE</b>	(be) a state of being/having been moved apart	
<b>CSV</b>	(be) the physical act of moving two or more entities apart (e.g., via pulling, pushing, or other force or means)	
<b>OBJ</b>	(be) the means/implement/procedure used to effectuate an act of moving apart	

<b>-MC- ‘JUNCTION / CONNECTION / FASTENING / BONDING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of joining two or more entities together so that they become a set (i.e., bringing two or more entities spatially close or in contact so that they move/function or can be considered as a set)	<b>Stem 2:</b> (be) an act/instance of connecting or attaching; a connection; to connect or attach (i.e., utilize a tangible part of an object, or a dedicated implement, e.g., wire, rope, glue, staple, etc., to form a physical link between two or more entities)  <b>Stem 3:</b> (be) an act/instance of fastening/bonding; a bond; to fasten or bond (i.e., utilize a dedicated implement or means, e.g., wire, rope, glue, staple, etc., to physically attach two or more entities together in a (quasi-)permanent or long-term bond so that one entity is now considered part of another or that the entities are considered a unit)
<b>CTE</b>	(be) a state of being a member of a set	
<b>CSV</b>	(be) the physical act of joining together into a set	
<b>OBJ</b>	(be) the juncture itself which one establishes or seeks to establish by an act of joining	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RMC- ‘LINKAGE / UNIFICATION / FUSION / MERGING / COALESCING / MELDING’</b>
<b>Stem 1:</b> (be) an act/instance of linking; a link, linkage; to link (i.e., a joining together of entities with a focus on the individual members of the resulting set maintaining their individual autonomy/identity)
<b>Stem 2:</b> (be) an act/instance of unifying, uniting (i.e., joining entities together so that they are objectively or subjectively a unit, a single gestalt entity)
<b>Stem 3:</b> (be) an act/instance of fusion/merging/coalescing/melding (i.e., joining entities together so that each loses its individual boundaries or compositional integrity and becomes part of or mixed with others into a (quasi-)indivisible physical whole.

<b>-JT- ‘PENETRATION / DRIVING INTO / INJECTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of penetration through a (quasi-)two-dimensional surface (i.e., the passing of an external entity into or through a quasi-planar surface in which the structural integrity of the surface is broken/interrupted)	<b>Stem 2:</b> (be) an act/instance of driving into (i.e., forceful insertion or penetration through a resistant/hard surface by breaking/interrupting its surface integrity and passing into the resistant/hard three-dimensional volume beyond via pure force and quasi-violent breaking/distortion/displacement of the structural integrity of that volume)
<b>CTE</b>	(be) a state of being/having been penetrated	
<b>CSV</b>	(be) the physical act of penetration	
<b>OBJ</b>	(be) the entity/object employed to penetrate (e.g., a nail, screw, blade, pointed object, etc.)	<b>Stem 3:</b> (be) an act/instance of injection

NOTE: This root refers only to the act/process of penetration of an external entity through a two-dimensional medium or into a three-dimensional medium; it is not focused on the resulting state of interiority itself. Thus, for translations of English words focused on the resulting state of interiority rather than the interruption of the surface integrity, e.g., ‘insert, infuse, immerse, instill, imbue, implant’, use an appropriate SPATIO-TEMPORAL Root instead, e.g., -XW-, -XL-, -CW-, -TP-, -DB- and/or appropriate Spatio-Temporal affixes associated with these roots.

<b>-ŇÇ- ‘EXTRACTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of extraction; to extract, draw out, draw forth (i.e., to remove or separate out something from something else by using physical force, causing it to exit from some surrounding or encasing medium or substrate, e.g., pulling, sucking, reversal of pressure, etc.)	<b>Stem 2:</b> (be) an act/instance of removing something from some surrounding medium/substrate by physically invading/cutting into that medium and forcibly extracting (e.g., surgery, digging for something, immersing one’s hands or appendage(s) into and grabbing, etc.)  <b>Stem 3:</b> (be) an act/instance of obtaining or drawing out something from a surrounding medium/substrate by chemical or other non-manual means (e.g., osmosis, titration, burning, chemical reaction, etc).
<b>CTE</b>	(be) a state of being/having been extracted, drawn out, withdrawn out of something	
<b>CSV</b>	(be) the physical act of extraction; to do something that physically extracts, draws something forth/out	
<b>OBJ</b>	(be) the entity/object employed to extract	

<b>-ᐃᐅ- ‘STRETCH / ELONGATE / SPREAD’</b>		
NOTE: This root refers to expansion in size <b>without</b> an entity’s individual component members/contents/nodes themselves expanding, but rather only the space [or underlying substrate or connective medium] between them		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of linear (i.e. unidimensional) stretching or elongation; to stretch, to elongate [i.e., to expand in size along a single dimensional axis without the individual component molecules/members/contents themselves expanding, but rather only the space between them]	<b>Stem 2:</b> (be) an act/instance of planar (two-dimensional) stretching, expansion or spreading; to spread (two-dimensionally), to expand in terms of surface area  <b>Stem 3:</b> (be) an act/instance of quasi-spheroidal (3-dimensional) stretching or expansion; to expand (3-dimensionally)
<b>CTE</b>	(be) a state of being/having been [unidimensionally] stretched or elongated	
<b>CSV</b>	(be) the physical act of [unidimensionally] stretching or elongation	
<b>OBJ</b>	(be) the means/implement/procedure used to [unidimensionally] stretch	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-ᐃᐅᐅ- ‘STRETCH / ELONGATE / SPREAD [under tension]’</b>
The three stems of this root are identical to the stems of the above root <b>-ᐃᐅ-</b> except that they connote a concurrent physical strain/tension with the act of stretching/spreading/expansion, so that the elongated/expanded entity is subject to potential recoil or collapse back to its original state if the stretching/expansion force being applied is terminated.

<b>-CD- ‘ADHESION / STICKINESS / AGGREGATION / AGGLOMERATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of adhesion; to adhere (i.e., something sticking to something else via some adhesive medium)	<b>Stem 2:</b> (be) an act/instance of stickiness; be sticky; to stick (i.e., to physically adhere to something via a sticky medium where the focus is on the textural stickiness of the adhesion, not necessarily the fact of adhering)
<b>CTE</b>	(be) a state of adhesion	
<b>CSV</b>	(be) the physical act of adhering	
<b>OBJ</b>	(be) an entity/substance used for adhering; an adhesive	<b>Stem 3:</b> (be) an act/instance of aggregation/agglomeration/conglomeration (i.e., bringing separate entities physically together for a unified purpose, where the focus is on their functioning together as opposed to the nature of the physical connection itself)

<b>-TL- ‘COMMENCEMENT / ACTIVATION / INITIATION / INSTIGATION’</b>		
(NOTE: This root refers to ‘beginning/initiation’ meaning ‘activate, start/initiate from a stopped/dormant state, or the commencement of a common/recurring/pre-arranged activity; for the ‘beginning/initiation’ meaning “origination, first-time occurrence, first-time causation”, see the root <b>-GN-</b> .		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of commencing/starting an act/event/state (i.e., the transition moment/period between a non-active vs. active state)	<b>Stem 2:</b> (be) an act/instance of initiating/activating something; to activate, to initiate, to start up (i.e., the act/process/procedure necessary to bring energy to a non-active state/entity so that it becomes active, e.g., starting a motor, activating a device, initiating a complex procedure, etc.)
<b>CTE</b>	(be) a state of commencement/starting	
<b>CSV</b>	(be) the physical act of commencing/starting	
<b>OBJ</b>	(be) an entity/object used to commence/start something	<b>Stem 3:</b> (be) an act/instance of instigation; to instigate (i.e., set in motion a series of events or arranging a precursor state/act/event that will lead to a specific outcome)

<b>-PL- ‘TURN / VEER / PITCH’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of turning something; to turn something (i.e., cause an object to move in an <b>arc-like</b> motion so that its direction/orientation relative to the surrounding space/surface/medium/substrate changes)	<b>Stem 2:</b> (be) an act of veering; to veer (i.e., a sudden, unexpected turn)  <b>Stem 3:</b> (be) an act of changing one’s pitch; to pitch upward or downward (i.e., to turn one’s orientation on a vertical axis upward or downward relative to one’s (quasi-)static horizontal frame of reference)
<b>CTE</b>	(be) a state of being turned	
<b>CSV</b>	(be) the physical act of turning	
<b>OBJ</b>	(be) an entity/object used to make something turn	

NOTE: Use this root with various spatial affixes to add specific detail, e.g., SPR, CRC, SPM, SWM, SPN, IPE, IPF, PFL, etc.

**NOTE:** the meaning of the old FORMAL and INFORMAL stems previously associated with this root have been distributed between this and the following new root with the same Specification pattern:



<b>-RPL- ‘SPINNING / REVOLVING / ORBIT / ROTATION’</b>	
<b>Stem 1:</b>	(be) an act/instance of spinning/revolving (i.e., revolving in place on one’s own rotational axis)
<b>Stem 2:</b>	(be) an act/instance of revolving/orbiting; to revolve/orbit (i.e., to follow a (quasi-)circular motion around another entity/object)
<b>Stem 3:</b>	(be) an act of rotation; to rotate

<b>-LXR- ‘ROLL / WHEELED TRANSLATIVE MOTION / WIND UP OR AROUND’</b>	
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of rolling an entity [i.e., vertical spinning motion relative to a quasi-stationary substrate resulting in vectored movement]
<b>CTE</b>	(be) a state of rolling
<b>CSV</b>	(be) the physical act of rolling; to roll something or to make something revolve
<b>OBJ</b>	(be) an entity/object used for rolling (e.g., log, wheel, bobbin, reel, spool, etc.)
<b>Stem 2:</b> (be) an act/instance of moving an object/entity translatively by means of wheel(s)  <b>Stem 3:</b> (be) an act/instance of winding something into a coil (e.g., string, wire, rope, etc.) by continuous circular turning; to wind (up) into a coil	

<b>-ŽN- ‘IMPULSE / PUSHING / PROPULSION’</b>	
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of pushing something; to push (i.e., make something move by exerting an impulsive force upon it via one’s hands or appendages or via a manually-controlled object/device)
<b>CTE</b>	(be) a state of being pushed
<b>CSV</b>	(be) the physical act of pushing
<b>OBJ</b>	(be) an entity/object used to push
<b>Stem 2:</b> (be) an act/instance of shoving, bumping, butting, prodding (i.e., using one’s hands or body, or a manually-controlled extension thereof, to deliver a sudden push to another entity for the ostensible purpose of making it move out of one’s path or to gain the entity’s attention)  <b>Stem 3:</b> (be) an act/instance of thrusting or propulsion; to make something (or oneself) move quickly via a sudden, violent use of impulsive force	

<b>-ŽR- ‘THROWING / LAUNCHING / SHOOTING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of throwing something (i.e., using one’s arms or other appendage to suddenly and forcefully impel/project an object into the surrounding air/space where its path of motion then becomes subject to gravitational/environmental forces)	<b>Stem 2:</b> (be) an act/instance of discharging, firing off, shooting a projectile from a firearm or other device using violently explosive/propulsive force; to shoot, fire off, discharge
<b>CTE</b>	(be) a state of being thrown	<b>Stem 3:</b> (be) an act/instance of launching an airborne or spaceborne projectile, rocket or craft using a large amount of force (e.g., chemical rockets, nuclear reaction, anti-gravity, magic, etc.); to launch a weapon/missile/aircraft/spacecraft
<b>CSV</b>	(be) the physical act of throwing	
<b>OBJ</b>	(be) an entity/object used to throw	

<b>-ÇV- ‘TRACTION / DRAWING / PULLING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of pulling or drawing (i.e., make something move by exerting a tractive force upon it via one’s hands or appendages or via a manually-controlled object/device)	<b>Stem 2:</b> (be) an act/instance of dragging, tugging, towing, lugging (i.e., to pull/draw with resistance from the entity being towed either due to gravity, friction, or the pulled entity’s own resistive efforts)
<b>CTE</b>	(be) a state of being pulled or drawn	<b>Stem 3:</b> (be) an act/instance of hauling, trawling, raking (i.e., using pulling/drawing force to carry/convey/transport a load/object/entity)
<b>CSV</b>	(be) the physical act of pulling or drawing	
<b>OBJ</b>	(be) an entity/object used to pull or draw, e.g., rope, reins, chain, etc.	

Morphological derivative: hoist

<b>-FJ- ‘IMPEDE / HINDER / BLOCK / STOP / INTERFERE / INTERRUPTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of impeding/hindering the path or flow or course of an entity or impede/hinder some activity or active state [CPT version = to block, to stop, make cease]	<b>Stem 2:</b> (be) an instance of a channel or conduit through which something flows becoming clogged/obstructed/blocked; to clog, to block
<b>CTE</b>	(be) a state of being impeded/hindered	<b>Stem 3:</b> (be) an act/instance of interfering, interrupting or obstructing some entity or activity or state, with the intent to disrupt it and make it ineffectual; to hinder, to interfere, to interrupt, to obstruct [CPT version = to disrupt]
<b>CSV</b>	(be) the physical act of impeding/hindering	
<b>OBJ</b>	(be) an entity/object used to impede/hinder	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

**-RFJ- ‘CONstriction / SEALING / PLUGGING / PREVENTION’**

**Stem 1:** (be) an act of constricting or choking something; a constriction; to constrict, to choke [CPT = to cut off the flow of something]

**Stem 2:** (be) an act/instance of sealing or plugging ; to seal, to plug

**Stem 3:** (be) an act/instance of prevention; to prevent something from happening [CPT version = to thwart]

**-ṬS- ‘COVERING / SUPERIMPOSITION / ENCASEMENT / SHEATH’**

<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of covering something; to cover (i.e., superimposing an entity over/onto another for the purpose of protection, concealment, etc.)	<b>Stem 2:</b> (be) an act/instance of placing an encasing medium/material around something; to encase, to wrap
<b>CTE</b>	(be) a state of being covered	<b>Stem 3:</b> (be) an act/instance of sheathing; to sheathe (i.e., to place something into its associated/customized encasing cover/holder/container
<b>CSV</b>	(be) the physical act of covering	
<b>OBJ</b>	(be) an entity/object used to cover (e.g., lid, blanket, tarp, screen, etc.)	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

**-ṚṬS- ‘TOP / ROOF / VENEER / COATING / MASK’**

**Stem 1:** (be) an act/instance of placing a top or roof(-like covering); to roof, to tent, to put a top upon something

**Stem 2:** (be) an act/instance of placing a veneer, facing, coating, crust, or protective layer (of a substance/material) onto something

**Stem 3:** (be) an act/instance of masking something; put a mask on something; to mask (i.e., a false face or false exterior covering designed to hide the appearance of something)

**-ṢM- ‘SURFACE APPLICATION / OVERLAY / PAINT’**

<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of applying a (quasi-)liquid or viscous substance or material to the surface of something; to apply a substance/material to something	<b>Stem 2:</b> (be) an act/instance of spreading/overlaying a substance or medium onto another so that it is flush with, in complete contact with, or adheres to the underlying entity; to spread on(to), to overlay, to coat, to smear (e.g., frosting, plaster, stucco, peanut butter, etc.)
<b>CTE</b>	(be) a state of having (had) a substance/material applied	<b>Stem 3:</b> (be) an instance of painting a surface; to paint (NOTE: signifies application of paint to a surface only; does not signify the creation of an image/design using paint)
<b>CSV</b>	(be) the physical act of applying a (quasi-)liquid or viscous substance or material	
<b>OBJ</b>	(be) the material or substance (to be) applied	

<b>-ÇDR- ‘LEVERAGE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of leveraging; to leverage (i.e., to move/hoist something by means of the principle of the lever)*	<b>Stem 2:</b> (be) an act/instance of being the balancing point for an act of leverage; function as/like a fulcrum  <b>Stem 3:</b> (be) an instance of being the force/pressure/power applied to move/hoist something by means of leverage
<b>CTE</b>	(be) a state of being leveraged	
<b>CSV</b>	(be) the physical act of leveraging	
<b>OBJ</b>	(be) a lever	

\*If using this stem figuratively (as is common in contemporary business English), it must be morphologically marked as being metaphorical.

<b>-TŇ- ‘FILL / INUNDATE / FILL-IN / STUFF’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of filling something (up) (i.e., use an empty volume of space as a container/holder for some something)	<b>Stem 2:</b> (be) an act/instance of filling something in, stuffing (i.e., to fit/move/insert something into a contained space to the point where the contained space is completely filled)  <b>Stem 3:</b> (be) an instance of inundating a space with some entity/substance; to inundate, to flood, cover over/up (e.g., with a liquid, gas, or malleable substance which completely supplants, covers, or renders inaccessible a surface, an object, or a contained volume of space)
<b>CTE</b>	(be) a state of being filled	
<b>CSV</b>	(be) the physical act of filling	
<b>OBJ</b>	(be) the substance/entity with which a contained space is filled	

<b>-ŠŇ- ‘INFLATION / PRESSURIZATION / VENTILATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of inflating or puffing up with air or other gaseous substance; to inflate, to puff up with air/gas [both the act/process of inflation and the state of being inflated with air/gas]	<b>Stem 2:</b> (be) an act/instance of pressurization  <b>Stem 3:</b> (be) an instance of ventilation [i.e., maintain a state of pressurization/inflation via continuous flow /replacement of air or gas]
<b>CTE</b>	(be) a state of being inflated/puffed up	
<b>CSV</b>	(be) the physical act of inflation/puffing up; to inflate, puff up	
<b>OBJ</b>	(be) the substance/gas with which a contained space is inflated or puffed up	

<b>-XV- ‘COMPRESSION / COMPACTING / CONCENTRATION / POTENTIAL ENERGY STORAGE’</b> Associated Affix: <b>DCP</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of compression/compaction; to compress, to compact, to squeeze [i.e., decrease the dimensional volume of something via externally applied pressure]	<b>Stem 2:</b> (to be) a state/act of compression/compaction/concentration/ condensing; to compress, to compact, to concentrate, to condense [i.e., to fit a greater amount of a material, substance, content, into a fixed space via increasing its density per volume]  <b>Stem 3:</b> (to be) a state/act of energy storage; to store potential energy [OBJ = ‘battery’]
<b>CTE</b>	(to be) a state of being compressed/compacted/squeezed	
<b>CSV</b>	(to be) the physical act of compressing/compacting/squeezing	
<b>OBJ</b>	(to be) the means/implement/procedure by which something is compressed/compacted/squeezed	

<b>-TÇV- ‘DISSIPATION / DISPERSION / SCATTERING / THINNING / CULLING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of dissipating/dispersing; to dissipate/disperse something (i.e., render a conglomerate entity less viable or concentrated by increasing the distance between its members or component entities)	<b>Stem 2:</b> (to be) a state/act of scattering; to scatter [i.e., dissemble or destroy the symmetry/order/arrangement/viability of a multi-member or conglomerate entity by physically separating its members/components in (quasi-)random fashion]  <b>Stem 3:</b> (to be) a state/act of thinning/culling [i.e., rendering a conglomerate entity less viable or less concentrated by removing/eliminating some of its members or component entities]
<b>CTE</b>	(to be) a state of being / having been dissipated/dispersed	
<b>CSV</b>	(to be) the physical act of dispersion/dissipation; to dissipate/disperse	
<b>OBJ</b>	(to be) the means/implement/procedure by which something is dissipated/dispersed	

<b>-LTR- ‘DRAINAGE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of draining a liquid via gravity; to drain a liquid via gravity [i.e., remove/relocate a volume of liquid by means of pouring it or channeling it via gravity through a hole/conduit/pipe/chnnel, etc.	<b>Stem 2:</b> (to be) an act of drainage via osmosis/soaking/absorption into a surrounding media (e.g., the ground, a bandage, absorptive cotton, etc.)  <b>Stem 3:</b> (to be) an act/state of drainage via pressure/suction/pumping; to drain via pressure/suction/pumping
<b>CTE</b>	(to be) a state of being / having been drained	
<b>CSV</b>	(to be) the physical act of draining; to drain	
<b>OBJ</b>	(to be) the liquid which is removed/relocated by being drained	

**NOTE:** the following root uses the same Specification pattern as the above root:

**-FTR- 'RINSING / DRYING / EVAPORATION'**

**FRM Stem 1:** (to be) a state/act of rinsing; to rinse [i.e., pour/spray water or other liquid upon/over an object/entity for the purpose of removing superficial material]

**FRM Stem 2:** (to be) a state/act of drying; to dry [i.e., remove all presence of wetness or moisture]

**FRM Stem 3:** (to be) an act/state of evaporation; to evaporate

**-SMY- 'SORTING / STRAINING / SIFTING / AGGREGATION'**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of sorting through something in order to find/separate out a particular kind of entity from it; to sort through something in order to find/separate out a particular kind of entity from it [i.e., separate one or more of a particular kind of entity from a group of multiple kinds of entities]	<b>Stem 2:</b> (to be) a state/act of straining/sifting something in order to separate out certain ingredients/elements/components/contaminants, etc.; to strain/sift something out of something else
<b>CTE</b>	(to be) a state of being / having been sorted through	<b>Stem 3:</b> (to be) a state/act of locating and setting aside, bringing together, or aggregating members of a particular kind of entity from various/separate locations; to aggregate members of a particular kind of entity from various/separate locations
<b>CSV</b>	(to be) the physical act of sorting; to sort	
<b>OBJ</b>	(to be) the entity/object or collection of entities through which one sorts in order to separate out a particular kind of entity	

**-SXL- 'FILTRATION / DISCRIMINATION / SEGREGATION'**

<b>BSC</b>	<b>STEM 1:</b> (to be) an act/state of filtering or filtration; to filter something out of something else	<b>STEM 2:</b> (to be) an act of discrimination; to discriminate
<b>CTE</b>	(to be) a state of being / having been filtered	<b>STEM 3:</b> (to be) an act/state of segregation; to segregate
<b>CSV</b>	(to be) the physical act of filtering; to filter	
<b>OBJ</b>	(to be) the entity/object or collection of entities being filtered	

**-SXR- 'COMBING / BRUSHING / RAKING / CARDING'**

<b>BSC</b>	<b>STEM 1:</b> (to be) an act/state of combing (through) hair/fur; to comb (through) hair/fur	<b>STEM 2:</b> (to be) an act/state of brushing hair/fur; to brush hair/fur
<b>CTE</b>	(to be) a state of being combed	<b>STEM 3:</b> (to be) an act/state of raking or carding (to remove unwanted elements from a substrate (e.g., fallen leaves from grass, knots from wool, etc.); to rake or card
<b>CSV</b>	(to be) the physical act of combing hair/fur; to run a comb through hair/fur	
<b>OBJ</b>	(to be) the hair/fur being combed	

<b>-ZṬ- ‘ABSORPTION / IMBUEMENT / INFILTRATION /’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of absorption; to absorb (i.e., for a [quasi-]liquid substance to be soaked up into a porous material)	<b>Stem 2:</b> (be) an act/instance of imbuelement/infusion; to imbue, to infuse (i.e., to introduce a quality or characteristic into an entity so that it spreads throughout and becomes part of that entity’s character/essence/identity, etc.)
<b>CTE</b>	(be) a state of being (or having been) absorbed	
<b>CSV</b>	(be) the physical act of absorbing	
<b>OBJ</b>	(be) a porous material which absorbs	<b>Stem 3:</b> (be) an instance of infiltration

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-RZṬ- ‘SOAK / DIFFUSION / PERMEATION / OSMOSIS’</b>	
<b>Stem 1:</b> (be) an act/instance of soaking/sousing	
<b>Stem 2:</b> (be) an act/instance of diffusion/suffusion; to diffuse, to suffuse [CPT version = to permeate]	
<b>Stem 3:</b> (be) an act/instance of osmosis	

<b>-SJ- ‘COMBINE / (INTER-)MINGLE / MIX / BLEND / SYNTHESIS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of combining two or more entities (i.e., bring separate entities together to function as one, for to achieve a more effective/desirable result/outcome than would/could be achieved by having the entities remain separate); to combine	<b>Stem 2:</b> (be) an act/instance of mixing or (inter-)mingling two or more parties/entities (i.e., for the purpose of having the entities interact/associate with each other in some way); to mix
<b>CTE</b>	(be) a state of being (or having been) combined	
<b>CSV</b>	(be) the physical act of combining	<b>Stem 3:</b> (be) an instance of synthesizing; to synthesize (i.e., to combine elements to form a new gestalt)
<b>OBJ</b>	((to be) the rule(s)/pattern(s)/procedure(s) one follows in order to achieve a meaningful or coherent combination of elements	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RSJ- ‘BLENDING / FUSION / AMALGAMATION / SYNERGY’</b>	
<b>Stem 1:</b> (be) an act/instance of mixing/blending two or more entities together (i.e., same as Stem 1 of the above root except that the two entities coalesce/merge/dissolve into a new gestalt entity); to blend, to fuse, to amalgamate	
<b>Stem 2:</b> (be) an act/instance of synergy	
<b>Stem 3:</b> (be) an act/instance of synergy with emergent properties	

<b>-RČ- ‘DAMAGE / CORRUPTION / SUBVERSION / RUIN / DESTRUCTION / DEMOLISH / ELIMINATION / ERADICATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of physically damaging [CPT version = wreck, destroy physically, i.e., damage to the point of physical irreparability]	<b>Stem 2:</b> (be) an act/instance of rendering less-than-fully operable/functional; corrupt, subvert, undermine [CPT Version = ruin, devastate, break up, destroy operationally, i.e., damage, corrupt, or subvert to the point of being unable to function/operate]
<b>CTE</b>	(be) a state of being (or having been) physically damaged	
<b>CSV</b>	(be) the physical act of damaging	<b>Stem 3:</b> (be) an act/instance of reducing the presence/existence of; to reduce, lessen [CPT version = eradicate, eliminate, annihilate, “disappear”, i.e., to render something non-existent]
<b>OBJ</b>	(be) that which is used to physically damage	

<b>-BN- ‘CHANNEL / STEER / AIM’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of channeling; to channel (i.e., direct one’s translative course or that of another through a channel or conduit)	<b>Stem 2:</b> (be) an act/instance of steering; to steer (i.e., direct one’s course via manually-manipulated means)
<b>CTE</b>	(be) a state of being (or having been)	
<b>CSV</b>	(be) the physical act of	<b>Stem 3:</b> (be) an act/instance of aiming; aim for, take aim at
<b>OBJ</b>	(be) that which is used to channel the course of something (e.g., a funnel, chute, conduit, pipe, tube, trough, shaft, etc.)	

<b>-DC- ‘SAFETY / SECURITY / LOCK’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of making something safe (i.e., removing the threat of other entities from harming something or someone)	<b>Stem 2:</b> (be) an act/instance of securing something, safekeeping, i.e., establishing preventative practices/protocols/procedures with the goal of keeping something safe from external harm/damage; to secure, keep safe
<b>CTE</b>	(be) the state of being safe	
<b>CSV</b>	(be) the physical act of making something/someone safe	<b>Stem 3:</b> (be) a act/instance of locking something, i.e., establishing a physical means by which other entities cannot reach or have contact with something, or by which an entity is prevented from reaching or having contact with external parties
<b>OBJ</b>	(be) the object/entity/procedure/rule/law, etc. by which one effectuates a state of safety	



<b>-ÇMY-      ‘BUFFER / FAIL-SAFE / LIAISON’</b>		
<b>BSC</b>	Stem 1: (be) an act/instance of buffering; to buffer (i.e., place an intervening medium between two entities as a protective measure)	<b>Stem 2:</b> (be) an act/instance of functioning as a fail-safe; to function/act as a fail-safe measure  <b>Stem 3:</b> (be) a act/instance of being/functioning as a go-between or liaison; to function as a go-between or liaison (i.e., a neutral entity or party for purposes of diplomacy)
<b>CTE</b>	(be) the state of being buffered	
<b>CSV</b>	(be) the physical act of buffering; to do something that acts as or creates a buffer	
<b>OBJ</b>	(be) the object/entity/procedure/rule/law, etc. used to buffer	

Derivations: metal washer, spinal disc, etc.

<b>-ZW-      ‘CLEANLINESS / PURITY / DECONTAMINATION / DISINFECTION / SANITATION / HYGIENE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) a state of cleanliness; be clean, to (make) clean (i.e., a state of being relatively free from dirt/grime/germs/mold, etc.) *	<b>Stem 2:</b> (be) a state of purity, being pure; be/make pure, purify, decontaminate, disinfect (i.e., to be/make free from foreign/invasive/polluting substances)  <b>Stem 3:</b> (be) a state/act of proper sanitation/hygiene; be sanitary/hygienic, exercise proper sanitation/hygiene (i.e., practices which help to ensure an entity/party/environment remains clean or pure)
<b>CTE</b>	(be) a state of cleanliness	
<b>CSV</b>	(be) a physical act of cleaning	
<b>OBJ</b>	(be) the entity/party/object (to be/being) cleaned	

\* This stem does not mean ‘organize’ or ‘de-clutter’ as in “to clean a room”; see the next root below.

<b>-TB-      ‘TIDINESS / ORDERLINESS / GROOMING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) a state of tidiness/orderliness/neatness, being tidy/orderly;neat; to tidy (up), put in order, to neaten (i.e., to organize/arrange the location/placement of entities in an environment so that they are logically and neatly arranged for ease of use and so the environment has a positive aesthetic appearance)	<b>Stem 2:</b> (be) a state of pristineness, pristine condition; to be/keep/maintain (in) pristine (condition) (i.e. in original condition)  <b>Stem 3:</b> (be) a state of being well-groomed; to groom (i.e. be/make free from slovenliness)
<b>CTE</b>	(be) a state of orderliness/tidiness/neatness	
<b>CSV</b>	(be) an act of tidying/neatening; to make tidy or neat, to tidy up	
<b>OBJ</b>	(be) that which is (to be) tidy/neat/orderly	

<b>-MBW- ‘SUCTION / PUMPING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) a state/act of orally sucking; to orally suck (i.e., create a velaric ingressive airstream in one’s oral cavity in order to suck in liquid, food, air, etc.)	<b>Stem 2:</b> (be) a state/act of suction; to suction, create suction  <b>Stem 3:</b> (be) a state/act/process of storing/transferring/draining liquid or gas by means of pumping; to pump a liquid or gas for purpose of storage/transfer/drainage [i.e., via artificially created pressure differential]
<b>CTE</b>	(be) a state of being sucked	
<b>CSV</b>	(be) an act of sucking; to physically suck something	
<b>OBJ</b>	(be) that into which something is suck	

<b>-VTŁ- ‘HANDLE / MANIPULATIVE ASSISTIVE COMPONENT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act/process of supporting oneself by holding onto a handle (i.e., a protruding extension, ring, bar, etc. of an entity designed for one to hold onto)	<b>stem 2:</b> (to be) a state/act of physically controlling another entity by holding onto its handle (e.g., a pot handle, the handle of a hammer or shovel, the handle of a gun, etc.)  <b>stem 3:</b> (to be) a remote control device (e.g., a joystick controller, a detonation plunger, etc.)
<b>CTE</b>	(to be) a handle (e.g., of a cane)	
<b>CSV</b>	(to be) an act/process of making use of a handle; to grab/hold (onto) a handle	
<b>OBJ</b>	(to be) the entity being supported by holding onto a handle	

### 2.1.2 Implements/Materials/Substances Used To Maintain Completed States Created via Tools/Devices/Machines/Manual Processes

<b>-CŇ- PIN / TACK / STAPLE</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) a state/act of maintaining a state between entities by means of a pin, (be) a pin in use, a pin being used; to utilize, make use of a pin	<b>Stem 2:</b> (be) a state/act of maintaining a state between entities by means of a tack, (be) a tack in use, a tack being used; to utilize, make use of a tack  <b>Stem 3:</b> (be) a state/act of maintaining a state between entities by means of a staple, (be) a staple in use, a staple being used; to utilize, make use of a staple
<b>CTE</b>	(be) a pin	
<b>CSV</b>	(be) an act of utilizing/making use of a pin; use/make use of a pin	
<b>OBJ</b>	(be) what a pin is holding together	

The following roots/stems follow the same Specification pattern as the root PIN/TACK/STAPLE above:

**-CPY-** 1. nail 2. spike 3. pile (i.e., a foundational support structure)

**-DBL-** 1. stopper 2. plug/cap 3. seal/suture

**-GDW-** 1. putty 2. caulk 3. grout

**-GDR-** 1. adhesive 2. paste 3. glue

**-KṬW-** 1. string/twine/cord 2. wire 3. strap

**-FSM-** 1. brace 2. girder 3. crossbeam

**-JDY-** 1. stent 2. tubing 3. valve

**-CPW-** 1. screw 2. bolt 3. rivet

**-GDY-** 1. cement 2. mortar 3. plaster

**-GDL-** 1. resin 2. polymer 3. solder

**-KṬT-** 1. clip 2. clamp 3. staple

**-KṬY-** 1. button 2. zipper 3. velcro fastener

**-FSN-** 1. hook 2. frame 3. rigging/scaffolding

**-RBB-** ‘LIQUID MEDIA USED AS TOOL’ 1. soaking agent/medium 2. hydration agent/medium 3. lubricant/lubricating agent/medium

**-ŽBY-** ‘GUIDING ALONG/THROUGH A CHANNEL’ 1. funnel 2. trough 3. chute

**-XBL-** ‘LIQUID AS RESOURCE CONSUMED IN A PROCESS 1’ 1. fuel 2. machine oil 3. cooking oil

**-XBR-** ‘LIQUID AS RESOURCE CONSUMED IN A PROCESS 2’ 1. cleansing agent 2. hydraulic fluid 3. solvent

<b>-SS- ‘TOOL / INSTRUMENT / PIECE OF EQUIPMENT’</b>		Affix: <b>TDM</b>
<b>BSC</b>	<b>Stem 1:</b> (to be) a tool, instrument, implement, piece of equipment as extension of bodily appendage(s); use a tool (e.g., as per force, strength, precision, reach, pressure, instrument as labor-saving or efficiency-increasing means etc.) — [both implement and the manner/process of its function]	<b>Stem 2:</b> (to be) a tool, instrument, implement, piece of equipment as a means of “defying” the forces of Nature (e.g., as with a wheel, fulcrum, wedge, clamp, etc.); use such a tool — [both implement and the manner/process of its function]  <b>Stem 3:</b> (to be a) supply-like resource/implement/piece of equipment used by itself or in association with specific tool to maintain/sustain a constructed state (e.g., a nail, tack, hook, rivet, staple, screw, clothespin, etc.)
<b>CTE</b>	(to be) the manner/process (i.e., how it works) of using a tool or implement; to engage in the manner/process of using a tool	
<b>CSV</b>	(to be) a tool, instrument or implement; use a tool	
<b>OBJ</b>	(to be) the party/entity using a tool or implement	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-RSS- ‘UTENSIL / IMPLEMENT / FUEL’</b>
<b>Stem 1:</b> (to be a) utensil, specialized implement for assisting in refined task <b>Stem 2:</b> (to be a) mechanical / motorized / electric / electronic implement/utensil <b>Stem 3:</b> (to be a) supply-like resource/implement used as fuel or input for a mechanical / electrical / electronic implement/utensil

<b>-SST- ‘DEVICE / APPARATUS / MACHINE / ENGINE / MOTOR’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act/process of a mechanical device/apparatus/contraption functioning/operating; for a mechanical device, apparatus, or contraption to operate/function	<b>stem 2:</b> (to be) a state/act/process of an engine/motor (whether electrical, chemically-fueled, steam-driven, wind-driven, solar-powered, nuclear-powered, etc.) to be operating/functioning  <b>stem 3:</b> (to be) a state/act/process of a powered machine (whether electrical, chemically-fueled, steam-driven, wind-driven, solar-powered, nuclear-powered, etc.) to be operating/functioning
<b>CTE</b>	(to be) a state/act/process of a mechanical device/apparatus/contraption designed or used to do/perform/accomplish something to be in operation/functioning; for there to be such a device/apparatus/contraption functioning /operation	
<b>CSV</b>	(to be) a state/act of operating/utilizing/using a device/apparatus/contraption; to operate/use/make use of a device/apparatus/contraption	
<b>OBJ</b>	(to be) a mechanical device/apparatus/contraption itself (seen as a gestalt entity)	

<b>-LPL- ‘TECHNOLOGY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act/process of using a technological invention or inventions to do/perform something (i.e., accomplishing something by means of, or with the assistance of an invented machine/device or a discovered process/procedure)	<b>stem 2:</b> (to be) a process/procedure based upon a biological/medical/scientific discovery or scientific research/experiments.  <b>stem 3:</b> (to be) a state/act of doing/performing something using digital/electronic/cyber- technology (e.g., running of algorithmic programs, digitized data, interconnected/networked computers, etc.)
<b>CTE</b>	(to be) a state of there being a technological invention (potentially) available in order to do/perform something	
<b>CSV</b>	(to be) an act/process of using a technological invention; to use a technological invention	
<b>OBJ</b>	(to be) the specific/particular technological invention (to be) used	

### 2.1.3 The Handling, Manipulation, Preparation, Cooking, Serving, and Ingestion of Foodstuffs

<b>-ŠXR- ‘MANIPULATION &amp; HANDLING OF FOODSTUFF WHILE PREPARING OR COOKING IT’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/state of handling/manipulating food while preparing it for cooking	<b>STEM 2:</b> (to be) an act/state of handling/manipulating food while cooking it or processing it for ingestion  <b>STEM 3:</b> (to be) an act/state of handling manipulating food while serving it or ingesting it
<b>CTE</b>	(to be) in a state of being handled/manipulated while under preparation for cooking	
<b>CSV</b>	(to be) the physical act of handling/manipulating food while cooking it	
<b>OBJ</b>	(to be) the tool/utensil used to handle/manipulate food while cooking/preparing it	

The following roots utilize the same Stem and Specification pattern as the above root:

<b>-MXR-</b>	‘MANIPULATION & HANDLING OF SMALL QUANTITY OF LIQUID OR SEMI-LIQUID FOODSTUFF’ [OBJ Specification = ‘spoon’]
<b>-NSXR-</b>	‘MANIPULATION & HANDLING OF LARGER QUANTITY OF LIQUID OR SEMI-LIQUID FOODSTUFF’ [OBJ Specification = ‘ladle’]
<b>-ČXR-</b>	‘TURNING & HANDLING OF SEMI-SOLID FOODSTUFF’ [OBJ Specification = ‘spatula’]
<b>-JXR-</b>	‘PICKING-UP & HANDLING OF SMALL/COMPACT SEMI-SOLID FOODSTUFF’ [OBJ Specification = ‘tongs’, ‘chopsticks’]
<b>-ZXR-</b>	‘HOLDING & LIFTING OF SEMI-SOLID FOODSTUFF’ [OBJ Specification = ‘fork’]
<b>-ŘXR-</b>	‘COARSE-GRAINED STRAINING OF MATERIAL FROM LIQUID OR SEMI-LIQUID FOODSTUFF’ [OBJ Specification = ‘slotted spoon’]
<b>-LSXR-</b>	‘MEDIUM-GRAINED STRAINING OF MATERIAL FROM LIQUID OR SEMI-LIQUID FOODSTUFF’ [OBJ Specification = ‘colander’]
<b>-RSXR-</b>	‘FINE-GRAINED STRAINING/SIFTING OF MATERIAL FROM LIQUID OR SEMI-LIQUID FOODSTUFF’ [OBJ Specification = ‘strainer’]

#### 2.1.4 Objects/Implements Used to Hold/Contain Foodstuffs During Preparation, Cooking, and Serving

<b>-ŠXR- ‘MANIPULATION &amp; HANDLING OF FOODSTUFF WHILE PREPARING OR COOKING IT’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/state of handling/manipulating food while preparing it for cooking	<b>STEM 2:</b> (to be) an act/state of handling/manipulating food while cooking it or processing it for ingestion
<b>CTE</b>	(to be) in a state of being handled/manipulated while under preparation for cooking	
<b>CSV</b>	(to be) the physical act of handling/manipulating food while cooking it	<b>STEM 3:</b> (to be) an act/state of handling manipulating food while serving it or ingesting it
<b>OBJ</b>	(to be) the tool/utensil used to handle/manipulate food while cooking/preparing it	

The following roots utilize the same Stem and Specification pattern as the above root:

<b>-MXR-</b>	‘MANIPULATION & HANDLING OF SMALL QUANTITY OF LIQUID OR SEMI-LIQUID FOODSTUFF’ [OBJ Specification = ‘spoon’]
<b>-NSXR-</b>	‘MANIPULATION & HANDLING OF LARGER QUANTITY OF LIQUID OR SEMI-LIQUID FOODSTUFF’ [OBJ Specification = ‘ladle’]
<b>-ČXR-</b>	‘TURNING & HANDLING OF SEMI-SOLID FOODSTUFF’ [OBJ Specification = ‘spatula’]
<b>-JXR-</b>	‘PICKING-UP & HANDLING OF SMALL/COMPACT SEMI-SOLID FOODSTUFF’ [OBJ Specification = ‘tongs’, ‘chopsticks’]
<b>-ZXR-</b>	‘HOLDING & LIFTING OF SEMI-SOLID FOODSTUFF’ [OBJ Specification = ‘fork’]

- ŘXR-** ‘COARSE-GRAINED STRAINING OF MATERIAL FROM LIQUID OR SEMI-LIQUID FOODSTUFF’ [OBJ Specification = ‘slotted spoon’]
- LSXR-** ‘MEDIUM-GRAINED STRAINING OF MATERIAL FROM LIQUID OR SEMI-LIQUID FOODSTUFF’ [OBJ Specification = ‘colander’]
- RSXR-** ‘FINE-GRAINED STRAINING/SIFTING OF MATERIAL FROM LIQUID OR SEMI-LIQUID FOODSTUFF’ [OBJ Specification = ‘strainer’]

- - ‘HOLDING & CONTAINING OF FOODSTUFF FOR PREPARING OR COOKING OR SERVING IT’		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/state of holding/containing food while preparing it for cooking	<b>STEM 2:</b> (to be) an act/state of holding/containing food while cooking it or preparing it for ingestion
<b>CTE</b>	(to be) in a state of being held/contained while under preparation for cooking	
<b>CSV</b>	(to be) the physical act of holding/containing food while cooking it	<b>STEM 3:</b> (to be) an act/state of holding/containing food for the purpose of serving it or as a result of serving it
<b>OBJ</b>	(to be) the object/implement used to hold/contain food while cooking/preparing it	

The following roots utilize the same Stem & Specification pattern as the above root:

‘LARGE BOWL’ (e.g., serving bowl)

‘MEDIUM-SIZED BOWL’ (e.g., for main course served in bowl such as soup or stew)

‘SMALL BOWL’ (e.g., for salad)

‘PLATE / DISH’ (use SIZ affix to distinguish a small salad plate or a large serving platter)

‘SERVING BOARD’ (usually wooden)

‘DRINKING VESSEL’ e.g., cup, glass, stein

‘VESSEL FOR LIQUID FOODSTUFF’ e.g., pitcher, decanter, flagon (use SIZ affix to distinguish a barrel or keg)

### 2.1.5 Fixtures Used To Facilitate/Maintain States Created via Tools/Devices/Machines/Manual Processes/Powered Processes

-LCW- 'BUILDING FIXTURE / ARCHITECTURAL FIXTURE'			
	STEM 1	STEM 2	STEM 3
<b>BSC</b>	(to be) a state/act/of serving/functioning as a built-in/permanent fixture in a building/domicile for the purposes of maintaining/providing a continuous mechanical, electrical, plumbing, or living state or process; to serve/function as such a fixture (e.g., wall-mounted or built-in feature, fireplace, chimney, window shutter, ceiling fan, tapware, sink/basin, tub, toilet, water or gas pipe, electrical conduit, wiring, etc.)	(to be) a state/act of utilizing/making use of a built-in/permanent fixture in a building/domicile in order to obtain some needed/desired function/service	(to be) a state/act of doing without, being deprived of, or being unable to utilize a needed/desired fixture in a building/domicile
<b>CTE</b>	(to be) the state/service maintained/delivered by a fixture	(to be) the state of a fixture being in use	(to be) the state of a needed/desired fixture being absent/unavailable
<b>CSV</b>	(to be) an act/process of a building fixture functioning or in operation; for a fixture to function/operate	(to be) an act of a person utilizing/making use of a fixture	(to be) a physical act/state of a person having to do/go without a needed/desired fixture
<b>OBJ</b>	(to be) the fixture itself	(to be) the fixture used	(to be) the consequence(s) of a needed/desired fixture being absent/unavailable

The following roots for both built-in/permanent fixtures and temporary/portable fixtures have the same Stem & Specification pattern as the root above:

**-MBL-** water tap / water faucet / tap valve  
**-VBL-** pipe (for water, gas, sewage, etc.)  
**-BBL-** sink  
**-BBR-** washbasin  
**-BBW-** bathtub  
**-BBY-** shower stall  
**-BBŘ-** bidet  
**-LČŘ-** toilet / loo  
**-ŘČŘ-** urinal  
**-GTR-** cistern  
**-JTR-** artificial fountain

**-VBR-** electrical conduit  
**-VBŘ-** electrical wire/wiring  
**-VBŽ-** electrical outlet / wall outlet  
**-RVB-** power system protection unit (e.g., fusebox / circuit breaker box)  
**-ŇSL-** built-in lighting fixture/light-bulb socket  
**-LČL-** lamp (i.e., powered local light source)  
**-NKV-** air-conditioning unit  
**-TGV-** ceiling fan  
**-NŽX-** built-in heater, heating unit  
**-RŽX-** HVAC unit  
**-ŽXL-** fireplace

<b>-BTR-</b>	outdoor swimming pool	<b>-ŽXR-</b>	chimney
<b>-GZŇ-</b>	sewer	<b>-ŠFL-</b>	built-in storage shelf
<b>-GZV-</b>	cesspool	<b>-ŠFR-</b>	built-in storage drawer
<b>-GZX-</b>	sceptic tank	<b>-MFW-</b>	railing / handrail / banister / balustrade
<b>-PČT-</b>	bucket / pail / portable basin	<b>-LMTR-</b>	hat rack / hat stand / hat tree
<b>-VPŘ-</b>	wall-mount for a wall-hanging or for a wall-mounted device	<b>-LSTL-</b>	coat rack

The following new affix is useful in conjunction with the above roots for fixtures:

<b>-řst</b>	<b>LCM Life-Cycle of a Mechanism/Device/Fixture/Machine</b>
1	designing X, drafting a blueprint of X; to design X, to draft a blueprint/design of X
2	constructing/forming/crafting/making X; to make/build/construct/craft X
3	determining placement/location of X within/among/in association with its surrounding infrastructure
4	installation/connection/set-up of X; to install/connect/set up X
5	operational test of X; to test whether X is functioning/operating correctly
6	servicing/maintenance of X; to perform maintenance service on X
7	repair of X; to repair X
8	removal/retirement/discarding of X; remove/retire/discard X
9	replacement of X; replace X

### 2.1.6 Furniture

<b>-PŤT- ‘FURNITURE / FURNISHING / APPLIANCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a piece of functional furniture; to furnish an environment with a piece of functional furniture (i.e., piece of furniture whose primary purpose is functional rather than decorative, e.g., chair, table, lamp, armoire, cabinet, chest of drawers, desk, bed, bookcase, etc.); utilize or make use of a piece of functional furniture	<b>Stem 2:</b> (to be) a piece of decorative furniture; to furnish an environment with a piece of decorative furniture (e.g., antique curio cabinet, fancy rug, designer furnishing, decorative mirror, chandelier, wallpaper, etc.)  <b>Stem 3:</b> (to be) a major household or office appliance; to furnish an environment with a major functional appliance (e.g., stove, oven, refrigerator, generator, sewing machine, washing machine, freezer, heating unit, air conditioner, television set, etc.)
<b>CTE</b>	(to be) the function(al purpose) of a piece of furniture; to utilize/make use of a piece of furniture	
<b>CSV</b>	(to be) the physical structure/design of a piece of furniture; to design a piece of functional furniture (CPT = construct a piece of functional furniture)	
<b>OBJ</b>	(to be) the space in a room or environment taken up by a piece of functional furniture	



The following seven roots have a Specification pattern modeled after the root **-PTT-** ‘FURNITURE/FURNISHING/APPLIANCE’ above:

<b>-SKF- ‘TABLE / SHELF / PLATFORM’</b>	
<b>STEM 1</b>	(to be) a table; utilize a table (i.e., a personal-sized (quasi-) rectangular or symmetrically shaped flat surface perpendicular to the direction of gravity positioned to allow one to either stand or sit and use it as a surface for working, storage, or performing some function)
<b>STEM 2</b>	(to be) a shelf
<b>STEM 3</b>	(to be) a platform or large flat artificially-surfaced area to provide a large planar surface for goods or people engaged in some specialized function

<b>-KŠT- ‘CHAIR / STOOL / THRONE’</b>	
<b>STEM 1</b>	(to be) a chair; sit in a chair
<b>STEM 2</b>	(to be) a stool; sit on a stool
<b>STEM 3</b>	(to be) an ottoman, a footstool; rest oneself or one’s feet on an ottoman

<b>-KŠTL- ‘BENCH / COUCH / FUTON’</b>	
<b>STEM 1</b>	(to be) a bench for sitting multiple persons; sit on a bench
<b>STEM 2</b>	(to be) a couch/sofa/divan; sit on a couch/sofa/divan
<b>STEM 3</b>	(to be) a futon; sit or lie on a futon

<b>-NKL- ‘BED / SOFA BED / CHAISE LONGUE’</b>	
<b>STEM 1</b>	(to be) a bed; to lie in a bed
<b>STEM 2</b>	(to be) a sofa bed; to sit/lie on a sofa bed
<b>STEM 3</b>	(to be) a chaise longue; sit/lie on a chaise longue

<b>-JKṬ- ‘WORKBENCH / COUNTERTOP / DRAWING BOARD’</b>	
<b>STEM 1</b>	(to be) a workbench
<b>STEM 2</b>	(to be) a countertop
<b>STEM 3</b>	(to be) a drawing board

<b>-MTY- ‘CABINET’</b>	
<b>STEM 1</b>	(to be) a cabinet with doors for storage; to store in a cabinet
<b>STEM 2</b>	(to be) a display case; to display in a display case
<b>STEM 3</b>	(to be) a hutch or specialty cabinet for storage of specific items

<b>-VṬŘ- ‘DRAWER / FILING SLOT / RACK’</b>	
<b>STEM 1</b>	(to be) a drawer [container within a supporting/enclosing structure that slides or rolls out to allow access]
<b>STEM 2</b>	(to be) a filing slot (i.e., as within the drawer of a filing cabinet)
<b>STEM 3</b>	(to be) a rack (i.e., a framework, lattice, or partition for holding or displaying objects, keeping them spatially separated from each other)

### 2.1.7 Building

<b>-RDW- 'BUILDING CONSTRUCTION'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of constructing a building (i.e., a constructed space with enclosed rooms for residential and/or commercial occupancy or storage); to be in a building	<b>Stem 2:</b> (to be) a state/act of constructing a commercial building  <b>Stem 3:</b> (to be) a state/act of constructing a non-residential, non-commercial building used for storage or other activities (e.g., a workshop, a studio, etc.)
<b>CTE</b>	(to be) a state of building construction	
<b>CSV</b>	(to be) a physical act of building/constructing a building; to perform the work of building/constructing a building	
<b>OBJ</b>	(to be) the building under construction [CPT version = finished building]	

<b>-SŘ- 'ROOM / CHAMBER / COMPARTMENT'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a room/chamber	<b>Stem 2:</b> (to be) a compartment  <b>Stem 3:</b> (to be) a cubicle, partially partitioned-off section of a larger room
<b>CTE</b>	(to be) the state of a room/chamber being a partitioned off quasi-autonomous (sub-)section of a larger building interior space	
<b>CSV</b>	(to be) the boundary planar partitions/surfaces/elements that constitute the form of a room/chamber (i.e., the walls, ceiling, floor, doorway, etc.); to make/construct a room (by putting up dividing walls, an entryway, etc.)	
<b>OBJ</b>	(to be) what a particular room/chamber is (used) for, what function it serves	

<b>-DBR- 'TOWER / SPIRE'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a tower room of a building where the enclosed room is intended as a normal dwelling space	<b>Stem 2:</b> (to be) a tower room of a building where the enclosed room is a specialized acillary space (e.g., bell tower, clock tower, a room containing air conditioning or heating or electrical infrastructure, etc.)  <b>Stem 3:</b> (to be) a spire on a building (decorative/aesthetic only with no enclosed or functional interior room)
<b>CTE</b>	(to be) the state of a building having a tower room	
<b>CSV</b>	(to be) the boundary planar partitions/surfaces/elements that constitute the form of a tower room	
<b>OBJ</b>	(to be) what a tower room is used for, what function it serves	

<b>-KÇM- ‘BALCONY / LANDING / MEZZANINE / LOFT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a(n outdoor) balcony	<b>Stem 2:</b> (to be) a landing (at the end of a stretch of stairs)  <b>Stem 3:</b> (to be) a mezzanine or loft (a partial floor or partial storey of a building between or above a full floor or storey)
<b>CTE</b>	(to be) the state of there being an elevated outdoor space as part of a building	
<b>CSV</b>	(to be) the platform-like area with guard wall/railing that constitutes a balcony; to make/construct a balcony	
<b>OBJ</b>	(to be) what a balcony is used for, what function it serves	

<b>-TTL- ‘WALL / PARTITION / BARRIER’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a planar wall/partition/barrier as the boundary of an inclosure/container, the surface partition constituting the bondary of an inclosed/contained space	<b>Stem 2:</b> (to be) a planar wall/partition/barrier as a defense against visibility by or intrusion of elements/entities from/on the other side  <b>Stem 3:</b> (to be) a planar wall/partition as a component of a building or architectural structure
<b>CTE</b>	(to be) the state of inclosure/containment due to the presence of a wall/partition	
<b>CSV</b>	(to be) the tangible material component of a planar wall/partition/barrier; to build/erect a wall/partition/barrier	
<b>OBJ</b>	(to be) what is contained/inside the boundaries established by a wall/partition/barrier	

<b>-TLW- ‘SCREEN’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of placing or there being a screen (as partition) between two areas of space; to partition using a screen, to place a screen between, to put up a screen	<b>Stem 2:</b> (to be) a state/act of screening as a means of filtering (e.g., light, air, water, etc.) ; to filter something (e.g., light, air, water) using a screen  <b>Stem 3:</b> (to be) a state/act of using a screen to display or project an image; to display/project an image on(to) a screen
<b>CTE</b>	(to be) the state of partitioning due to the presence of a screen	
<b>CSV</b>	(to be) the screen itself; to put up/erect a screen as a partition	
<b>OBJ</b>	(to be) what is partitioned by there being a screen in place	

<b>-KTH- ‘FIRMAMENT / GROUND / FLOOR’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) the (quasi-) planar surface on which an entity naturally rests due to gravity, i.e., firmament, “ground”, “surface of the earth”, “floor”	<b>Stem 2:</b> (to be) the Earth’s natural land surface, i.e., the ground [in a literal sense] (whether dirt, sand, grass, rock, forest floor, mud, swamp, etc.)  <b>Stem 3:</b> (to be) a (manually constructed) floor (of a building, room)
<b>CTE</b>	(to be) the tangible material substance of the firmament/surface/ground/floor upon which an entity is situated due to gravity	
<b>CSV</b>	(to be) the state/act of being bound to, being (up)on, or falling toward a (quasi-)planar surface/firmament due to gravity; to be bound to or headed for the ground due to gravity, to fall	
<b>OBJ</b>	(to be) that which is bound to, situated (up)on, or falling toward the ground due to gravity	

<b>-TKY- ‘WINDOW / VIEWING APERTURE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an aperture / “window” in a surface for the purpose of being able to visually view what is on the other side	<b>Stem 2:</b> (to be) an aperture/window in a surface for the purpose of letting in sunlight (or artificial light) from outside or another room  <b>Stem 3:</b> (to be) an aperture/window in a surface for the purpose of limited physical access between one side of a partition and another (e.g., as in a ticket window, a pass-through slot, etc.)
<b>CTE</b>	(to be) the state of there being (potential) visibility to the other side of a partition/wall or planar surface due to there being a window	
<b>CSV</b>	(to be) the physical aperture within a (quasi-) planar surface which constitutes a window	
<b>OBJ</b>	(to be) the (quasi-) transparent/translucent planar entity situated within the bounds of a window/aperture to function as a protective partition between one side of the window and the other, e.g., plane of glass, screen, plane of plastic/acrylic, etc.	

<b>-ŽTL- ‘STAIRCASE / LADDER / PEDEDSTAL’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a staircase	<b>Stem 2:</b> (to be) a ladder  <b>Stem 3:</b> (to be) a pedestal, plinth, or dais (i.e., a shelf-like planar surface for the purpose of positioning an entity at a higher level than the surrounding firmament)
<b>CTE</b>	(to be) the state of ascent/descent permitted by use of stairs	
<b>CSV</b>	(to be) the act/process of ambulating upon stairs; to ambulate upon stairs, go up or down stairs	
<b>OBJ</b>	(to be) the physical collection of individual stairs themselves which constitute a staircase	

**NOTE:** Stems 1 and 2 of this root represent the atypical lexification of a collective entity (i.e., a collection of individual stairs/steps) due to the fact that staircases and ladders as wholes are more semantically salient than individual stairsteps or ladder-steps. Therefore, use the **SBS** affix with these stems to signify an individual stair of a staircase or step of a ladder.

<b>-RM- ‘ABODE / DWELLING / DOMICILE / HOUSE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an abode/dwelling, i.e., where an entity dwells/lives, e.g., burrow, hole, nest, cave, den, lair, warren, house, apartment, trailer, etc.; to dwell, to live in [a place]	<b>Stem 2:</b> (to be) a domicile (i.e., an artificially constructed quasi-permanent residential dwelling which provides protection from outside environmental elements)
<b>CTE</b>	(to be) a in a state of dwelling somewhere; to have a place to live	
<b>CSV</b>	(to be) an act of dwelling; to go about the day-to-day activities that constitute living in a particular place	<b>Stem 3:</b> (to be) a house (i.e., a quasi-permanent constructed residence with conveniences for quasi-permanent residence)
<b>OBJ</b>	(to be) the party/entity that dwells within a dwelling	

<b>-RHW- ‘OCCUPANCY / TENANCY / RESIDENCY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of occupancy within a delineated/demarcated place and time; to occupy	<b>Stem 2:</b> (to be) an act/state of tenancy (i.e., long-term occupancy with no assumptions regarding property rights or ownership claims)
<b>CTE</b>	(to be) in a state of occupancy somewhere; to have somewhere to occupy	
<b>CSV</b>	(to be) an act of occupancy; to take up space for a certain amount of time in a particular place	<b>Stem 3:</b> (to be) an act/state of residency (i.e., long-term occupancy with assumptions of certain property rights/ownership claims)
<b>OBJ</b>	(to be) the party that occupies a place/domicile/residence/burrow/nest, etc.	

Morphological derivatives: vacancy, be vacant, to vacate

### 3.0 SPACETIME and MOTION

<b>-ŠŘ- ‘SPACETIME / SPACE / PASSAGE OF TIME’</b>		Associated Affix: <b>STS</b>
	<b>STEM 1</b>	<b>STEM 2:</b> [the spatial component of Stem 1, i.e., ] (to be/occupy) a location in space, the site of something; to be spatially located/situated at, to be the site of something  <b>STEM 3:</b> [the temporal component of Stem 1, i.e., ] (to occur) at a particular point/duration/period in time; to temporally take place at
<b>BSC</b>	(to exist/occur at) a “location/period/instance” of spacetime; to exist/occur at a place and time [both the spatio-temporal location and the entity occupying it]	
<b>CTE</b>	one’s physical and temporal existence; to spatio-temporally exist [i.e., exist at a particular place at a particular time]	
<b>CSV</b>	(to be) a particular volume/duration of spacetime; (to be) a particular location/volume of space at a particular moment/period in time	
<b>OBJ</b>	(to be) an entity located at a particular place and time; (to be) a spatio-temporally existent entity	

<b>-LC- ‘PATHWAY / COURSE / ROUTE / ROADWAY / CHANNEL’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a marked/indicated pathway/trail/course	<b>Stem 2:</b> (to be) a marked route / roadway / street  <b>Stem 3:</b> (to be) a marked/indicated channel [i.e., planned conduit-like courseway along/through which an entity/substance travels]
<b>CTE</b>	(to be) the direction/destination to which a pathway/trail leads (i.e., what it’s there for)	
<b>CSV</b>	(to be) the physical manifestation of a pathway/trail (i.e., how it is physically marked/distinguished from the surrounding surface or underlying substrate)	
<b>OBJ</b>	(to be) a party/entity which travels a pathway/trail/course	

### 3.1 SPATIO-TEMPORAL DIMENSIONS

<b>-JG- ‘DIMENSIONAL ATTRIBUTE’</b> (use with the SUF, EXD, FLC, PTW, ITY, etc. affixes)		
	<b>STEM 1</b>	<b>STEM2:</b> (to be) a decrease in the degree of a particular dimensional attribute  <b>STEM 3:</b> (to be) an increase in the degree of a particular dimensional attribute
<b>BSC</b>	(to be) a degree of a (static) dimensional attribute (e.g., length, width, volume, etc.)	
<b>CTE</b>	(to be) the intrinsic nature/essence of a particular attribute (i.e., the existence of the attribute within or as part of an entity regardless of its physical manifestation)	
<b>CSV</b>	(to be) the physical manifestation of a particular dimensional attribute	
<b>OBJ</b>	(to be) the object/entity having the particular dimensional attribute	

The Stems and Specifications of the following roots are modeled on the ‘DIMENSIONAL ATTRIBUTE’ root above:

- CK**- ‘PROXIMITY/DISTANCE’ [i.e., the amount of distance between one object and another]
- ZB**- ‘PLANARITY/FLATNESS RELATIVE TO THE FORM OF AN OBJECT ITSELF’ [i.e., the extent to which all the points of a surface are parallel to each other in the dimensional context of the surface itself, such as the surface of a blanket (regardless of whether it is folded or laid flat) or the surface of a sphere (where the sphere’s surface can be considered flat/planar from the perspective of the surface itself, regardless of the fact the sphere as a whole is not)]
- ČF**- ‘WIDTH/SLENDERNESS’ [i.e., the linear distance between the two points furthest from each other on a cross-sectional plane through an object]
- ZD**- ‘GIRTH/CIRCUMFERENCE’
- JN**- ‘LENGTH’
- CH**- ‘HEIGHT (= TALLNESS PARALLEL TO THE DIRECTION OF GRAVITY)’
- VJ**- ‘AMPLITUDE’
- ZZ**- ‘BINARY POLARITY’ (i.e., the degree to which something reverses direction of a binary attribute, e.g., rotation, spin, charge, etc.)

- KČ**- ‘REACH’ (i.e., the degree to which something extends outward in a quasi-linear manner)
- ZX**- ‘SPREAD’ (i.e., the degree to which something extends outward in 2-dimensional quasi-planar coverage)
- VČ**- ‘EXTENT’ (i.e., the degree to which something extends outward as a three-dimensional volume)
- BZ**- ‘DEPTH’
- ŠL**- ‘THINNESS/THICKNESS (i.e., ratio of shortest dimensional end-to-end axis-length to next longest dimensional end-to-end axis-length)’
- JL**- ‘SPATIAL GAP’
- GZ**- ‘TEMPORAL INTERVAL’ [i.e., the elapsed time/duration between two events/occurrences/states]
- FC**- ‘3-DIMENSIONAL VOLUME’
- TC**- ‘RECTILINEAR/POLYHEDRAL/STRAIGHT-ANGLED’
- GJ**- ‘ROUNDEDNESS’ [i.e., the extent to which a surface is spheroidally curved from an external perspective]
- CF**- ‘FLATNESS/LEVELNESS OF A SURFACE’ [i.e., the extent to which the points of a surface constitute a flat plane from an external perspective]
- CT**- ‘2-DIMENSIONAL AMORPHOUS/SHAPELESS’
- ZT**- ‘3-DIMENSIONAL AMORPHOUS/SHAPELESS’
- ZD**- ‘LINEAR (i.e., ONE-DIMENSIONAL) CURVATURE’

<b>-FKL- ‘PHYSICAL SPATIO-TEMPORAL EXTENSION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of spatio-temporal extension linearly/uni-dimensionally (up/out/along/back, etc.) to a certain point/level/height, etc.; to extend in such a manner, to “reach” (to) a certain point/level/height, etc.	<b>Stem 2:</b> (to be) a state of extension two-dimensionally (out/among/away, etc.) to a certain distance/edge/linear landmark/linear boundary, etc., “reach” (to) a certain extent/distance/edge/linear landmark/boundary, etc.; to extend in such a manner  <b>Stem 3:</b> (to be) a state of spatio-temporal extension three-dimensionally (out/among/away, etc.) to a certain distance/planar edge/planar landmark/planar boundary, etc., “reach” (to) a certain distance/planar edge/planar landmark/planar boundary, etc.; to extend/ “reach” three-dimensionally in such a manner
<b>CTE</b>	(to be) a state of extension / being extended unidimensionally	
<b>CSV</b>	(to be) an act of spatio-temporal extension unidimensionally	
<b>OBJ</b>	(to be) that which spatio-temporally extends or “reaches” unidimensionally to a particular point/level/height, etc.	

<b>-ŇŽ-</b> <b>‘ARRANGEMENT / ORDER / SYMMETRY’</b> Affix: <b>CLS</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act/instance of arranging or being arranged (i.e., place(d) in some sort of order or discernible pattern); to arrange, to order	<b>Stem 2:</b> (to be) a an act/instance of hierarchical ranking; to rank  <b>Stem 3:</b> (to be) an act/instance of symmetrical arrangement; to arrange symmetrically
<b>CTE</b>	(to be) a particular arrangement or pattern	
<b>CSV</b>	(to be) an act/process of physically placing entities into an arrangement or pattern	
<b>OBJ</b>	(to be) an entity in or part of a particular arrangement or pattern	

MORPHOLOGICAL DERIVATIVES: array, setting, hierarchy, symmetry, disarray, scatter, mess, chaos

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-ŇŽW-</b> <b>‘REGULARITY / CLASSIFICATION / ASSORTMENT’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act/instance of being/making regular or displaying regularity (i.e., having an expected/conventionalized/predictable pattern); be/make regular, regularize	<b>STEM 2:</b> (to be) a state/act/instance of being in or making a classification (i.e., an arranged scheme for storage-and-retrieval); to classify
<b>CTE</b>	(to be) a state of being regular	
<b>CSV</b>	(to be) an act/process of making something regular; to regularize	<b>STEM 3:</b> (to be) a state/act/instance of being in or making an assortment (i.e., an arranged selection of members/components; to sort
<b>OBJ</b>	(to be) something that is in a state of being regular or having been regularized	

MORPHOLOGICAL DERIVATIVES: regularity, regulate

### 3.2 MOTION AND SPATIAL POSITION

English can create succinct “moving images” of complex trajectories, paths, treks, and in-situ movements by simple juxtaposition of locative/directional particles (i.e., prepositions acting mostly as adverbial particles). For example , imagine the manager of a basement nightclub talking to a friend on the sidewalk outside his club. He invites the friend to the small patio outside the back of the club, which one finds by descending into the club, going past the dance floor, up a flight of stairs, and down a long hallway to the back door. He does so by saying, *‘Come on down inside up along through out back to the patio.’*

This new language will allow a speaker to create similar succinct “moving images”. Each motion root (whether referring to in-situ or translative motion) will have a corresponding **-V<sub>x</sub>C<sub>s</sub>** affix of the same form (e.g., if the root for ‘OBLIQUE LINEAR MOTION’ is **-KR-**, it will have a corresponding suffix **-kr.** ) Each of these suffixes will then have the following nine degrees:



1	Interior perlative motion/movement in a manner described by the suffix's corresponding root among/within an external/surrounding/underlying (quasi-)static medium. For translatable motion suffixes, implies motion along a course described by the suffix's corresponding root where the course is set, determined, or prescribed by an externally surrounding/underlying medium/channel, etc.
2	Interior motion/movement: static or translatable movement/motion in a manner described by the suffix's corresponding root while inside another object/entity (where, unlike the perlative degree, the exterior object/entity does not define/prescribe/determine the course of the moving object/entity)
3	Implies entry from an exterior space/medium/context into an interior space/medium/context
4	Implies continued/continuous movement in a manner described by the suffix's corresponding root; for translatable motion suffixes, implies continued/continuous motion along a course/direction described by the suffix's corresponding root
5	Implies a single motion in a manner described by the suffix's corresponding root across from one point/side of the contextual space to another; for translatable motion suffixes, implies a single motion along a course/direction described by the suffix's corresponding root across a gap/gulf/space from one place to another
6	For translatable motion affixes, signifies motivational "on" as in "come on", "go on", "move on" - implies/reinforces need/impetus to begin/keep moving in the manner or direction described by the suffix's corresponding root without stopping. For static positional affixes, operates merely as a locative to specify an entity's X/Y/Z position.
7	Implies exit from an interior space/medium/context out to an exterior space/medium/context
8	exterior motion/movement: static or translatable movement/motion in a manner described by the suffix's corresponding root while outside another object/entity (where, unlike the perlative degree, the other object/entity does not define/prescribe/determine the course of the moving object/entity)
9	exterior perlative motion/movement outside of, over, next to, alongside, "above"/"under" an adjacent (quasi-)static surface/medium; for translatable motion suffixes, implies motion on a course described by the suffix's corresponding root along, over, parallel to, around, "above"/"under", or tracking/following an adjacent (quasi-)static surface/medium

For Degree 6, the various Modulative suffixes as well as Phase can be used to describe repeated, ongoing movement/motion, e.g., back-and-forth, to-and-fro, side-to-side, up-and-down, in-and-out, out-and-back, etc.

Besides movement/motion roots, roots denoting any spatial referent/area would also have corresponding suffix-forms utilizing this pattern (e.g., front side, rear area, top area/space, area below/underneath, etc.).

**IMPORTANT NOTE:** Suffixes based on Translatable Motion and Spatial Position roots have a particular semantic feature: **Type 1 suffixes correspond to Stem 2** of the root, whereas **Type 2 suffixes correspond to Stem 3** of the root.

### 3.3 TRANSLATIVE MOTION ROOTS

<b>-TR- ‘PATH-ORIENTED, QUASI-LINEAR TRANSLATIVE MOTION’</b>			Affix: <b>M01</b>
	<b>Stem 1</b>	<b>Stem 2:</b> As per Stem 1 w/ perspective is on motion to(ward) the topical referent of the sentence or clause, i.e., “come; approach”; CPT = “arrive”  <b>Stem 3:</b> As per Stem 1 w/ perspective is on motion away from the topical referent of the sentence or clause, i.e., “go; go away; move away”; CPT = “leave; depart”	
<b>BSC</b>	act of translatable motion from one spacetime location to another; to move from one place to another [both the motion and the entity moving]		
<b>CTE</b>	The process of movement itself from one place to another; to be moving from one place to another [focus on the movement, not the entity moving]		
<b>CSV</b>	The path/trajectory/course/route followed between two places; to move along/through the path/trajectory/course/route from one place to another		
<b>OBJ</b>	The entity moving from one place to another; to be the entity moving from one place to another		

INFORMAL stems refer to a circumstantial, context-of-the-moment movement; FORMAL stems refer to planned travel, a formal traversal, a dedicated journey, a pre-planned route, etc. Roots (and suffixes) following the same model as **-TR-** above include the following:

- PR-** ‘VERTICAL QUASI-LINEAR TRANSLATIVE MOTION’, i.e., movement up/down; Stem 2 = ‘ascent/ascend; going (straight) up; rise/raise/elevate’; Stem 3 = ‘descent/descend; going (straight) down; “drop”; lower(ing)’
- KR-** ‘OBLIQUE VERTICAL QUASI-LINEAR MOTION’, i.e., ascending/descending at an angle/slant’; Stem 2 = oblique ascent; Stem 3 = oblique descent
- DR-** ‘HORIZONTAL PLANAR TRANSLATIVE MOTION’, i.e., movement along a line/path on a horizontal plane between the topical referent and a second location; Stem 2 = ‘approach, getting nearer’; Stem 3 = ‘recede/receding, getting farther away’
- FR-** ‘PARALLEL TRANSLATIVE MOTION’, i.e., movement along same path/trajectory as the topical referent; Stem 1 = parallel movement in same direction alongside topical referent; Stem 2 = parallel movement alongside but in opposite direction to topical referent
- BR-** ‘PERPENDICULAR-PLANAR TRANSLATIVE MOTION’, i.e., movement along a line/path “across” one’s forward path or field of vision, moving laterally (i.e., horizontally perpendicular) to the positional/orientational position or path of the topical referent (i.e., analogous to watching something moving in a line across a screen held in front of one’s eyes); Stem 2 = movement from left-to-right relative to the topical referent; Stem 3 = movement from right-to-left relative to the topical referent.
- GR-** ‘OBLIQUE LATERAL TRANSLATIVE MOTION’, i.e., moving laterally at an oblique angle on same horizontal plane as the topical referent; Stem 2 = lateral movement at an oblique angle approaching (i.e., getting nearer to) the topical referent; Stem 3 = lateral movement at an oblique angle moving away from (getting farther away from) the topical referent.
- GL-** ‘HORIZONTAL-PLANAR RANGE OF MOTION’, i.e., random directed movement within/throughout a 2-dimensional horizontal plane.
- DL-** ‘VERTICAL-PLANAR RANGE OF MOTION’, i.e., random directed movement within/throughout a 2-dimensional vertical plane.
- KL-** ‘PERPENDICULAR-PLANAR RANGE OF MOTION’, i.e., random directed movement within/throughout a 2-dimensional vertical plane perpendicular to the perspective of the topical referent (i.e., lying “across” one’s visual field or directional path, analogous to a painting or flat screen held up in front of a person).
- PL-** ‘TRANSLATIVE MOTION ALONG PARABOLIC/ARC-LIKE TRAJECTORY RELATIVE TO GRAVITY’

- BL**- ‘MOTION IN A CURVE’
- FL**- ‘MOTION IN A PLANAR CIRCULAR PATH’ [Stem 2 refers to counter-clockwise motion and Stem 3 to clockwise motion, relative to the speaker/observer]
- TL**- ‘GENERIC/OBLIQUE 3-DIMENSIONAL RANGE OF MOTION’, i.e., 3-D pervasive movement throughout or within a volume of space

### 3.4 SPATIAL POSITION/LOCATION ROOTS

- <b>T</b> - ‘SPATIAL POSITION, LOCATION, ORIENTATION, DIRECTION’    Suffix: <b>P01</b>		<b>STEM 2:</b> Direction relative to the observer (i.e., linear directional path between an object and the observer)
<b>BSC</b>	<b>STEM 1:</b> spatial position of an entity; to be situated/located at	
<b>CTE</b>	The act of physically occupying a/the position/location in space; to physically occupy a/the position in space	<b>STEM 3:</b> Area, general vicinity of a particular position/location relative to the observer, whether 2-dimensional or 3-dimensional according to the situational context
<b>CSV</b>	A/the position/location in space occupied by an entity; to be a/the position/location in space	
<b>OBJ</b>	The entity situated/located at; to be that which is situated/located at	

INFORMAL stems refer to a circumstantial, context-of-the-moment position/location; FORMAL stems refer to a dedicated, fixed, (quasi-)permanent, “official” position/location, e.g. marrow’s location inside of bone.

Roots following the same model as -**T**- above include the following based on a 3-dimensional X/Y/Z axial grid:

- D**- ‘POSITION/LOCATION AT 0 / 0 / 0’, i.e., “right here”; at the center point of the observer’s 3-dimensional spatial frame of reference.
- TY**- ‘POSITION/LOCATION AT 0 / 0 / +Z’, ‘above the observer’
- TW**- ‘POSITION/LOCATION AT 0 / 0 / -Z’, ‘below the observer’
- P**- ‘POSITION/LOCATION AT 0 / +Y / 0’, ‘in front of the observer’
- K**- ‘POSITION/LOCATION AT 0 / -Y / 0’, ‘behind the observer’
- F**- ‘POSITION/LOCATION AT +X / 0 / 0’, ‘to the right of the observer’
- V**- ‘POSITION/LOCATION AT -X / 0 / 0’, ‘to the left of the observer’

For mnemonic convenience, combinations of the above positional concepts are designated by corresponding combinations of the phonemes of the above X/Y/Z roots (-**TY**- and -**TW**- are shortened to -**Y** and -**W**):

- PY**- ‘POSITION/LOCATION AT 0 / +Y / +Z’, ‘in front of and above the observer’
- PW**- ‘POSITION/LOCATION AT 0 / +Y / -Z’, ‘in front of and below the observer’
- KY**- ‘POSITION/LOCATION AT 0 / -Y / +Z’, ‘behind and above the observer’
- KW**- ‘POSITION/LOCATION AT 0 / -Y / -Z’, ‘behind and below the observer’

- FP**- 'POSITION/LOCATION AT  $+X / +Y / 0$ ', 'to the right and in front of the observer'
- FK**- 'POSITION/LOCATION AT  $+X / -Y / 0$ ', 'to the right and behind the observer'
- FY**- 'POSITION/LOCATION AT  $+X / 0 / +Z$ ', 'to the right and above the observer'
- FW**- 'POSITION/LOCATION AT  $+X / 0 / -Z$ ', 'to the right and below the observer'
- VB**- 'POSITION/LOCATION AT  $-X / +Y / 0$ ', 'to the left and in front of the observer'
- VG**- 'POSITION/LOCATION AT  $-X / -Y / 0$ ', 'to the left and behind the observer'
- VY**- 'POSITION/LOCATION AT  $-X / 0 / +Z$ ', 'to the left and above the observer'
- VW**- 'POSITION/LOCATION AT  $-X / 0 / -Z$ ', 'to the left and below the observer'
  
- FPY**- 'POSITION/LOCATION AT  $+X / +Y / +Z$ ', 'to the right, in front, and above the observer'
- FPW**- 'POSITION/LOCATION AT  $+X / +Y / -Z$ ', 'to the right, in front, and below the observer'
- FKY**- 'POSITION/LOCATION AT  $+X / -Y / +Z$ ', 'to the right, behind, and above the observer'
- FKW**- 'POSITION/LOCATION AT  $+X / -Y / -Z$ ', 'to the right, behind, and below the observer'
- VBY**- 'POSITION/LOCATION AT  $-X / +Y / +Z$ ', 'to the left, in front, and above the observer'
- VBW**- 'POSITION/LOCATION AT  $-X / +Y / -Z$ ', 'to the left, in front, and below the observer'
- VGY**- 'POSITION/LOCATION AT  $-X / -Y / +Z$ ', 'to the left, behind, and above the observer'
- VGW**- 'POSITION/LOCATION AT  $-X / -Y / -Z$ ', 'to the left, behind, and below the observer'
  
- PK**- 'POSITION BETWEEN/AMIDST/AMONG [IN A QUASI-PLANAR CONTEXT]', e.g., among others in a crowded room
- KK**- 'POSITION BETWEEN/AMONG [IN A LINEAR UNIDIMENSIONAL CONTEXT]', e.g., between two others in a queue
- TK**- 'INDEFINITE POSITION AMIDST/AMONG [IN A 3-DIMENSIONAL VOLUME]', e.g., among a sky full of balloonists
- DD**- 'POSITION/STATE INTERTWINED/INTERMINGLED/INTERMIXED IN 2-DIMENSIONAL PLANAR CONTEXT [INDIVIDUAL COMPONENTS SEPARABLE/EXTRACTABLE]', e.g., the red marbles amidst a tabletop covered with different colored marbles
- DB**- 'POSITION/STATE INTERTWINED/INTERMINGLED/INTERMIXED IN 3-DIMENSIONAL VOLUME [INDIVIDUAL COMPONENTS SEPARABLE/EXTRACTABLE]', e.g., the red marbles within a jar full of different colored marbles
- DV**- 'POSITION/STATE INTERTWINED/INTERMINGLED/INTERMIXED IN 2-DIMENSIONAL PLANAR CONTEXT [INDIVIDUAL COMPONENTS INSEPARABLE/PERMANENTLY COMBINED]', e.g., yellow paint spread onto a blue canvas to make a green area
- DG**- 'POSITION/STATE INTERTWINED/INTERMINGLED/INTERMIXED IN 3-DIMENSIONAL VOLUME [INDIVIDUAL COMPONENTS INSEPARABLE/PERMANENTLY COMBINED]', e.g., sugar granules poured into a cup of coffee

<b>-NH- ‘DEGREE OF PROXIMITY/DISTANCE’</b>		Affix: <b>PXM</b>
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest) a degree of linear proximity/distance in space and/or time between entities — [both the spatio-temporal expanse and the effect/consequences thereof]	<b>STEM 2:</b> (to be/manifest a) a degree of linear spatial proximity/distance between entities  <b>STEM 3:</b> (to be/manifest a) a degree of temporal proximity/distance (i.e., elapsed time between entities)
<b>CTE</b>	(to be/manifest) the effect/consequences of the spatio-temporal distance/proximity between entities	
<b>CSV</b>	(to be/manifest) a degree of linear proximity/distance in space and/or time between entities)	
<b>OBJ</b>	(to be) an entity/party at a certain distance/proximity to another	

### 3.5 POSITIONALLY-DEFINED COMPONENTIAL PARTS OF A WHOLE

As seen above, Stem 3 of **-F-** type spatial position roots convey the meaning of “the area/vicinity around X”, so that the Stem 3 root of **-K-** above would mean “the area behind or in back (of)”. Nevertheless, as in Ithkuil, separate roots will exist to describe positionally-defined componential parts of an entity, to distinguish “the area behind or in back of” from “the rear/back part/side of” where the latter refers to a part of the entity itself. This allows one to distinguish phrases such as “behind the box” from “the back/rear side of the box.”

<b>-TF- ‘POSITIONALLY-DEFINED COMPONENTIAL PART’</b>		Associated affix: <b>-S08-</b>
<b>BSC</b>	<b>STEM 1:</b> positionally-defined part/section of an entity (e.g., side, front, top, bottom, rear, etc.); to be a positionally-defined part/section of an entity	<b>STEM 2:</b> Inalienable, inherent, inseparable, “built-in” component part/section in relation to the whole  <b>STEM 3:</b> Alienable, separable, detachable component part/section in relation to the whole
<b>CTE</b>	The state/act of physically being/doing what a positionally-defined part/section of an entity is/does; to physically be/do what a positionally-defined part/section of an entity is/does	
<b>CSV</b>	A/the (relative) spatial position/location which defines/delineates a part/section of an entity; to be a/the spatial position/location which defines/delineates a part/section of an entity	
<b>OBJ</b>	The entity of which the componential part/section is a part; to be the entity of which the componential part/section is a part	

INFORMAL stems indicate a circumstantial, contextual position/location; FML stems refer to a dedicated/fixed/(quasi-)permanent/“official” position/location.

Roots (and suffixes) following the same model as **-TF-** above are as follows:

- KF-** ‘REAR/BACK PART OF AN ENTITY [RELATIVE TO ITS DIRECTIONAL ORIENTATION OR PRIMARY EXTERNAL INTERFACE]’
- DY-** ‘TOP/PEAK/SUMMIT OF AN ENTITY [RELATIVE TO ITS TYPICAL ORIENTATION UNDER GRAVITY]’
- DW-** ‘BOTTOM/FOUNDATION OF AN ENTITY [RELATIVE TO ITS TYPICAL ORIENTATION UNDER GRAVITY]’
- PY-** ‘UPPER PART/“HALF” OF AN ENTITY [RELATIVE TO ITS TYPICAL ORIENTATION UNDER GRAVITY]’
- PW-** ‘LOWER PART/“HALF” OF AN ENTITY [RELATIVE TO ITS TYPICAL ORIENTATION UNDER GRAVITY]’

- XW**- 'INTERIOR/INTERNAL VOLUME/"INSIDE(S)"/"INNARDS" OF AN ENTITY'
- CL**- 'LINEAR UNI-DIMENSIONAL MIDDLE, CENTER [AS SEEN PARALLEL TO LONG AXIS OF ENTITY (OR HEIGHT-AXIS OF A "TALL" ENTITY)]'
- CR**- 'LINEAR UNI-DIMENSIONAL MIDDLE, CENTER [AS SEEN PERPENDICULAR TO LONG AXIS OF ENTITY (OR HEIGHT-AXIS OF A "TALL" ENTITY)]'
- ZL**- 'PLANAR 2-DIMENSIONAL MIDDLE, CENTER [RUNNING VERTICALLY AND Laterally PARALLEL TO LONG (OR TALL) SIDE OF ENTITY]'
- ZR**- 'PLANAR 2-DIMENSIONAL MIDDLE, CENTER [RUNNING VERTICALLY PARALLEL BUT Laterally PERPENDICULAR TO LONG (OR TALL) SIDE OF ENTITY]'
- ZW**- 'PLANAR 2-DIMENSIONAL MIDDLE, CENTER [RUNNING VERTICALLY AND Laterally PERPENDICULAR TO LONG (OR TALL) SIDE OF ENTITY]'
- CW**- 'CENTER POINT OF AN ENTITY, i.e., the zero-dimensional point most equidistant from all points on the periphery or surface of an entity
- L**- 'SIDE/FLANK OF AN ENTITY'
- PF**- 'FRONT PART OF AN ENTITY [RELATIVE TO ITS DIRECTIONAL ORIENTATION OR PRIMARY EXTERNAL INTERFACE]'
- XL**- 'INTERIOR SURFACE OR "WALL" / INTERNAL SURFACE OR "WALL" / THE INSIDE SURFACE OR "WALL" OF AN ENTITY'
- XR**- 'EXTERIOR/EXTERNAL SURFACE/"OUTSIDE"/"SKIN" OF AN ENTITY'

The following roots are also modeled on the same root -**TF**-, even though they do not specify a particular spatial position relative to the whole:

- XD**- 'EXTERNAL POINT-LIKE OUTWARD-FACING VERTEX/"CORNER" OF AN ENTITY'
- XT**- 'EXTERNAL QUASI-LINEAR EDGE OF AN ENTITY'
- XK**- 'EXTERNAL QUASI-LINEAR JOINING OF SURFACES/"SEAM" OF AN ENTITY'
- XF**- 'EXTERNAL ATTACHMENT POINT OR FASTENING MECHANISM OF AN ENTITY', i.e., handle, hook, latch, velcro patch, knob, peg, etc.

### 3.6 ADDITIONAL ROOTS RELATED TO SPATIO-TEMPORAL MOTION

<b>-ÇP- ‘ACTION IN SITU / MOVEMENT IN SITU’</b>		Associated Affix: <b>BDM</b>
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest) an action/movement/motion in-situ (i.e., non-translative) — [both the movement itself and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest) a movement of a part of a larger whole; move (in-situ) a part of an entity <b>STEM 3:</b> (to be an) cyclic/oscillating/back-and-forth/up-and-down in-situ movement
<b>CTE</b>	(to be) a process of in-situ motion/movement; to move in-situ	
<b>CSV</b>	(to be) an in-situ motion/movement itself, i.e., how the movement manifests itself; what the movement(s) consists of	
<b>OBJ</b>	(to be) something moving in-situ	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RÇP- ‘BODILY POSE / IN-SITU BODILY MOVEMENT / DANCING’</b>	
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest) a bodily pose; to pose one’s body and/or limbs
<b>CTE</b>	(to be) a state of being in/maintaining a bodily pose
<b>CSV</b>	(to be) an act of assuming a bodily pose; to assume a bodily pose
<b>OBJ</b>	(to be) the pose one assumes

<b>-ÇC- ‘TRACK/TRACE/WAKE’</b>		Associated Affix: <b>WAK</b>
<b>BSC</b>	<b>STEM 1:</b> (to be) track/vestige/trace/trail of passage left behind by passage of entity [both track/vestige + the firmament it is in]	<b>STEM 2:</b> (to be) 1-D, 2-D or 3-D wake or front left behind by passage of entity <b>STEM 3:</b> (to be) trail, wake, or spread left behind as area of demarcation, boundary, zone, etc.
<b>CTE</b>	(to be) the track/vestige/trace/trail of passage left behind by passage of an entity [focus on track/vestige itself]	
<b>CSV</b>	(to be) the firmament/ground/substrate in which a track/vestige/trace/trail has been left (and of which it is likely formed)	
<b>OBJ</b>	(to be) the entity which leaves a track/vestige/trace/trail of its passage	

### 3.7 TEMPORAL CONCEPTS

<b>-LN- ‘TIME OF DAY’</b>			
	<b>STEM 1</b>	<b>STEM 2</b>	<b>STEM 3*</b>
<b>BSC</b>	(to be) daytime ( = portion of the 24-day when the sun is above the horizon)	(to be) evening or nighttime ( = portion of the 24-hour day when the sun is below the horizon)	(to be) a particular “o’clock”-time of the day as named by the hour [use numerical roots or affixes to specify the number of hours since midnight] (includes both the time and the event occurring then)
<b>CTE</b>	(to be) the elapsing/passing of time during the daytime; to spend/pass the daylight hours	(to be) the elapsing/passing of time during the evening/nighttime; to spend/pass the evening/nighttime hours	(to be) the measuring/delineation of time as specified by a particular “o’clock”-time of day
<b>CSV</b>	(to be) the state of being in daylight; to occur/manifest during daylight hours	(to be) the state of being nighttime; to occur/manifest during evening/nighttime hours, to be/occur at night	(to be) the state of being/occurring at a particular “o’clock”-time of day
<b>OBJ</b>	(to be) that which occurs/passes during daylight hours	(to be) that which occurs/passes during evening/nighttime hours	(to be) the event which occurs at or is specified by a particular “o’clock”-time of day

\*for specific times, e.g., 10:15 a.m. and 34.3 seconds, use Stem 3 with an appropriate numerical affix, followed by numerical stems with COO affix plus the appropriate FML stems of the **-RV-** root below declined in the PARTITIVE case. Alternately, one may use numerical stems with the various degrees of the ELA affix.

<b>-RV- TEMPORARY DURATION</b>		Associated Affix: <b>TD1</b>
<b>BSC</b>	(to be) a particular amount of elapsed time during which something occurs/exists; for something to occur/exist lasting/enduring a particular amount of time	<b>STEM 1:</b> a moment/instant <b>STEM 2:</b> a “while” <b>STEM 3:</b> a portion of a day
<b>CTE</b>	(be) the event(s) occurring during a particular amount of elapsed time	
<b>CSV</b>	(be) the duration of elapsed time [regardless of what may occur/exist during that period]	
<b>OBJ</b>	(be) the “volume” of spacetime during/in which something occurs/exists	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the new root **-RW-** shown below:

Specifications for the following [six](#) roots are modeled after the root **-RV-** ‘TEMPORARY DURATION’ above



<b>-RW- SHORT-TERM CONVENTIONALIZED TIME PERIOD</b>
<b>STEM 1:</b> (to be) a second
<b>STEM 2:</b> (to be) a minute
<b>STEM 3:</b> (to be) an hour

<b>-Ř- CONVENTIONALIZED TIME PERIOD</b>
<b>STEM 1:</b> (to be) a day (= 24-hour period)
<b>STEM 2:</b> (to be) a week
<b>STEM 3:</b> (to be) a lunar period / month

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RD- CALENDRIAL TIME PERIOD</b>	Associated Affix: <b>TD2</b>
<b>STEM 1:</b> (to be) a calendrical day, designated day (for planning/scheduling purposes)	
<b>STEM 2:</b> (to be) a calendrical week, designated week (for planning/scheduling purposes)	
<b>STEM 3:</b> (to be) a calendrical month, designated month (for planning/scheduling purposes)	

<b>-RN- LONGER TIME PERIOD</b>	Associated Affix: <b>LTD</b>
<b>STEM 1:</b> (to be) a calendrical year, designated year (for planning/scheduling purposes)	
<b>STEM 2:</b> (to be) a calendrical decade, designated decade (for planning/scheduling purposes)	
<b>STEM 3:</b> (to be) a designated lifetime of an individual (for planning/scheduling purposes)	

**NOTE:** for the meaning of the old INFORMAL stems previously associated with this root, use the above stems with the DGR/8 affix.

<b>-ŘŤ- LONG-TERM TIME PERIOD</b>	Associated Affix: <b>LGD</b>
<b>STEM 1:</b> (to be) calendrical century	
<b>STEM 2:</b> (to be) calendrical millennium	
<b>STEM 3:</b> (to be) calendrical ten-thousand year period	

**NOTE:** for the meaning of the old INFORMAL stems previously associated with this root, use the above stems with the DGR/8 affix.

<b>-ŘŇ- EPOCH-LENGTH TIME PERIOD</b>	Associated Affix: <b>EPC</b>
<b>STEM 1:</b> (to be) a geologic age	
<b>STEM 2:</b> (to be) a geologic epoch	
<b>STEM 3:</b> (to be) a geologic era	

**NOTE:** for the meaning of the old INFORMAL stems previously associated with this root, use the above stems with the DGR/8 affix.

<b>-RP-</b>	<b>‘CYCLE / REGULARITY / FREQUENCY / PERIODICITY / ITERATION’</b>		Associated Affix: <b>FRQ</b>
	<b>STEM 1</b>	<b>STEM 2</b>	<b>STEM 3</b>
<b>BSC</b>	(to be) something having a cycle or pattern of regularity; to be something cyclic, regular or periodic [both the entity and the cyclic pattern]	(to be) something with a particular cycle or pattern of regularity; to be something with a particular cycle or regular period [both the entity and the cyclic/periodic pattern]	(to be) something manifesting iteration/recurrence, i.e., happening more than once; to be something iterative/recurrent [both the entity and the recurrence]
<b>CTE</b>	(to be) a pattern of cyclic/regular/periodic activity [focus on pattern as distinct from other/different potential patterns]	(to be) the particular frequency/periodicity of a phenomenon (= the rate of its reccurrences/manifestations); to recur; to repeat (in terms of temporal periodicity)	(to be) a pattern of iteration/recurrence [focus on the fact that iteration/recurrence demonstrates a potential pattern or precedent for further recurrence]
<b>CSV</b>	(to be) a process of cycling/periodicity [focus on significance that a pattern exists/occurs]	(to be) a process of cycling/recurring with a particular period [focus on the significance that such a pattern exists/occurs]	(to be) a process of iteration/recurrence [focus on the fact that there’s been a recurrence]
<b>OBJ</b>	(to be) the object/entity which displays cyclic/regular/periodic activity	(to be) the object/entity which displays the particular cycle/recurring/periodic pattern	(to be) the event/entity which has recurred

<b>-KT- PAST / PRESENT / FUTURE</b> (based on Metaphor of a Progressive Linear Spacetime-line)		Associated Affix: <b>TPP</b>
<b>BSC</b>	<b>STEM 1:</b> (to be) a past event/occurrence/entity (relative to the contextual present); to be/occur in the past [both the event/entity and its place on a linear timeline relative to the contextual present]	<b>STEM 2:</b> present event, entity, occurrence  <b>STEM 3:</b> future event, entity, occurrence
<b>CTE</b>	(to be) a past event [focus on what occurred, not when]	
<b>CSV</b>	(to be) when a past event occurred [focus on when it occurred, not what occurred]	
<b>OBJ</b>	(to be) the entity/object/circumstance impacted/affected by a past event/occurrence/entity	

**NOTE:** The above stems may be used in spatial contexts as well, in which case English translations might differ depending on context, e.g., ‘previous’, ‘former’, ‘once-’, ‘one-time’, ‘here’, ‘...at hand’, ‘there’, ‘-to-come’, ‘expected/awaited’, etc.

<b>-KM- ‘TIMELINESS / PUNCTUALITY / EARLINESS / LATENESS’</b>		Associated Affix: <b>TME</b> (formerly <b>LAT</b> )
	<b>STEM 1</b>	<b>STEM 2</b>
<b>BSC</b>	(to manifest) a degree of timeliness/punctuality; the extent to which something is timely/on-time [use a quantitative affix such as EXN, EXD, SUF, etc., to specify]	(to be) something that is early, sooner-than-expected, sooner-than-required
<b>CTE</b>	(to be) that which manifests a degree of timeliness/punctuality	(to be) that which is early
<b>CSV</b>	(to be) a state of timeliness/punctuality, being on time	(to be) a state of earliness, being sooner-than-required; to be early
<b>OBJ</b>	(to be) that to/with which one is (intended to be) punctual	[same as CTE]
<b>STEM 3:</b> (to be something that is) late, untimely, tardy — Specification pattern is modeled after Stem 2		

<b>-RŠ- ‘STAGE / STEP / PHASE OF A PROCESS’</b>		Associated Affix: <b>STG</b>
<b>BSC</b>	<b>STEM 1:</b> (to be a) step/stage/phase in a process [both the entity/entities/events/acts constituting the portion of the larger process and the process/state of being subdivided from the larger process]	<b>STEM 2:</b> (to be) a degree/grade or point on a progressive/scalar gradient  <b>STEM 3:</b> (to be a) section, sub-unit, discernible/identifiable/differentiated “stretch” or portion of a progressively/successively structured entity/phenomenon
<b>CTE</b>	(to be the) entity/entities/activity/activities/act(s) within (or which constitute) a step/stage/phase of a process; to constitute the particulars of a stage in a process	
<b>CSV</b>	(to be) the act/state/process of being/functioning as a step /stage/phase of a process; to perform a step in a process	
<b>OBJ</b>	(to be the) process which is divided up into steps/stages/phases	

## 4.0 PSYCHOLOGICAL AND SOCIOLOGICAL PHENOMENA

-SL- 'THOUGHT / CONTEMPLATION / REASON'		
<b>BSC</b>	STEM 1: (to be) an act of thinking/cogitating; to think/cogitate	STEM 2: (to be) something one is considering/mulling/contemplating; to consider, mull, contemplate, take into account  STEM 3: (to be) an act of reasoning; to reason [ = employ a strict process of logic when thinking/analyzing]
<b>CTE</b>	(to be) the state/process of thinking/cogitating	
<b>CSV</b>	(to be) the thought one is thinking	
<b>OBJ</b>	(to be) the basis/trigger for a thought; that which makes one think of something	

DERIVATIONS: ponder, deliberate/deliberation, contemplate, mull, theory, hypothesis, deduce/deduction, infer(ence), judge, conclude/conclusion

This root is also used as the **PROPOSITIVE (PPV) Bias Affix**: '*what if...*' '*It could be that....*' '*Consider this: ...*' '*Posit the following: ...*' '*Assume for the sake of argument that....*'

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

-KSL- 'IDEA / ANALYSIS / ABSTRACTION / CONCEPT'	
<b>Stem 1:</b>	(to be) an act of thinking up/of an idea; to brainstorm; to come up with an idea CSV = an idea
<b>Stem 2:</b>	(to be) an act of analysis; to analyze
<b>Stem 3:</b>	(to be) an act of abstraction; to abstract CPT = conceptualization/conceptualize CSV = a concept

-LTC- 'SUGGESTION / ADVICE / PROFFER / RECOMMENDATION'		
<b>BSC</b>	STEM 1: (be) an act of suggesting something, i.e., proffering an idea as to a potential course of action or way of thinking	STEM 2: (be) a piece of advice; to advise  STEM 3: (be) recommendation; to recommend
<b>CTE</b>	(be) a state of having a suggestion made to one; listening to/hearing/reading a suggestion being made	
<b>CSV</b>	(be) the words/means/method of making a suggestion	
<b>OBJ</b>	(be) a suggestion; the idea offered as a potential course of action or way of thinking	

This root is also used as the **SUGGESTIVE (SGS) Bias Affix**: '*How about...*' '*We could...*' '*Might I suggest...*'

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-ŇTÇ- ‘PROPOSITION / COUNSELLING / ADVOCACY’</b>		
<b>Stem 1:</b> (be) a proposal; to propose	<b>Stem 2:</b> (be) an instance of counselling; to counsel	<b>Stem 3:</b> (be) an act of advocating; to advocate

#### 4.1 COMMUNICATION AND SOCIAL INTERACTION

<b>-ÐX- ‘VOICE / VOCAL UTTERANCE’</b>		
	<b>STEM 1</b>	<b>STEM2:</b> (to be) the usual, common, represent-ative vocalization made by an entity (e.g., a meow, bark, whinny, chirp, roar, speaking, etc.)  <b>STEM 3:</b> (to be) an alternate, less-common vocalization made by an entity (e.g., cry, yowl, murmur, hum, purr, mumble)
<b>BSC</b>	(to be) the sound of a vocal utterance; to make sound by means of one’s vocal apparatus (e.g., bark, meow, hoot, call, shout, cry, scream, shriek, moo, whinny, roar, purr, yowl); to vocalize, to utter a sound [both the sound and the process of uttering it]	
<b>CTE</b>	(to be) the sound made by, or [communicative] content of, a vocal utterance, a vocalization; to vocalize (= the aurally discernible sound, not the originating process)	
<b>CSV</b>	(to be) the process of making a vocal utterance; to utter, to vocalize (= the vocal process itself irrespective of the resulting sound or communicative content)	
<b>OBJ</b>	(to be) the entity/party which hears/notices a vocal utterance	

<b>-M- ‘LINGUISTIC COMMUNICATION / SPEAK / SAY / TELL’</b>		
	<b>STEM 1</b>	<b>STEM2:</b> (to be) an instance/utterance of linguistic communication for rhetorical, inspirational, socially effective, or psychologically manipulative purposes  <b>STEM 3:</b> (to be) a phoneme or morpho-phonemic element/component of linguistic communication; to be a meaningful “sound” in one’s spoken language (e.g., a vowel or consonant or syllable)
<b>BSC</b>	(to be) a spoken/written/signed/signaled utterance for communicating linguistically	
<b>CTE</b>	(to be) the (intended) message/content/meaning of an instance of linguistic communication; to say/tell/communicate something using language	
<b>CSV</b>	(to be) an instance of producing/uttering/writing/signing/signaling using language (i.e., the process thereof, irrespective of the content/message); to speak/write/sign/signal in a language	
<b>OBJ</b>	(to be) the entity/party to which/whom one (intends to) communicate linguistically; the (intended) audience/listener/hearer/reader/recipient of a linguistic communication	

<b>-Ń-</b> ‘ <b>WRITE / INSCRIPTION / COMPOSE IN WRITING / WRITTEN SYMBOL OF COMMUNICATION</b> ’		
<b>BSC</b>	<b>STEM 1:</b> (to be) something written (down), something (recorded/transcribed) in writing; to write down something, record in writing [both the physical symbol(s) and the communicative content/message thereof]	<b>STEM 2:</b> (to be) something authored in writing, written composition; to “write” = to author, to compose in writing  <b>STEM 3:</b> (to be) a written/visual character/symbol/glyph/letter/emoji/ideogram, etc. used for written/visual communication
<b>CTE</b>	(to be) the communicative/linguistic content/message contained within something written	
<b>CSV</b>	(to be) to be the visual inscription or physical presence of something written (regardless of its communicative content)	
<b>OBJ</b>	(to be) the object/surface on which something is written/inscribed	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-ŃTY-</b> ‘ <b>DOCUMENT / WRITTEN PAGE/ LINGUISTIC GRAPHEME</b> ’		
<b>BSC</b>	<b>STEM 1:</b> (to be) something documented in writing; to document, record/transcribe for official/archival purposes [both the physical writing and the communicative content/message thereof]	<b>STEM 2:</b> (to be) a “page” of writing, a “page” of a written work [“page” = visible formal interface for static written communication]  <b>STEM 3:</b> (to be) a written grapheme/character/letter, etc. used in a language’s [official] writing system; to write (down) letters/characters/graphemes from/in a language’s writing system
<b>CTE</b>	(to be) the communicative/linguistic content/message contained within something officially documented	
<b>CSV</b>	(to be) to be the visual inscription or physical presence of something documented (regardless of its communicative content)	
<b>OBJ</b>	(to be) the object/surface on which something is documented	

<b>-PÇ-</b> ‘ <b>READ / RECITE / ERUDITION</b> ’		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act of reading; to read (i.e., acquire/attain information from a written-language source via one’s knowledge of the written language)	<b>Stem 2:</b> (to be) an act of reading aloud, reciting; to read (aloud), to recite (i.e., speak words aloud from a written source)  <b>Stem 3:</b> (to be) a state/act of erudition/scholarship; to acquire knowledge/expertise via reading
<b>CTE</b>	(to be) the state/act of mental interpretation/comprehension of what one reads; to comprehend/take in what one reads	
<b>CSV</b>	(to be) the physical act of reading written content; to perform the physical act of reading (i.e., the visual scanning of written characters with one’s eyes plus the mental interpretation thereof)	
<b>OBJ</b>	(to be) the contents of what one reads (i.e., the communicative message in writing)	

<b>- ṬČ- ‘SIGN/MARK/SYMBOL/VISUAL OR TACTILE MEANS OF COMMUNICATION / DATUM / INFORMATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being a sign/signal/gesture/indication; to be/make a sign/signal/gesture/indication, to indicate, to gesture, to (transmit a) signal (i.e., general indication of something)	<b>Stem 2:</b> (to be) a state/act of being a (visual/tactile/olfactory) mark, token track, print, trail, clue, trace  <b>Stem 3:</b> (to be) a state/act of being a non-linguistic communicative/informational gesture (i.e., a visual/tactile indication designed to communicate non-linguistic information, e.g., a nod, a certain facial expression, a wink, a hand-wave of greeting, a hand-wave of dismissal, a shrug, a pat on the head, a pat on the back, etc.)
<b>CTE</b>	(to be) a datum, a piece of information conveyed by a sign/signal/indication/indicator	
<b>CSV</b>	(to be) an act of indicating; do something that indicates	
<b>OBJ</b>	(to be) a sign/signal/indication/indicator itself	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RṬČ- ‘OFFICIAL SIGN OR SIGNAL / EMBLEM / INSIGNIA / LOGO / SYMBOL’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of being a formal/authorized/official sign/signal (e.g., road sign, traffic signal, marquee, written name/information on a dedicated placard-like surface, etc.)	<b>STEM 2:</b> (to be) a state/act of being a symbol, emblem, device, insignia, logo  <b>STEM 3:</b> (to be) a state/act of being a linguistically representational mark/symbol other than a character/letter/grapheme from a language; to be/write a linguistically representational mark/symbol other than a character/letter/grapheme from a language (e.g., an emoji, an arrow, the power-on/off symbol on a device, the outline of a raised hand indicating “stop”, a red circle with diagonal bar indicating something prohibited, etc.)
<b>CTE</b>	(to be) the information indicated/expressed by a formal/authorized/official sign/signal	
<b>CSV</b>	(to be) an act of expression via a formal/authorized/official sign/signal; to express/convey via a formal/authorized/official sign/signal	
<b>OBJ</b>	(to be) a formal/authorized/official sign/signal	

<b>-FČ- ‘DESCRIPTION / DELINEATION / SPECIFICATION / REPORT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/process of describing something; to describe [including the act/process of description plus what is described]	<b>Stem 2:</b> (to be) an act/process of of delineating/specification, giving specific/organized details; to delineate, to specify, describe in clinical detail  <b>Stem 3:</b> (to be) an act of reporting something; to report
<b>CTE</b>	(to be) the content of a description	
<b>CSV</b>	(to be) an act/process of describing; an act of description	
<b>OBJ</b>	(to be) that which a description pertains to or is about	

**NOTE:** The old FORMAL and INORMAL stems previously associated with this root have now been distributed between this root and the following new root:

<b>-FÇM- ‘ACCOUNT / NARRATIVE / STORY’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/process of giving an account of/relating/recounting an event/occurrence to another	<b>STEM 2:</b> (to be) an act of telling a story or narrative; to narrate, tell a narrative, tell a story *  <b>STEM 3:</b> (to be) a process of setting forth/communicating one’s thoughts, observations, analysis, etc. verbally or in writing
<b>CTE</b>	(to be) the content of a specification/delineation	
<b>CSV</b>	(to be) an act/process of delineating/specifying; to physically specify/delineate (i.e., verbally or in writing)	
<b>OBJ</b>	(to be) that which a delineation/specification pertains to or is about	

\* Use the REA/2 affix with Stem 2 of this root to designate a fictional story / piece of fiction.

<b>-TT- ‘SALUTATION / GREETING / INTRODUCTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> a state/act of greeting, salutation; to greet, extend salutations toward, say hello to	<b>Stem 2:</b> (to be) an act of hailing, getting attention of someone/something; to hail / get attention of  <b>Stem 3:</b> (to be) a social introduction; to socially introduce, present a party to another party
<b>CTE</b>	(to be) a state of salutation	
<b>CSV</b>	(to be) an act of greeting someone; the actual words/actions employed to greet someone; to say words of greeting, to demonstrate one’s greetings	
<b>OBJ</b>	(to be) the party/entity who is greeted	

**NOTE:** the old FORMAL and INFORMAL stems previously associated with this root are now distributed between this root and the following two new roots:

<b>-TTR- ‘LEAVETAKING / SAYING GOODBYE / FAREWELL’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of casual leavetaking, saying “see you later”; to casually take one’s leave (until an expected and predictable meeting); to say “bye” or “good night” or “see you [tomorrow, this weekend, next week, etc.], to bid one a casual/temporary goodbye until an expected, predictable, soon-to-come remeeting.	<b>STEM 2:</b> (to be) a a state/act of leavetaking, saying goodbye (for the present, until an eventual remeeting at some future time); to take one’s leave, to say goodbye, to bid one goodbye (for the present, until an eventual remeeting at some future time)  <b>STEM 3:</b> (to be) a formal farewell, bidding farewell (with no expectation of when or if the parties will meet again); to bid farewell, to bid adieu
<b>CTE</b>	(to be) a state of casual leavetaking	
<b>CSV</b>	(to be) an act of casually taking one’s leave; the actual words/actions employed to casually take leave of someone; to say words of casual/temporary leavetaking	
<b>OBJ</b>	(to be) the party/entity to whom one directs one’s casual/temporary goodbye	



<b>-ZKY- ‘MODULATION OF ELECTRO-MAGNETIC WAVE FOR COMMUNICATION PURPOSES’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of amplitude modulation of an e-m frequency for purposes of communication with an e-m (i.e., radio/television) receiver [i.e., an AM broadcast]	<b>Stem 2:</b> (to be) a state/act of frequency modulation for communication purposes [i.e., an FM broadcast]  <b>Stem 3:</b> (to be) a state/act of polarity modulation for communication purposes [i.e., a Polarity Modulation broadcast]
<b>CTE</b>	(to be) a state of amplitude modulation; to be an AM broadcast	
<b>CSV</b>	(to be) an act of modulating the amplitude of an e-m frequency; to make an AM broadcast	
<b>OBJ</b>	(to be) the message/communicative content of an AM broadcast	

<b>-MSX- ‘PLAY-ON-WORDS / PUN / DOUBLE-ENTENDRE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a play on words, witty or clever use of words; to play on words, to say/write something witty/clever using wordplay	<b>STEM 2:</b> (to be) a pun; make a pun  <b>STEM 3:</b> (to be) a double-entendre; say/write/make a double-entendre
<b>CTE</b>	(to be) what one says/writes that constitutes a play-on-words	
<b>CSV</b>	(to be) a physical act of saying/writing something that is a play-on-words; to physically speak/write such	
<b>OBJ</b>	(to be) the subject/topic/situation/allusion “hidden” in a play-on-words	

<b>-DN- ‘NAME / DESIGNATION / LABEL’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a name [plus the entity named]; to be named/called something	<b>Stem 2:</b> (to be) a designation or reference [plus the entity so designated]; to refer to as  <b>Stem 3:</b> (to be) a label [plus the entity so labeled]; to label as
<b>CTE</b>	(to be) an entity having a name	
<b>CSV</b>	(to have) a name; to bear a name	
<b>OBJ</b>	(to be) the name that an entity has	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RDN- ‘TITLE / ROLE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a title [plus the entity so titled] [here, “title” refers to a word or phrase acting as a name, as in the title of a book or work of art, etc.]	<b>STEM 2:</b> (to be) a title [plus the entity so titled] [here, “title” refers to a formal designation given a person indicating their societal/occupational role/function, as in “Doctor”, “Queen,” “President”, “Deputy”, “Minister”, “Countess,” etc.]  <b>STEM 3:</b> (to be) a role [plus the entity carrying out the role] (i.e., a formally assigned functional niche or societal status, as in a role in a play, or a role in society, e.g., jester, Hamlet, yenta, amanuensis, matchmaker, femme fatale, scapegoat, etc.
<b>CTE</b>	(to be) an entity having a title	
<b>CSV</b>	(to have) a name; to bear a name	
<b>OBJ</b>	(to be) the name that an entity has	

<b>-ND- ‘QUESTION / QUERY / ANSWER / RESPONSE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/process of question & answer [statement requesting information + the answer/reply/response thereto]	<b>STEM 2:</b> (to be) an act of questioning/querying  <b>STEM 3:</b> (to be) an act of answering/responding
<b>CTE</b>	(to be) an act/process of asking a question and receiving an answer [focus on the inquiry/response process itself]	
<b>CSV</b>	(to be) the act/process of tangibly/physically/linguistically expressing a question and hearing/reading/discerning an answer (i.e., regardless of the content of the question or answer)	
<b>OBJ</b>	(to be) the actual words or specific /communicative expression(s) of a question and answer	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-NDL- ‘INQUIRY / INVESTIGATION / DISCOVERY’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/process of inquiry + answer or resulting discovery; to inquire into something [i.e., seek an explanation or answer(s) for something that (one believes_ needs explaining]	<b>STEM 1:</b> (to be) an act/process of formal investigation; to investigate  <b>STEM 3:</b> (to be) an act/process of discovering/finding the explanation(s)/answer(s) to one’s inquiry or investigation; to discover/find out something one has inquired about or investigated
<b>CTE</b>	(to be) the state of there being something unexplained that (one believes) needs an explanation	
<b>CSV</b>	(to be) the physical actions taken and/or question(s) posed that constitute an inquiry; to physically take the actions and/or physically state/ask the questions constitute an inquiry	
<b>OBJ</b>	(to be) that which is unexplained and (that one believes) needs to be inquired about/investigated	

<b>-RRJ- ‘ASSERTION / CERTAINTY / ASSURANCE / ALLEGATION / AFFIRMATION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (be) an (act of) assertion; to assert that something is certain based on one’s belief/knowledge that it is so	Stem 2: (act of) assurance/allegation; to assure that something is so based on intuition, speculation, hope, or in the (immediate) absence of evidence.  Stem 3: (process of) affirmation; to affirm/swear that something is so.
<b>CTE</b>	(be in) a state of certainty about something based on one’s belief/knowledge about it	
<b>CSV</b>	(be) a process of asserting; declare that something is so	
<b>OBJ</b>	(be) that which is being asserted; an asserted fact	

This root is also used as the **CONTENSIVE (CNV) Bias affix:** = ‘I’m telling you...’, ‘I told you so!’, ‘You see?!’

<b>-FX- ‘DEGREE OF CONFIDENCE/FORTHRIGHTNESS/HUMILITY’</b> Affix: <b>CFD</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of meekness/confidence ( = self-confidence, self-effacement) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of humility; be humble  <b>STEM 3:</b> (to be/have a) degree of authoritativeness ( = manifestation of control / leadership; expectation of obedience / acquiescence / complacency by others)
<b>CTE</b>	(to be) something with a degree of meekness/confidence	
<b>CSV</b>	(to be) a degree of meekness/confidence	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of meekness/confidence	

<b>-NX- ‘DEGREE OF FURTIVENESS / COVERTNESS’</b> Affix: <b>CVT</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of furtiveness/coverttness ( = extent to which an activity is furtive) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree to which something is obscure/obfuscated/ambiguous/difficult to discern or interpret  <b>STEM 3:</b> (to be/manifest a) degree of sneakiness / stealth / surreptitiousness
<b>CTE</b>	(to be) something with a degree of furtiveness/coverttness	
<b>CSV</b>	(to be) a degree of physical/technical furtiveness/coverttness	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of furtiveness/coverttness	

<b>-MT- ‘DEGREE OF PUBLICITY / PRIVACY / SECRECY / CONCEALMENT / AVAILABILITY’</b> Affix: <b>DSR</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1.</b> (to be) something with a particular degree of publicity, notoriety <i>vs.</i> secrecy, confidentiality [i.e., degree to which something is generally known] — [both the quality and the entity manifesting such]	<b>STEM 2.</b> (to be) something with a particular degree of privacy/concealment/seclusion [i.e., degree to which something is generally seen/heard/witnessed]  <b>STEM 3.</b> (to be) something with a particular degree of diffusion/availability/accessibility [i.e., degree to which something is generally available/accessible]
<b>CTE</b>	(to be) something with a degree of publicity, notoriety <i>vs.</i> secrecy, confidentiality	
<b>CSV</b>	(to be) a degree of physical/technical publicity, notoriety <i>vs.</i> secrecy, confidentiality	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of publicity, notoriety <i>vs.</i> secrecy, confidentiality	

<b>-VVT- ‘TACT(FULNESS) / INGRATIATE / OBSEQUIOUSNESS / SYCOPHANCY’</b>		
<b>BSC</b>	Stem 1: (be) an instance of tact(fulness), i.e., speak or act in a manner designed to preserve the appearance of dignity for all parties, despite the parties’ likely knowledge that the situation involved is other than dignified	<b>STEM 2:</b> (to be) ingratiating  <b>STEM 3:</b> (to be) obsequious, unctuous, sychophantic
<b>CTE</b>	(be) a state of tactfulness; to manifest tactfulness, have a tactful air/manner	
<b>CSV</b>	(be) the tangible action(s)/word(s) used in an act/display of tact(fulness)	
<b>OBJ</b>	(be) the matter/issue/subject/situation requiring/necessitating/eliciting a display of tact(fulness)	

This root is also used as the **EUPHEMISTIC (EUP) Bias Affix:** *‘Let’s just say that....’ or ‘Well, let me put it this way....’*

<b>-LLM- ‘SELF / IDENTITY / PERSONALITY’</b>		
<b>BSC</b>	<b>STEM 1:</b> (be) one’s own self (= one’s own person as an object of reflection or reference), oneself; to be/act (as) oneself	<b>STEM 2:</b> (be) one’s sense of identity, i.e., what one senses/believes/observes introspectively about oneself that makes one feel unique as compared to others; what one senses/believes about oneself that distinguishes oneself from others; to have a sense of identity [OBJ = one’s identity as established by authorized means; i.e., how one is formally/authoritatively distinguished from others]  <b>STEM 3:</b> (be) a one’s personality
<b>CTE</b>	(be) one’s sense of self-awareness, i.e., the conscious subjective sense that one exists as an individual	
<b>CSV</b>	(be) the physical body plus tangible/conscious beliefs, values, thoughts, ideas, drives, personal characteristics, etc. that one is consciously aware of about oneself that constitute the “ingredients” which make up one’s sense of self	
<b>OBJ</b>	(be) a person/entity [as observed externally by others] having a conscious self	

This root is also used as the **RELECTIVE (RFL) Bias Affix:** *‘Look at it this way...’ ‘As I see it,...’ ‘In my opinion,...’ or ‘From my point of view,...’*

<b>-CČ- ‘MODESTY / HUMBLENESS / MEEKNESS’</b>		
<b>BSC</b>	<b>STEM 1:</b> (be) an act/instance of modesty; to act/behave modestly; to be modest (i.e., not boastful, conceited, or demonstrating pride about one’s identity, talents, characteristics, accomplishments, etc.)	<b>STEM 2:</b> (be) an act/instance of humility/humbleness; be humble (i.e., behaving/being with a conscious sense of one’s own defects or shortcomings, so that one is unassertive)  <b>STEM 3:</b> (be) an act/instance of meekness; be meek (i.e., patient and mild in character/personality and not inclined to anger or resentment)
<b>CTE</b>	(be) a modest person, have a modest character/personality	
<b>CSV</b>	(be) an appearance of modesty, i.e., to behave/act as (if) one who is modest	
<b>OBJ</b>	(be) a person whom others generally perceive as being modest	

This root is also used as the **DIFFIDENT (DFD) Bias Affix:** *‘sorry, but...’ ‘It’s nothing. It’s just...’*

<b>-ŽŽT- ‘ORDINARINESS / UNORIGINALITY’</b>		
<b>BSC</b>	Stem 1: (be) something ordinary or commonplace	Stem 2: (be) something matter-of-fact, down-to-earth or prosaic (i.e., lacking in any features or characteristics or behavior which would cause one to infer or guess their nature, motives, meaning, intentions, etc.)
<b>CTE</b>	(be) a state of being ordinary or commonplace (i.e., the subjective state of ordinariness)	
<b>CSV</b>	(be) physical/tangible aspects/characteristics of a party/entity/object/event/situation that make it ordinary or commonplace	
<b>OBJ</b>	(be) what is common-place or ordinary, i.e., the party/entity/object/event/situation that is commonplace or ordinary	Stem 3: (be) something unoriginal and predictable (i.e., lacking in any original or innovative aspects)

This root is also used as the **PROSAIC (PSC) Bias Affix**: — ‘*Meh... (said in disappointment)*’ ‘*How ordinary!*’

<b>-MZT- ‘ABANDONMENT / GIVING UP ON / RESIGNATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of giving up on something; to give up on (i.e., losing one’s faith/belief that something is or functions as one thought it would or as it used to [be])	<b>Stem 2:</b> (be) an act/instance of abandonment; to abandon  <b>Stem 3:</b> (be) a act/instance of resignation (i.e., officially vacating one’s role, duty, job)
<b>CTE</b>	(be) a state of having given up	
<b>CSV</b>	(be) an act of giving up	
<b>OBJ</b>	(be) what one gives up on, what one no longer believes in	

This root is also used as the **RENUNCIATIVE (RNC) Bias Affix**: — ‘*So much for...!*’ ‘*There goes...!*’

**NOTE:** for the meaning of the old FORMAL stems previously associated with the above root, use the following new root with the same Specification pattern:

<b>-RMZT- ‘RENUNCIATION / DESERTION / ABDICATION’</b>	
<b>Stem 1:</b> (be) an act of renunciation; to renounce <b>Stem 2:</b> (be) an act of desertion <b>Stem 3:</b> (be) an act/instance of abdication; to abdicate, to abjure	

-ŃŃS- ‘SOLICITATION / SUPPLICATION / IMPLORE / BESEECH / ENTREATY / PRAYER’		
<b>BSC</b>	(be) an act of solicitation, i.e., a polite or humble request made to a 2nd party that the 2nd party provide some desired service/relief/resource, etc.; a plea, a supplication	<b>Stem 2:</b> (be) an act/process of begging/imploring/beseeching/entreating, i.e., an emotionally earnest/intense form of solicitation; to beseech, entreat, beg
<b>CTE</b>	(be) the psycho-social aspects of an act of solicitation	
<b>CSV</b>	(be) the physical act/process/words involved in making a solicitation	<b>Stem 3:</b> (be) an act of prayer; to pray (i.e., to a deity or supernatural entity)
<b>OBJ</b>	(be) the object/entity/service which the soliciting party hopes to obtain	

This root is also used as the **SOLICITATIVE (SOL) Bias Affix:** ‘*please*’

**NOTE:** for the meaning of the old FORMAL stems previously associated with the above root, use the following new root with the same Specification pattern:

-RŃS- ‘CLAIM / LAWSUIT / APPEAL’	
<b>Stem 1:</b>	(be) a process of claiming; to make a claim (i.e., to seek relief from some injustice done)
<b>Stem 2:</b>	(be) an act/process of suing; to sue, file a (law)suit
<b>Stem 3:</b>	(be) an act/process of appealing; to appeal (i.e., to seek reversal of some punishment meted)

-PLŁ- ‘HUMOR / WIT / JEST’		
<b>BSC</b>	<b>Stem 1:</b> (to be) something funny/humorous/comical; to be funny/humorous/comical	<b>Stem 2:</b> (to be) something witty (i.e., subtly and cleverly humorous which strikes an audience as charming); to be witty
<b>CTE</b>	(to be) the state of funniness/humor induced	
<b>CSV</b>	(to be) the actual manifestation (act(s), word(s), circumstance(s), situation(s), <i>object(s)</i> , etc.) of whatever is funny	<b>Stem 3:</b> (to be) something farcical or sardonic (i.e., something humorous in a double-edged manner based in irony or sarcasm); to be a farce, to be farcical
<b>OBJ</b>	(be) what is funny, i.e., the party/entity/object/event/situation that is the focus of the humor	

This root is also used as the **COMEDIC (CMD) Bias Affix:** — -płł ‘*Funny!*’ ‘*LOL*’

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RPLJ- ‘JEST / PRANK / JOKE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a joke; make a joke (i.e., a communicated story or message designed to evoke humor)	<b>STEM 2:</b> (to be) a jest; make a jest  <b>STEM 3:</b> (to be) a prank; pull a prank (i.e., an act or situation designed to evoke humor through embarrassment)
<b>CTE</b>	(to be) the state of funniness/humor induced by a joke	
<b>CSV</b>	(to be) the actual manifestation (act(s) and/or word(s) or circumstance(s) that constitute a joke; to tell/perpetrate a joke	
<b>OBJ</b>	(to be) the butt of a joke, what or who the joke is about	

<b>-MY- ‘GRATITUDE / THANKFULNESS’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an offer of thank(s)/gratitude for a favor, honor, courtesy or convenience performed; to offer gratitude for a favor, honor, courtesy or convenience performed (= both the motivating desire to offer gratitude and its tangible/physical/verbal expression)	<b>STEM 2:</b> (to be) thank(s) / offer gratitude due to being relieved/rescued from an adverse situation  <b>STEM 3:</b> (to be) thank(s) / offer gratitude within ironic circumstances or merely as a superficial courtesy, i.e., where expectation of thanks is for an unwanted, unnecessary, or purely symbolic act or an act which required little or no effort on the doer's part
<b>CTE</b>	(to be) the psychological state motivating one to offer thanks/gratitude for a favor, honor, courtesy or convenience performed	
<b>CSV</b>	(to be) the physical/tangible/linguistic expression of an act of thanks or gratitude for a favor, honor, courtesy or convenience performed; to communicate/express one's thanks or gratitude for a favor, honor, courtesy or convenience performed	
<b>OBJ</b>	(to be) the actual words or other form(s) of expression used in communicating one's thanks/gratitude for a favor, honor, courtesy or convenience performed	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RMY- ‘PRAISE / BEING BEHOLDEN’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act of praising an entity; to praise someone/something (= both the act of praise and its tangible/physical/verbal expression)	<b>STEM 1:</b> (to be) a state/act of gratefulness to another; manifestation of being beholden to someone or something [feeling is justified and an honor to be feeling]  <b>STEM 3:</b> (to be) a manifestation of being beholden or obliged to someone or something [feeling is resented and unwanted]
<b>CTE</b>	(to be) the socio-psychological state of praise	
<b>CSV</b>	(to be) the physical/tangible/linguistic expression of an act of praise	
<b>OBJ</b>	(to be) what one is praising an entity for; to be the motivating reason one praises another/something	

<b>-LL-</b> ‘ <b>ACKNOWLEDGEMENT / ADMISSION / CONCESSION</b> ’		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of acknowledgement of something (i.e., demonstrating to another one’s awareness of something)	<b>Stem 2:</b> (be) an act/instance of disclosing or revealing something (i.e., let others see/know something which has previously not been seen by or known to them)  <b>Stem 3:</b> (be) a act/instance of admission/conceding something; to admit, concede, grant that something is so (i.e., acquiesce to allowing others to know of one’s awareness of, association with, or involvement in something)
<b>CTE</b>	(be) the state of mutual awareness/understanding created by an act of acknowledgement	
<b>CSV</b>	(be) an act of physically acknowledgement; to physically acknowledge (e.g., nodding, verbally, a wave of one’s hand, a wink, etc.)	
<b>OBJ</b>	(be) that which is acknowledged	

This root is also used as the **ADMISSIVE (ADM) Bias Affix:** ‘*mm-hmm*’ ‘*uh-huh*’, ‘*I see*’.

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-LLW-</b> ‘ <b>ASSENT / ACQUIESCENCE / CONFESSION</b> ’	
<b>Stem 1:</b> (be) an act of assent/acquiescence	
<b>Stem 2:</b> (be) an act of divulging/exposing something; to divulge or expose something (i.e., let others see/know what has previously been private or secret)	
<b>Stem 3:</b> (be) an act of confessing something, owning up to something; to confess or own up to something	

<b>-NF-</b> ‘ <b>PARTNERSHIP / COLLEAGUE</b> ’		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of partnering, being a partner to or with; to be a partner with or to, to partner with, to partner up (i.e., teaming up with someone to accomplish something together)	<b>Stem 2:</b> (to be) state/act of being in league with, to be one’s cohort, to be one’s fellow-[X], to be one’s co-[X]  <b>Stem 3:</b> (to be) a state/act of being a colleague to another, be one’s colleague
<b>CTE</b>	(to be) a state of partnership	
<b>CSV</b>	(to be) be an act of partnering; to take on a partner	
<b>OBJ</b>	(to be) the entity/party which/who partners with one; be one’s partner	

**NOTE:** the old INFORMAL and FORMAL stems previously associated with this root have been newly distributed between the above root and the following new root:



<b>-MFL- ‘UNION / BETHROTHAL / MARRIAGE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of union, being united; to unite	<b>STEM 2:</b> (to be) a state/act of being engaged/betrothed/promised to another as a mate
<b>CTE</b>	(to be) a state of union	
<b>CSV</b>	(to be) be an act of uniting; to do something that unites	
<b>OBJ</b>	(to be) the entity/party which/whom one joins in a junion	<b>STEM 3:</b> (to be) a state/act of being married/wedded; to marry, to wed, to be the spouse of another

<b>-JV- ‘COOPERATION / TEAM / ALLIANCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of cooperation; to cooperate	<b>Stem 2:</b> (to be) state/act of teaming up with; be/form a team  <b>Stem 3:</b> (to be) a state/act of alliance; to ally with
<b>CTE</b>	(to be) a state of cooperation; be cooperative	
<b>CSV</b>	(to be) be an act of cooperating; to do something which demonstrates cooperation	
<b>OBJ</b>	(to be) the entity/party with whom one cooperates	

**NOTE:** the old INFORMAL and FORMAL stems previously associated with this root have been newly distributed between the above root and the following new root:

<b>-JVY- ‘COLLABORATION / COLLUSION / CONSPIRACY’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of collaboration; to collaborate	<b>STEM 2:</b> (to be) a state/act of collusion; to collude  <b>STEM 3:</b> (to be) a state/act of conspiracy; to conspire
<b>CTE</b>	(to be) a collaborative state; be collaborative	
<b>CSV</b>	(to be) be an act of collaborating; to do something which demonstrates collaboration	
<b>OBJ</b>	(to be) the entity/party with whom one collaborates	

<b>-KB - ‘ASSOCIATION / DEALING WITH / RELATION TO / ENGAGEMENT WITH’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of dealing with something/someone; to spend time or effort dealing with something/someone, having to focus attention upon something/someone	<b>Stem 2:</b> (to be) a state/act of relating to or with something/someone, a relation; to bear upon, to pertain to, to have to do with  <b>Stem 3:</b> (to be) an act of engaging in, becoming involved with; to become involved with
<b>CTE</b>	(to be) a state of having to deal with something/someone; be in such a state	
<b>CSV</b>	(to be) an act of dealing with or focusing one’s attention upon; to deal with, to focus one’s attention upon	
<b>OBJ</b>	(to be) what/who one must deal with	

Derivations: to associate/interact with

The above root may be used with the following **SYM** affix below to specify the nature of an interrelationship:

<b>-zv</b>	<b>SYM Symbiotic Relationship</b>
1	in an obligate [i.e., required/mandatory/necessary] relationship with another party to mutual benefit, i.e., obligate mutualistic relationship
2	in an obligate [i.e., required/mandatory/necessary] relationship to the benefit of oneself but neutral to the other party, i.e., obligate commensal relationship
3	in an obligate [i.e., required/mandatory/necessary] relationship to the benefit of oneself but harmful to the other party, i.e., obligate parasitic relationship
4	in a facultative [i.e., optional] relationship with another party to mutual benefit, i.e., optionally mutualistic relationship
5	in a facultative [i.e., optional] relationship to the benefit of oneself but neutral to the other party, i.e., optional commensal relationship
6	in a facultative [i.e., optional] relationship to the benefit of oneself but harmful to the other party, i.e., optional parasitic relationship
7	in an obligate or facultative relationship with another party of no benefit to oneself but advantageous/beneficial to the other party
8	in an obligate or facultative relationship with another party harmful to oneself but advantageous/beneficial to the other party
9	in a competitive relationship with another party [potentially] harmful to both parties

**-NN-    ‘HELP / AID / ASSISTANCE / SUPPORT / ADVOCACY’**

**NOTE:** This root and its stems refer to the conscious giving/rendering of help/aid/support by a conscious entity, motivated by a desire to do so. To denote assistance/ helpfulness/support via a non-animate or collective entity, see the root **-NTR-** below.

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of aiding/helping; to aid, to help, to render aid, to give help to	<b>Stem 2:</b> (to be) a state/act of assisting/assistance; to assist, to lend a hand in doing/accomplishing something, to help to accomplish something  <b>Stem 3:</b> (to be) a state/act of supporting/advocating; to support, to advocate (i.e., to verbally advocate for and/or provide tangible or intangible resources to reinforce something or someone)
<b>CTE</b>	(to be) the state of helpfulness	
<b>CSV</b>	(to be) a physical act of helping/aiding; to do something that helps or renders aid	
<b>OBJ</b>	(to be) what one does that is helpful, the help one gives	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

**-NNW-    ‘MINISTRY / PATRONAGE / SUSTENANCE / ENDORSEMENT / CHAMPIONING’**

<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of ministering to, tending to; to minister to, to tend to, wait upon	<b>STEM 2:</b> (to be) a state/act of patronage, sustenance or subsidization; to grant one’s patronage, to subsidize  <b>STEM 3:</b> (to be) a state/act of endorsing, championing, rallying, garnering support for something/someone; to endorse, to champion, to rally/garner support for something/someone
<b>CTE</b>	(to be) a state of being ministered or tended to	
<b>CSV</b>	(to be) a physical act of ministering/tending to; to physically minister/tend to	
<b>OBJ</b>	(to be) what one does that constitutes ministry/tending to	

**-MK-    ‘IMITATION / MIMICRY / PRETENDING’**

<b>BSC</b>	<b>Stem 1:</b> (to be) an act/state of imitation; imitate	<b>Stem 2:</b> (to be) an act of mimicry; to mimic, to feign  <b>Stem 3:</b> (to be) an act of pretending to be (a state or role) / act of make-believe; to pretend (to be) / to make-believe
<b>CTE</b>	(to be) a state of imitation	
<b>CSV</b>	(to be) a physical act of imitating; perform specific actions/behaviors which imitate those of another party/entity	
<b>OBJ</b>	(to be) the party/entity one is imitating	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-MKR- ‘SIMULATION / IMPERSONATION / DRAMATIC ACTING’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act/instance of simulation; to simulate	<b>STEM 2:</b> (to be) a state/act/instance of impersonation; to impersonate
<b>CTE</b>	(to be) a state of simulation	
<b>CSV</b>	(to be) a physical act of simulating; to perform specific act(ions) that simulate those of another entity	<b>STEM 3:</b> (to be) a state/act/instance of dramatic performance / an acting performance; act / enact / enact a (dramatic) role
<b>OBJ</b>	(to be) that which is being simulated	

<b>-ŠG- ‘CAPTURE / CATCH / APPREHENSION / SEIZURE / TAKE-OVER’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act of apprehending/capturing; to apprehend, capture (i.e., apprehension or removal from present location/environs for purpose of seizure and/or restriction of freedom of movement or)	<b>Stem 2:</b> (to be) an act of catching; to catch (= stop trajectory-based movement for purpose of seizure or control)
<b>CTE</b>	(to be) a state of captivity	
<b>CSV</b>	(to be) an act of physically capturing/apprehending/seizing	<b>Stem 3:</b> (to be) an act of taking over or co-opting; to take over, to co-opt, take the reigns from, relieve someone of duty, take charge
<b>OBJ</b>	(to be) a party/entity that is captured/apprehended/seized	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-ŠGW- ‘DETENTION / CONFISCATION / USURPATION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/instance of detainining something, an act of detention; to detain (i.e., to prevent something/someone from continuing what they/it is doing or from proceeding further along a course or proceeding with an action)	<b>STEM 2:</b> (to be) an act/instance of confiscating, an act of confiscation or appropriation; to confiscate, appropriate
<b>CTE</b>	(to be) a state of (being under) detention	
<b>CSV</b>	(to be) a physical act of detaining; to physically act to detain	<b>STEM 3:</b> (to be) an act of usurping something, an act of usurpation; to usurp
<b>OBJ</b>	(to be) a party/entity that is detained	

<b>-TKW- ‘ATTENDANCE / PRESENCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being physically present at some place/event/occurrence; to be present at	<b>Stem 2:</b> (to be) in attendance at some scheduled event; to attend [a scheduled event]  <b>Stem 3:</b> (to be) a state of making a [suprise or unscheduled] appearance at a place/event; to grace an event/place with one’s presence
<b>CTE</b>	(to be) a state of being present at some place/event/occurrence	
<b>CSV</b>	(to be) be an act of being physically present at a place/event/occurrence	
<b>OBJ</b>	(to be) the place/event/occurrence at which one is present	

<b>-ZM- ‘FLEE / ESCAPE / EVASION / ELUDE / SHIRK’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act of fleeing or escaping from some threat or adverse situation	<b>Stem 2:</b> (to be) an act evading or eluding something/someone (i.e., to take steps so that some other entity does not find one or encounter one)  <b>Stem 3:</b> (to be) an act of shirking, deserting, abandoning something/someone
<b>CTE</b>	(to be) a state of being escaped from; to be in a state of being/having been fled from	
<b>CSV</b>	(to be) a physical act of fleeing/escaping	
<b>OBJ</b>	(to be) what one is fleeing or escaping from	

<b>-ŃT- ‘PRIVACY / SECLUSION / SOLITUDE / ISOLATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of privacy, being private	<b>Stem 2:</b> (to be) a state/act of seclusion/solitude, being secluded, be sequestered; to be/live in seclusion/solitude  <b>Stem 3:</b> (to be) a state/act of isolation, being isolated; to (be) isolate(d)
<b>CTE</b>	(to be) a state of privacy	
<b>CSV</b>	(to be) a physical act of privacy; to do something that is private in nature	
<b>OBJ</b>	(to be) what one is being private about, what one does not want others to observe	

<b>-JNW- ‘ATTRIBUTION / CREDIT / PUBLIC RECOGNITION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of giving and receiving credit/attribution/recognition to someone for something	<b>Stem 2:</b> (to be) a state/act of giving/conferring credit/attribution/recognition to someone for something  <b>Stem 3:</b> (to be) a state/act of being credited with being or having done something
<b>CTE</b>	(to be) a state of attribution/credit/recognition given and received	
<b>CSV</b>	(to be) a physical act of giving and receiving credit/attribution/recognition to someone for something	
<b>OBJ</b>	(to be) what one is credited/recognized for being or having done	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

**-RJN- ‘AWARD / PRIZE’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of giving and receiving a prize or award for something	<b>Stem 2:</b> (to be) a state/act of giving/conferring a prize/award to someone for something; to award, to give a prize to someone
<b>CTE</b>	(to be) a state of a prize/reward given and received	
<b>CSV</b>	(to be) a physical act of giving and receiving a prize/award to someone for something	
<b>OBJ</b>	(to be) what one is awarded or given a prize for being or having done	<b>Stem 3:</b> (to be) a state/act of being rewarded or given a prize being or having done something; to receive a prize/award, to be given a prize/award

**-PV- ‘IGNORE / DISREGARD / STATE OF DENIAL’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of ignoring something or someone; to ignore something/someone (i.e., to behave as if something/someone present or pressing does not exist)	<b>Stem 2:</b> (to be) an act of disregarding; to disregard (i.e., to not take something/someone into account)
<b>CTE</b>	(to be) a state of being ignored	
<b>CSV</b>	(to be) a physical act of ignoring; to behave/act in a manner which manifests ignoring something/someone	<b>Stem 3:</b> (to be) a state/act of denial (i.e., deluding oneself into believing that something important/consequential does not exist or is of no account.
<b>OBJ</b>	(to be) what/whom one ignores	

**-ŽH- ‘AVOID / SHUN / ESCHEW’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of avoidance; to avoid, stay away from, steer clear of, shy away from	<b>Stem 2:</b> (to be) a state of shunning, to shun (i.e., refuse to have dealings with or to partake of something)
<b>CTE</b>	(to be) a state of avoidance, state of being avoided	
<b>CSV</b>	(to be) a physical act of avoidance	<b>Stem 3:</b> (to be) a state/act of eschewing/abstaining/refraining from something; to eschew something, abstain from something, refrain from doing something
<b>OBJ</b>	(to be) what one is avoiding or trying to avoid	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RŽH- ‘REJECTION / OSTRACIZATION / BANISHMENT / BOYCOTT / EMBARGO’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of rejection; to reject	<b>STEM 2:</b> (to be) a state/act of ostracization/banishment; to ostracize, to banish
<b>CTE</b>	(to be) a state of rejection, state of being rejected	
<b>CSV</b>	(to be) a physical act of rejection; to physically act to reject something	<b>STEM 3:</b> (to be) a state/act of boycotting or embargo; to boycott, to establish an embargo against
<b>OBJ</b>	(to be) that which is rejected	

<b>-FČ- ‘EXCLUSION / EXPULSION / EXILE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of excluding, act of exclusion; to exclude (i.e., to take steps to ensure that some entity is not part of or does not participate in one’s activities or does not appear in one’s presence)	<b>Stem 2:</b> (to be) an act of expulsion/ejection
<b>CTE</b>	(to be) a state of exclusion, state of being excluded	<b>Stem 3:</b> (to be) an act of exiling; to exile
<b>CSV</b>	(to be) a physical act of excluding	
<b>OBJ</b>	(to be) what/whom one excludes	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root whose Specification pattern is the same as the root **-FČ-** above:

<b>-RFČ- ‘SEQUESTERING / DEPORTATION / EXPATRIATION / SEGREGATION’</b>	
<b>Stem 1:</b> (to be) a state/act of sequestering; to sequester	
<b>Stem 2:</b> (to be) a state/act of deportation/expatriation; to deport/expatriate	
<b>Stem 3:</b> (to be) a state/act of segregation; to segregate	

<b>-JKW- ‘TENDENCY / INCLINATION / APTNESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a tendency/propensity towards something; to tend to, to have a propensity to	<b>Stem 2:</b> (to be) an inclination; to lean toward , be inclined to (choose something over something else) *
<b>CTE</b>	(to be) the psychological state of having a tendency propensity toward something	
<b>CSV</b>	(to be) the physical manifestation of one’s tendency; to physically manifest one’s tendency/propensity	<b>Stem 3:</b> (to be) an aptness for / a proneness to; to be apt to, to be prone to
<b>OBJ</b>	(to be) that toward which one has a tendency/proclivity/propensity	

\* for the translation of ‘inclination’ referring to one’s tastes/proclivities, see the root **-JKF-** below.

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-JKY- ‘TREND / PREDISPOSITION / BIAS’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a trend; to trend toward something	<b>STEM 2:</b> (to be) a bias toward something; to be biased toward something [i.e., theoretically having a choice]
<b>CTE</b>	(to be) the state of there being a trend	
<b>CSV</b>	(to be) the physical manifestation of a trend; to physically manifest a trend	<b>STEM 3:</b> (to be) a predisposition toward something; to be predisposed to [i.e., having no choice]
<b>OBJ</b>	(to be) that which constitutes the trend, i.e., what opinions/beliefs/actions/choices/physical manifestations constitute a trend as a collective societal movement	

<b>-JKF- ‘PERSONAL TASTE(S) / PREFERENCE(S) / PROCLIVITY / INCLINATION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state of something being to one’s personal taste(s) or preference(s) /proclivities; to be to one’s taste(s) or preference(s) /proclivities; to have to do with what one personally likes/prefers	<b>STEM 2:</b> (to be) a state of something being a matter of taste (i.e., for the evaluation/outcome/status of something or a situation to be dependent on whether it conforms to one’s personal taste(s)/preference(s) /proclivities
<b>CTE</b>	(to be in) a state of something being (in conformance) to one’s personal taste(s) or preference(s) /proclivities	
<b>CSV</b>	(to be) the act of engaging/indulging in something based on one’s personal taste(s)/preference(s) /proclivities; to engage/indulge in something that is to one’s personal taste(s)/preference(s) /proclivities	
<b>OBJ</b>	(to be) what one likes as a matter of course; that which is to one’s personal taste(s)/preference(s)	<b>STEM 3:</b> (to be) a secret inclination/temptation; to have a secret inclination/temptation for something

<b>-J- ‘TRANSFER OF POSSESSION / GIVE / RECEIVE’</b>		
<b>BSC</b>	(to be) a transfer (of) possession of an item; an occurrence/instance/act of giving & taking an item; to engage in an act of giving & taking a gift (the complementary nature of such act can be underscored by use of CPL valence)	<b>STEM 2:</b> an act of giving; to give  <b>STEM 3:</b> an act of receiving; to receive
<b>CTE</b>	(to be) the process/act of giving and taking of a particular item [focus on the item being transferred, irrespective of the parties involved]	
<b>CSV</b>	the process/act of transferring an item between one party and another [irrespective of what is given]	
<b>OBJ</b>	an item transferred by one to another / the thing given or received; to be an item transferred from one party to another	

**NOTE:** for the meaning of the previous FORMAL stems associated with this root, use the above stems with the MEC/8 affix.



**-DV- 'EXCHANGE'**

**Note:** the stems below are generally used in conjunction with PROCESSUAL versus COMPLETIVE version in order to distinguish an offer of exchange from a completed exchange. Alternately, the distinction between MONOACTIVE and COMPLEMENTARY valence can be used for the same purpose.

<b>BSC</b>	<b>STEM 1:</b> (to be) an act of exchanging/swapping; to exchange/swap	<b>STEM 2:</b> (to be) an act of taking something offered in exchange for something; to take something offered in exchange for something
<b>CTE</b>	(to be) that which leaves one's possession in an act of exchange	
<b>CSV</b>	(to be) the physical (trans-)action of exchanging/swapping	<b>STEM 3:</b> (to be) an act of giving away something in exchange for something desired; to give something away in exchange for something desired
<b>OBJ</b>	(to be) that which one receives in an act of exchange	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

**-RDV- 'COMMERCIAL EXCHANGE / PURCHASE / BUY / SELL'**

**Note:** the stems below are generally used in conjunction with PROCESSUAL versus COMPLETIVE version in order to distinguish an offer to purchase from a completed purchase. Alternately, the distinction between MONOACTIVE and COMPLEMENTARY valence can be used for the same purpose.

<b>BSC</b>	<b>STEM 1:</b> (to be) an act of commerce, buying-and-selling something; to conduct a commercial (monetary) transaction	<b>STEM 2:</b> (to be) an act of buying/purchasing something; to buy something, to purchase something
<b>CTE</b>	(to be) what gets exchanged in a commercial transaction, what gets bought or sold	
<b>CSV</b>	(to be) the physical act of conducting a commercial transaction; to engage in an act of buying and selling	<b>STEM 3:</b> (to be) an act of selling/vending something; to sell something
<b>OBJ</b>	(to be) the medium of exchange (e.g., money) in a commercial transaction	

**-DŇ- 'COMMERCIAL ENTERPRISE / BUSINESS / INDUSTRY'**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of conducting business as a commercial enterprise, a business doing business, an entrepreneurial company; to do/engage in business as a commercial enterprise	<b>Stem 2:</b> (to be) a state/act of providing/making available for purchase a service or product on a commercial basis
<b>CTE</b>	(to be) a particular business establishment, a company, a commercial enterprise	
<b>CSV</b>	(to be) an act of doing commercial business; to engage in business-level commerce	<b>Stem 3:</b> (to be) an industrial enterprise; to engage in an industrial-level business; provide/sell an industrial-level product or service
<b>OBJ</b>	(to be) the product/service being manufactured/produced/sold as the basis for a business establishment	

<b>-ŠČ- ‘MONEY / FINANCIAL TRANSACTION / BANKING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an amount of money; to exchange an amount of money in return for something	<b>Stem 2:</b> (to be) one’s personal funds or monetary assets  <b>Stem 3:</b> (to be) one’s monetary state/situation, how one is “set” for money; to have or be in a particular monetary situation (i.e., the extent/degree to which one is able to afford day-to-day and other expenses)
<b>CTE</b>	(to be) a state of monetary accumulation (via earning wages, investments, etc.); earn/raise money	
<b>CSV</b>	(to be) a state/act of physically doing something to earn/raise money; to physically perform a task (e.g., labor, choosing an investment, organizing a fundraiser, etc.) that earns/raises money	
<b>OBJ</b>	(to be) a monetary token, a piece of money (e.g., coin, bill, etc.); to exchange a particular piece of money	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RŠČ- ‘FINANCIAL ASSET / CAPITALIZATION / BANK / FINANCIAL CLASS’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) one’s fungible assets	<b>STEM 2:</b> (to be) a financial institution/bank  <b>STEM 3:</b> (to be) one’s financial class (i.e., monetarily determined social status)
<b>CTE</b>	(to be) a formal financial operation (e.g., a loan, an investment, etc.)	
<b>CSV</b>	(to be) an act of capitalization; to capitalize, use assets as capital	
<b>OBJ</b>	(to be) the monetary value of one’s assets	

<b>-TKW- ‘CONTRACTUAL AGREEMENT / HIRING / EMPLOYMENT / JOB’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/state/process of contractual agreement, having a contractual agreement; to have/make/agree via a binding/formal contract	<b>STEM 2:</b> (to be) a state of being in (or subject of the terms of) contract(ual agreement); to enforce or operate per the terms of a contract
<b>CTE</b>	(to be) a state of there being a formal/binding contract in place	
<b>CSV</b>	(to be) an act/process of making/agreeing to/signing a binding/formal contract; to make a binding/formal contract with another party, to contract	<b>STEM 3:</b> (to be) an act/state/process of being in a contract for employment, to be an act/process of hiring; to employ, to hire, to be employed, to be hired, to offer/take/have a job
<b>OBJ</b>	(to be) the (terms of a) contract itself	

-ŠTL- ‘ONE’S PAY / EARN PAYMENT / WAGE / SALARY’		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/state of being paid in exchange for one’s labor/service	<b>STEM 2:</b> (to be) a state of there being a wage; to establish/be a wage [i.e., the rate at which one is paid per time period for one’s labor/service]  <b>STEM 3:</b> (to be) a state of having a salary; to establish/be a salary [i.e., a guaranteed amount or rate of payment based on one’s employment position]
<b>CTE</b>	(to be) a state of gainful employment; earn money in exchange for one’s labor/service	
<b>CSV</b>	(to be) the act of paying for another’s labor/service; to grant payment for one’s labor/service, to pay for one’s work/service	
<b>OBJ</b>	(to be) one’s payment/pay-out for labor/service rendered	

-KN- ‘DESERVE / WORTHINESS / MERIT / RECOMPENSE / REPARATION’		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being deserving of something; to deserve/warrant/bear/be worth something ( <i>as in This <b>bears</b> worth looking into, Your attitude <b>warrants</b> investigation, Her application <b>is</b> worth considering.</i> )	<b>Stem 2:</b> (to be) a state of worthiness/merit; to be worthy, to merit (i.e. demonstrate that one has the necessary attributes/character/skill to qualify for some privilege or status or recognition or reward)  <b>Stem 3:</b> (to be) a state/act of granting/bestowing recompense or reparation to a party/entity; to grant recompense, to grant reparation to
<b>CTE</b>	(to be) a state of deserving	
<b>CSV</b>	(to be) a physical act of demonstrating one deserves something; to do/say something that demonstrates that one deserves something	
<b>OBJ</b>	(to be) what one is or has done that warrants one’s deserving something	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

-RKN- ‘ENTITLEMENT / ENROLLMENT / CONFERING / ORDAINMENT / ANNOINTMENT’		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state of entitlement/legally warranting the granting of something to a party/entity; to be entitled to something	<b>STEM 2:</b> (to be) an act of enrolling someone in something; to enroll someone into something (i.e., to proclaim/announce/authorize the bestowal of a particular status/task/position)
<b>CTE</b>	(to be) a state of having/enjoying an entitlement that has been granted	
<b>CSV</b>	(to be) an act of entitlement; to grant an entitlement	<b>STEM 3:</b> (to be) an act of conferring/ ordaining or anointing; to confer, ordain or anoint someone (i.e., the official/authorized granting/bestowing of a specialized/honored/sacred status/position)
<b>OBJ</b>	(to be) that to which a party is entitled	

<b>-MBY- ‘PROMISE / OATH / VOW’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act of promising; to (make a) promise	<b>STEM 2:</b> (to be) an act of vowing; to (make/take a) vow (i.e., a solemn/sacred long-term promise to oneself or to oneself and others)
<b>CTE</b>	(to be) a state of being bound by/to a promise	
<b>CSV</b>	(to be) an act of promising; to make a promise	<b>STEM 3:</b> (to be) an act of taking/swearing an oath; to take/swear an oath (i.e., a legally enforceable solemn vow/promise with adverse social/legal consequences if broken)
<b>OBJ</b>	(to be) what one has promised	

<b>-MFY- ‘LOYALTY / BOND / FELLOWSHIP’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of loyalty; to be loyal to a party/entity	<b>STEM 2:</b> (to be) a state/act of being morally/emotionally/legally bonded/tied to a party/entity
<b>CTE</b>	(to be) a state of loyalty	
<b>CSV</b>	(to be) an act of loyalty; to do something that manifests/demonstrates loyalty	<b>STEM 3:</b> (to be) a state/act of being bound in fellowship to others; to be a member of a fellowship (i.e., a bond between members of a collective entity to trust, defend, support, aid one another)
<b>OBJ</b>	(to be) the basis/reason for one’s loyalty, why one is loyal to a party/entity	

<b>-VZ- ‘SUBJECTIVE INTERPRETATION / “READING” ’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of “reading” (i.e., interpreting) clues/signs/evidence (e.g., the clouds in the sky for a coming storm, footprints, animal tracks, a crime scene, etc.)	<b>Stem 2:</b> (to be) a state/act of “reading” (i.e., interpreting) a subjective situation or subjective set of clues, e.g., “reading” a person’s face, “reading between the lines”, “reading” a social situation, etc.)
<b>CTE</b>	(to be) a state of subjective interpretation based on clues/signs/evidence	
<b>CSV</b>	(to be) an act of “reading”/interpreting clues/signs/evidence; to “read”/interpret clues/signs/evidence	<b>Stem 3:</b> (to be) a state/act of “reading” (i.e., interpreting) signs/marks within a specific arcane branch of knowledge (e.g., read palms, read the stars, read the I-Ching or other arcane symbology, etc.)
<b>OBJ</b>	(to be) the clue(s)/sign(s)/piece(s) of evidence one “reads”/interprets	

<b>-RB- ‘MEANING / SIGNIFICATION / TRANSLATION / INTERPRETATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of meaning; to mean/signify/denote something (i.e., to have a specific/correct interpretation/signification/denotation)	<b>Stem 2:</b> (to be) a state/act/instance of translating; to create a translation of something  <b>Stem 3:</b> (to be) an act of interpretation; to interpret (i.e., act/function as skilled medium between an information source and its audience for purposes of making the source information comprehensible) *
<b>CTE</b>	(to be) the meaning/signification/denotation of something, what something means/signifies/denotes	
<b>CSV</b>	(to be) an act of conveying/communicating/indicating the meaning of something; to signify, to express/convey the meaning of	
<b>OBJ</b>	(to be) that which has (a) meaning/signification/denotation	

\* for ‘interpret’ meaning ‘ability to understand something by observation/analysis as in ‘to interpret signs/clues’, see the root **-VZ-** immediately above.

**NOTE:** the old FORMAL and INFORMAL stems previously associated with this root have been distributed between this and the following new root:

<b>-ŘW- ‘CLARITY / PERSPICUITY / PELLUCIDITY / EXPLICITNESS / PRECISION / METICULOUSNESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of something being perspicuous, (pel)lucid, clear, easily understood, readily comprehensible; to be/make something perspicuous, (pel)lucid, clear, easily understood, readily comprehensible	<b>Stem 2:</b> (to be) a state of explicitness; be/make explicit/telling/graphic  <b>Stem 3:</b> (to be) state/act of being precise/well-defined/scrupulous/meticulous; be/make precise(ly)/well-defined(ly)/scrupulous(ly)/meticulous(ly)
<b>CTE</b>	(to be) a state perpicuity/lucidity/clarity, easy comprehension	
<b>CSV</b>	(to be) an act of perpicuity/lucidity/clarity; do something (in a manner that is) clear/perpicuous/(pel)lucid/easily understood/readily comprehensible	
<b>OBJ</b>	(to be) that which is clear/(pel)lucid/perpicuous/easily understood/readily comprehensible	

<b>-JŇ- ‘OPPOSITION / UNDERMINING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being opposed to something or someone, being against something or someone based on one’s moral principles and/or self-interest	<b>Stem 2:</b> (to be) a state/act of working openly against something or someone, openly acting inimically toward something or someone; to openly work against something or someone, be inimical toward something or someone  <b>Stem 3:</b> (to be) state/act of undermining something or someone (i.e., working secretly or underhandedly or “behind one’s back” against their interests; to undermine something or someone
<b>CTE</b>	(to be) a state of being in opposition	
<b>CSV</b>	(to be) an act of opposition; to do something that constitutes an act of opposing	
<b>OBJ</b>	(to be) one’s opponent	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RJŇ- ‘CONFLICT / ANTIPATHY / DEFIANCE / PASSIVE RESISTANCE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state of being antithetical toward something or someone, to be irreconcilably in conflict/antipathy with an entity/party	<b>STEM 2:</b> (to be) a state/act of defiance/disobedience toward something or someone  <b>STEM 3:</b> (to be) an act/state of passive resistance or passive/aggressive behavior toward another party; to passively resist or engage in passive/aggressive behavior toward another party
<b>CTE</b>	(to be) a state of antipathy/conflict	
<b>CSV</b>	(to be) a physical act of antipathy/conflict; to act in a manner demonstrating antipathy/conflict	
<b>OBJ</b>	(to be) one’s nemesis or adversary in a conflict	

<b>-JTH- ‘VIOLENCE / FIGHTING / ENMITY / WAR’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of violence against a party/entity; to commit an act of violence against another	<b>STEM 2:</b> (to be) a state/act of physical fighting with another party; to be engaged in a physical fight with another party  <b>STEM 3:</b> (to be) an act/state of enmity/war with a party; to be at war with a party, to go to war [OBJ = one’s enemy]
<b>CTE</b>	(to be) a state of (there being) violence	
<b>CSV</b>	(to be) a physical act of violence; to commit a physical act of violence against a party/entity	
<b>OBJ</b>	(to be) the victim of an act of violence	

<b>-JBW- ‘RENTAL’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/state of renting; to rent (e.g., an apartment, an automobile, etc.) [both the service being paid for, and the offering/providing of what is being rented in exchange for payment]	<b>Stem 2:</b> (to be) an act/state of renting a service/entity from a vendor/owner in exchange for payment  <b>Stem 3:</b> (to be) an act/state of offering/providing a service/entity for rent
<b>CTE</b>	(to be) a state of two parties having a rental agreement or contract	
<b>CSV</b>	(to be) an act/process of a party offering something for rental and another party renting it	
<b>OBJ</b>	(to be) what is being rented or offered/provided as a rental	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

**-JBY- ‘LEASING’**

<b>BSC</b>	<b>Stem 1:</b> (to be) an act/state of leasing; to lease (e.g., an apartment, an automobile, etc.) [both the service being paid for, and the offering/providing of what is being leased in exchange for payment]	<b>Stem 2:</b> (to be) an act/state of leasing a service/entity from a vendor/owner in exchange for payment  <b>Stem 3:</b> (to be) an act/state of offering a service/entity for lease
<b>CTE</b>	(to be) a state of two parties having a leasing contract	
<b>CSV</b>	(to be) an act/process of a party offering something for lease and another party leasing it	
<b>OBJ</b>	(to be) what is being leased or offered for lease	

**-DF- GOVERNMENT**

<b>BSC</b>	<b>Stem 1:</b> (to be) a form of governance; to govern (i.e., to be the authorized system for legal regulation/oversight of a community)	<b>Stem 2:</b> (to be) a state/act/event that is political (i.e., motivated by, or in furtherance or support of a particular government or the authorities within that government)  <b>Stem 3:</b> (to be) the particular collective group of authorities authorized as being the government for a particular community, i.e., “the [(contextually) current] government”
<b>CTE</b>	(to be) the carrying out of an act as part of the process of governance	
<b>CSV</b>	(to be) a praxis/custom/rule/law or defining characteristic of a particular form of government	
<b>OBJ</b>	(to be) a party who is subject to governance	

**-DT- REPRESENTATIVE GOVERNMENT**

<b>BSC</b>	<b>Stem 1:</b> (to be) a democratic form of government, i.e., direct governance by the people as a shared responsibility; to govern democratically	<b>Stem 2:</b> (to be) a republican/representative form of governance, i.e., governance by the people through elected representatives to a central debating/decision-making body  <b>Stem 3:</b> (to be) a federalist form of governance, i.e., where an elected body of representatives (essentially a republican governing body) in turn appoints/establishes a non-elected, bureaucracy for centralized administration purposes at a national level, while permitting local governance to remain in charge of local law and governance.
<b>CTE</b>	(to be) a state of democratic governance	
<b>CSV</b>	(to be) a practice associated with democratic governance; to perform/carry out an act associated with, or demonstrating democratic governance	
<b>OBJ</b>	(to be) a society/group/party governed by means of democracy	

<b>-ZT- ‘LAW / STATUTE / LEGAL COMPLIANCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a statute, a particular law	<b>Stem 2:</b> (to be) a state of compliance with a law or statute  <b>Stem 3:</b> (to be) the applicability of a statute/law to a particular situation or geopolitical area; rule of law
<b>CTE</b>	(to be) the meaning/intent of a law/statute	
<b>CSV</b>	(to be) the actual wording of a law/statute	
<b>OBJ</b>	(to be) the physical manifestation of the law whereby the general public becomes familiar with it, e.g., codebook, news article, press release, announcement, etc.	

<b>- ZTR- ‘LEGAL ENFORCEMENT / LEGAL AUTHORITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) act of official law enforcement; to enforce the law	<b>Stem 2:</b> (to be) a state of having the authority to enforce a law or statute; to have legal authority to  <b>Stem 3:</b> (to be) a state of having legal jurisdiction/applicability of enforcement powers to a particular situation or geopolitical area; to have legal jurisdiction
<b>CTE</b>	(to be) a state of having laws be enforced	
<b>CSV</b>	(to be) a physical act of enforcing a law (i.e. specific actions/words utilized)	
<b>OBJ</b>	(to be) the particular law enforced	

<b>-ZTL- ‘CRIMINAL ADJUDICATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act of criminal adjudication; to try a criminal complaint, go to trial, conduct a criminal trial	<b>Stem 2:</b> (to be) a presentation of evidence at a trial in support of an alleged crime; an act of prosecution; to prosecute [CTE Specification = ‘a criminal allegation’; OBJ Specification = ‘a prosecutor’]  <b>Stem 3:</b> (to be) an act of weighing of evidence by a judge or jury; to weigh evidence [CTE Specification = ‘a piece of evidence’; OBJ Specification = ‘judge/juror’]
<b>CTE</b>	(to be) the alleged crime	
<b>CSV</b>	(to be) a physical/tangible act of conducting a criminal trial; a piece/aspect/stage/step of the adjudicatory process	
<b>OBJ</b>	(to be) the defendant in a criminal complaint	



<b>-RŽT- ‘PUNISHMENT / JUSTICE / SENTENCE / PENANCE</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/process of punishment; to punish (i.e., mete out physical and/or psychological pain or adverse circumstances to a party as a deterrent-oriented consequence of, and/or moral recompense for, their (actual or perceived) wrongdoing or negligence);	<b>Stem 2:</b> (to be) an act/process of justice or sentencing; to sentence, to carry out an act of justice (i.e., officially mete out a form of punishment against a party found legally guilty of or legally liable for a crime or wrongdoing) (CTE Specification = to serve/suffer a sentence)  <b>Stem 3:</b> (to be) a state/act of imposing a penance on a party for a moral transgression or moral wrongdoing; to impose a penance (CTE = to do penance)
<b>CTE</b>	(to be) a state of being punished or enduring punishment	
<b>CSV</b>	(to be) a physical act of punishing; to physically punish, to mete out punishment	
<b>OBJ</b>	(to be) to be the specific form of punishment meted out	

<b>-GŽŽ- ‘CORRUPTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of moral/ethical corruption	<b>Stem 2:</b> (to be) a state of legal/business/governmental corruption (e.g., accepting bribes or kickbacks, embezzling funds, back-room or under-the-table deals, quid pro quo arrangements, extortion schemes, etc.)  <b>Stem 3:</b> (to be) a state of material corruption (e.g., of data, records, process flow, etc.)
<b>CTE</b>	(to be) a state of moral/ethical corruption	
<b>CSV</b>	(to be) a physical act of corruption; to do something corrupt	
<b>OBJ</b>	(to be) what one does that is corrupt or constitutes corruption	

This root may be used as a new **CRP CORRUPTIVE** Bias suffix indicating one’s disgust at discovering/observing corruption

<b>-LLK- MONARCHAL GOVERNANCE / TOTALITARIAN GOVERNMENT / OLIGARCHICAL GOVERNMENT</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a monarchical form of government, i.e., governance by a (hereditary) monarch; to govern monarchically	<b>Stem 2:</b> (to be) a totalitarian/dictatorial form of governance  <b>Stem 3:</b> (to be) an oligarchical form of governance
<b>CTE</b>	(to be) a state of monarchic governance	
<b>CSV</b>	(to be) a practice associated with monarchic governance; to perform/carry out an act associated with, or demonstrating monarchic governance, to reign	
<b>OBJ</b>	(to be) a society/group/party governed by means of monarchism/monarchy.	

## 4.2 KINSHIP TERMS

The various kinship roots/stems below all have the following Specification pattern:

<b>BSC</b>	(to be/have) a particular kin relation to someone [both the relational connection itself and the being in the relationship]
<b>CTE</b>	(to be) the nature/manifestation of the particular kin relationship between two parties
<b>CSV</b>	(to be) a particular kinship relationship
<b>OBJ</b>	(to be) the person who has the particular kin relation to someone

<b>-BČ-</b> ‘ <b>KIN / EXTENDED FAMILY RELATION</b> ’ (use SEX affix to distinguish gender-based delineations if necessary) Associated Affix: <b>KIN</b>	
<b>STEM 1</b>	(to be) a member of a(n extended) family; to be related [either genetically, by marriage, by legal adoption, or long-term informal adoption] to other persons
<b>STEM 2</b>	(to be) a member of a(n extended) family; to be related [genetically or by marriage], by legal adoption, or long-term informal adoption] to other persons
<b>STEM 3</b>	(to be) a member of a(n extended) family; to be related [by legal adoption or long-term informal adoption] to other persons

<b>-MP-</b> ‘ <b>NUCLEAR FAMILY MEMBER</b> ’ (signifies functional relationship, not necessarily genetic relationship) (use SEX affix if necessary)	
<b>STEM 1</b>	(to be) a parent (i.e., person who raised another from childhood, whether genetic parent, foster parent, adoptive parent, guardian, etc.); to parent; to raise a child as a parent
<b>STEM 2</b>	(to be) a child (i.e., person being raised by a parent/guardian)
<b>STEM 3</b>	(to be) a grandparent (i.e., parent of a parent)

<b>-MM-</b> ‘ <b>MEMBER OF GENETIC PARENT-OFFSPRING RELATION</b> ’ (use SEX affix to distinguish gender-based delineations if necessary)	
<b>STEM 1</b>	(to be) a parent/progenitor (i.e., person who is the genetic father or mother of a child); to procreate; to create a child
<b>STEM 2</b>	(to be) a child (i.e., genetic offspring/progeny of another)
<b>STEM 3</b>	(to be) a grandparent (i.e., genetic parent of a parent)

<b>-VV- ‘STEP-KIN RELATIONS’</b> (use SEX affix to distinguish gender-based delineations if necessary)	
<b>STEM 1</b>	(to be) a step-parent
<b>STEM 2</b>	(to be) a step-child
<b>STEM 3</b>	(to be) a step-sibling

<b>-SR- ‘SIBLING RELATIONS’</b> (use SEX affix to distinguish gender-based delineations if necessary)	
<b>STEM 1</b>	(to be) a sibling
<b>STEM 2</b>	(to be) a maternal half-sibling
<b>STEM 3</b>	(to be) a paternal half-sibling

<b>-LH- ‘COLLATERAL FAMILIAL RELATIONS’</b> (use SEX affix to distinguish gender-based delineations if necessary)	
<b>STEM 1</b>	(to be) a parent’s sibling (i.e., aunt/uncle)
<b>STEM 2</b>	(to be) a sibling’s child (i.e., nephew/niece)
<b>STEM 3</b>	(to be) a parent’s sibling’s child (i.e., first cousin)

Use the above kinship roots/stems with the KIN and KSD affixes to specify additional relationships.

### 4.3 CHARACTER TRAITS & SOCIO-PSYCHOLOGICAL STATES

<b>-GV- ‘DESIRE / WANT / WISH / HOPE’</b> Associated Affix: <b>-DSI-</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest) an affective (i.e., unwilled) state of want/desire [affective state + object of desire]; to want something, to desire something	<b>STEM 2:</b> (to be/manifest) a wish/hope for something  <b>STEM 3:</b> (to be/manifest) an aspiration + thing aspired to; to aspire to something
<b>CTE</b>	(to be) the internal, psychological, proprioceptive manifestation of being in a state of desire; to experience such a state	
<b>CSV</b>	(to be) the outwardly discernible manifestations of a state of desire; to have the “look” of (i.e., outwardly manifest the signs of) being in a state of desire	
<b>OBJ</b>	(to be) an entity wanted/desired, a want, a desire; to be the entity wanted/desired	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RGV- ‘REQUEST / DEMAND’</b>		
	<b>STEM 1:</b> (to be) a request + entity requested; to ask for something (out of desire), to request something	<b>STEM 2:</b> (to be) a demand + entity demanded; to demand something  <b>STEM 3:</b> (to be) a legal warrant/subpoena, etc. for something, to officially demand something via legal warrant/subpoena, etc.
<b>CTE</b>	(to be) the internal, psychological, proprioceptive manifestation of being in a state of desire; to experience such a state	
<b>CSV</b>	(to be) the outwardly discernible manifestations of a state of desire; to have the “look” of (i.e., outwardly manifest the signs of) being in a state of desire	
<b>OBJ</b>	(to be) an entity requested; that which is requested	

<b>-VK- ‘ATTRACTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of physical attraction to another	<b>Stem 2:</b> (to be) a state of psychological/philosophical attraction to an abstract entity (e.g., a cause, a socio-political movement, a philosophy, a religion, etc.)  <b>Stem 3:</b> (to be) a state of psychological/emotional attraction to an inanimate object or non-human entity (e.g., a sports car, a diamond ring, a cute puppy, etc.)
<b>CTE</b>	(to be) the psychological/emotional state of physical attraction itself	
<b>CSV</b>	(to be) a physical state/act or tangible behavior manifested as a result of physical attraction to another	
<b>OBJ</b>	(to be) the target/source of one’s physical attraction, what/whom one is attracted to	

<b>-RY- ‘FREEDOM / SELF-DETERMINATION / INDEPENDENCE / AUTONOMY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being free; be free, get free, to free (i.e., not be subject to another’s permission/control/oversight/restriction in regard to one’s actions/decisions/lifestyle/choices, etc.)	<b>Stem 2:</b> a state of self-determination/autonomy; to determine/decide one’s own course of action  <b>Stem 3:</b> (to be) a state/act of independence, of being unaffiliated with another party; be independent, act independently
<b>CTE</b>	(to be) a state of freedom, a state of being free; to be free as an existential state	
<b>CSV</b>	(to be) a psychical act taken to (attempt to) be free; to get free (from), to free	
<b>OBJ</b>	(to be) what one is (attempting to become) free from	

<b>-ŠJ- ‘BEING BUSY / OCCUPY ONESELF / ACTIVITY / DUTY / JOB / OBLIGATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being busy/occupied with (doing) something; be busy with, be occupied with/by, be engaged in (doing) something	<b>Stem 2:</b> (to be) state/act of performing a task; to perform a task  <b>Stem 3:</b> (to be) a perform or carry out one’s duty/job/obligation
<b>CTE</b>	(to be) a state of engagement, being occupied, being busy	
<b>CSV</b>	(to be) a physical act of being busy/occupied with or engaged in doing; to do or be doing something which occupies one’s time, engages one’s attention or causes one to be busy	
<b>OBJ</b>	(to be) an activity, what one is busy/occupied with or engaged in doing	

<b>-ŇS- ‘REPUTE / REPUTATION / PUBLIC IMAGE / PRESTIGE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) one’s reputation, i.e., how one is judged by one’s community in comparison to ethical/behavioral as well as socio-cultural and socio-economic standards/norms/expectations; to have/garner a reputation	<b>Stem 2:</b> (to be) one’s public image, how one presents oneself for judgement by one’s community in terms of reputation/opinion  <b>Stem 3:</b> (to be) one’s sense of prestige (i.e., the extent to which one’s accomplishments/status/celebrity makes a positive impression on others)
<b>CTE</b>	(to be) what one’s reputation actually is (i.e., what is said/believed by the community about something/someone)	
<b>CSV</b>	(to be) a state/act of establishing/maintaining one’s reputation	
<b>OBJ</b>	(to be) the party/entity having a particular reputation	

<b>-RZ- ‘AUTHORITY / OBEDIENCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of enforceable authority and obedience thereto	<b>Stem 2:</b> (to be) a state/act of mastery/guardianship/parental authority and obedience/subservience/submission thereto  <b>Stem 3:</b> (to be) a state/act of enforceable governmental authority (e.g., police, court ruling, codified law/ordinance) and obedience/adherence thereto
<b>CTE</b>	(to be) a state/act of obedience to authority; to obey	
<b>CSV</b>	(to be) a state/act of enforceable authority; to wield authority	
<b>OBJ</b>	(to be) a particular rule/edict/moral/law, etc. which is to be obeyed	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root which has the same Specification pattern:

**-RZW- 'OCCUPATIONAL AUTHORITY / SLAVERY / MILITARY AUTHORITY'**

**Stem 1:** (to be) a state/act of contractual occupational authority (i.e., employer/supervisor/boss) and employee compliance thereto

**Stem 2:** (to be) a state/act of slavery and subjugation thereto as a slave

**Stem 3:** (to be) a state/act of military authority and obedience to/following of orders

**-MŽ- 'SEXUAL/ROMANTIC RELATIONSHIP / SEXUAL RELATIONS'**

<b>BSC</b>	<b>Stem 1:</b> (to be) a sexual/romantic relationship between two or more parties; to have a sexual/romantic relationship with another party or parties	<b>Stem 2:</b> (to be) an act of sexual relations; to have sex, engage in sex(ual activity)
<b>CTE</b>	(to be) the psychological/emotional state of being in a sexual/romantic relationship	
<b>CSV</b>	(to be) a physical act/manifestation of a sexual/romantic relationship	<b>Stem 3:</b> (to be) an act of pursuing a sexual/romantic relationship; to pursue a sexual/romantic relationship; to date / to court
<b>OBJ</b>	(to be) one's sexual/romantic partner/ "lover", boyfriend/girlfriend, significant other	

**-LP- 'PRIDE (FOR ANOTHER) / RESPECT / ADMIRATION'**

<b>BSC</b>	<b>Stem 1:</b> (to be) a feeling of pride for someone/something; be proud of someone/something	<b>Stem 2:</b> (to be) a feeling of respect for someone/something; respect someone/something
<b>CTE</b>	(to be) the feeling of pride itself as a personal emotional state	
<b>CSV</b>	(to be) the physical manifestation (i.e., act(s)/word(s)/behavior) of a state of pride felt for an entity	<b>Stem 3:</b> (to be) a feeling of admiration for someone/something; admire someone/something
<b>OBJ</b>	(to be) the entity/party/event/situation/state one is proud of	

**-NZ- 'GOODWILL / BEING NICE / GOOD SAMARITANSHIP'**

<b>BSC</b>	<b>Stem 1:</b> (to be) an instance of being nice to another party; to be nice [i.e., emotional/spiritual/physical support of another's interests]	<b>Stem 2:</b> (to be) a feeling and display of goodwill, benevolent intent, kindness
<b>CTE</b>	(to be) the feeling/experience of being nice to another	
<b>CSV</b>	(to be) the specific act(s)/word(s) which constitute an act/instance of being nice	<b>Stem 3:</b> (to be) an instance of good samaritanism, go out of one's way to help another party
<b>OBJ</b>	(to be) the party to whom one is nice	

**NOTE:** the meaning of the old FORMAL and INFORMAL stems previously associated with this root have been distributed between this root and the following new root:

<b>-RNZ- ‘AMICABILITY / FRIENDSHIP / PEACE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a feeling and display of amicability / friendliness	<b>STEM 2:</b> (to be) a state of friendship (unidirectional); to be someone’s friend  <b>STEM 3:</b> (to be) a state of peace; to be/live in peace (i.e., non-enmity)
<b>CTE</b>	(to be) the feeling/experience of amicableness/amicability	
<b>CSV</b>	(to be) the specific act(s)/word(s) which constitute an act/instance of amicability	
<b>OBJ</b>	(to be) the party to whom one is amicable	

<b>-LTM- ‘WELCOME / HOSPITALITY / GUEST’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a formal welcome; to bid one welcome	<b>STEM 2:</b> (to be) a state/act of hospitality toward a party; to host a guest [OBJ Specification = ‘guest’]  <b>STEM 3:</b> (to be) a state/act of temporary commercial/paid accommodation (e.g., at a hotel, inn, resort, retreat, etc.); to accommodate, take in, or host a paying guest (as customer) [OBJ Specification = paying guest]
<b>CTE</b>	(to be) a state of welcom(ing)	
<b>CSV</b>	(to be) an act of welcoming someone; the actual words/actions employed to welcome someone; to say words of welcome, to demonstrate one’s welcome	
<b>OBJ</b>	(to be) the party/entity who is welcomed	

<b>-LL- ‘VISIT’</b>		
<b>BSC</b>	<b>Stem 1:</b> a state/act of visiting someone socially, being on a social visit to see someone; to visit someone socially, to go and see someone, to come and see somebody [go somewhere for the purpose of being with a party/entity]	<b>Stem 2:</b> (to be) a state/act of visiting a place, sight-seeing; to tour, to visit [a place to see what’s there]; to sight-see, to tour  <b>Stem 3:</b> (to be) a formal visit (for other than mere social purposes); to pay a visit to or on [visiting someone as an obligation, duty, job, etc.]
<b>CTE</b>	(to be) a state of social visitation; to be visiting	
<b>CSV</b>	(to be) an act of social visiting, the physical act of traveling to see a particular person for the purpose of being with them	
<b>OBJ</b>	(to be) the party/entity visited	

<b>-B- 'BELIEF / DOCTRINE / DOGMA'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of believing in something; to believe something	<b>Stem 2:</b> (to be) an article of faith / an item of doctrine or; to believe something as an article of faith/doctrine  <b>Stem 3:</b> (to be) dogma; to believe dogmatically (i.e., to intractably hold as an unquestionable belief which, to doubt such, constitutes an act of apostasy/heresy)
<b>CTE</b>	(to be) a state of belief	
<b>CSV</b>	(to be) an act or physical manifestation of one's belief	
<b>OBJ</b>	(to be) what one believes	

<b>-BS- 'RELIGIOUS BELIEF / RELIGION / RELIGIOUS WORSHIP'</b>			
	<b>Stem 1</b>	<b>Stem 2</b>	<b>Stem 3</b>
<b>BSC</b>	(to be) a state/act of holding a religious belief; to hold a religious belief, be a believer in a (set of) religious tenet(s)	(to be) a state/act of being a member of a particular organized religion; be a member of or believe/practice the tenets of a particular organized religion	(to be) a state/act of religious worship; to worship a religious deity
<b>CTE</b>	(to be) a state of being religious; to have religious faith	(to be) a state of being a member of a particular organized religion; to	(to be) a state of worship; to experience a state of communion with a deity through worship
<b>CSV</b>	(to be) a physical act of religious faith; to engage in an act based on religious belief(s)/faith (e.g., pray, partake in a religious service or sacrament, participate in a religious ritual, burn heretics or non-believers, commit atrocity, etc.)	(to be) a physical act of faith associated with one's chosen religious faith; to engage in a particular act as required by a particular religion's tenets/praxes	(to be) a physical act of worshipping; to engage in an act of worship
<b>OBJ</b>	(to be) a religious tenet or dogma	(to be) a particular organized religion; to be a recognized set of tenets/praxes constituting belief/membership in a particular organized religion	(to be) the god/deity/spirit/icon/idol, etc. one worships

<b>-MX- 'APOSTASY / HERESY / HETERODOXY / ICONOCLASM'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being apostatic; practice apostasy, hold apostatic beliefs (i.e., a loss of one's faith/belief in some system of belief/doctrine/religion/cause, etc.)	<b>Stem 2:</b> (to be) a state/act of being heretical; practice heresy/heterodoxy; to hold heretical beliefs  <b>Stem 3:</b> (to be) a state/act of being iconoclastic; practice iconoclasm, act iconoclastically (i.e., a belief that certain venerated or sacred institutions/beliefs are superstitious nonsense)
<b>CTE</b>	(to be) a state of apostasy	
<b>CSV</b>	(to be) a physical act of apostasy; to say/do something that conveys/manifests one's apostasy	
<b>OBJ</b>	(to be) the tenet(s)/beliefs/doctrine the apostate no longer believes in	



<b>-TP- ‘MINDFULNESS / ALERTNESS / WARINESS / CAUTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being mindful/aware of one’s surroundings and the actions of others; be mindful/aware of one’s surrounding and the actions of others	<b>Stem 2:</b> (to be) a state/act of alertness; be alert (i.e., mindfulness/awareness of one’s surroundings as a precautionary measure against potential threats)  <b>Stem 3:</b> (to be) a state of caution/wariness; be cautious/wary, exercise caution (i.e., alertness as preparatory measure due to a perceived or assumed threat)
<b>CTE</b>	(to be) the state of mindfulness/awareness itself	
<b>CSV</b>	(to be) a physical act of mindfulness; do something that manifests mindfulness	
<b>OBJ</b>	(to be) what one is mindful of	

<b>-TX- ‘EXAGGERATION / EMBELLISHMENT / OVERSTATEMENT / HYPERBOLE / OVER-REACTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of exaggerating/embellishing facts; to exaggerate or embellish (i.e., magnification, amplification, embellishment of facts with the intent to impress or garner attention)	<b>Stem 2:</b> (to be) a state/act of overstating or resorting to hyperbole; to overstate, resort to hyperbole (i.e., exaggeration with the intention to misrepresent)  <b>Stem 3:</b> (to be) a state of being overwrought, over-reaction; to over-react, be overwrought (i.e., an over-the-top emotional or reactionary response the degree of which is not warranted by circumstances)
<b>CTE</b>	(to be) a state of exaggeration	
<b>CSV</b>	(to be) a physical act of exaggeration; to do/say something that constitutes/manifests exaggeration	
<b>OBJ</b>	(to be) what one exaggerates about	

<b>-RT- ‘ANNOYANCE / IRRITATION / VEXATION / BOTHER / HARASSMENT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of annoyance/vex/irritate emotionally; to annoy someone, to irritate someone (emotionally) (i.e., cause someone to become annoyed/irritated)	<b>Stem 2:</b> (to be) a state of bother/pestering/nagging; to bother/pester/nag (i.e., to cause someone against their will/consent to have to deal/treat with the bothering party)  <b>Stem 3:</b> (to be) state/act of harassing/harassment; to harass
<b>CTE</b>	(to be) a state of annoyance/irritation/vexation	
<b>CSV</b>	(to be) an act of annoying/irritating/vexing; to do something that annoys, irritates (emotionally), vexes	
<b>OBJ</b>	(to be) the party/entity/object/situation which causes annoyance	

<b>-RKŠ- ‘BUFFOONERY / ABSURDITY / SURREALISM / ECCENTRICITY</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/state/instance of bufoonish/silly behavior; to behave in a silly/bufoonish manner, do something silly/bufoonish [i.e., with the (intended) effect of causing derisive humor in an audience toward the bufoonish party]	<b>Stem 2:</b> (to be) an act/state/instance of absurdist, “dada-esque” behavior; to behave in an absurdist, “dada-esque” manner [i.e., with the (intended) effect of creating ironic humor through a process of bewilderment/confusion/weirdness/inappropriate irony, etc.]  <b>Stem 3:</b> (to be) an act/state/instance of eccentric/surreal behavior; to behave in an eccentric/surreal manner [i.e., with the (intended) effect of creating a sense of the impossible/quasi-contradictory/unimaginable made real/imaginable]
<b>CTE</b>	(to be) silly/bufoonish as a behavioral motivation/trait	
<b>CSV</b>	(to be) a particular act/behavior considered silly/bufoonish	
<b>OBJ</b>	(to be) a bufoon, a person whose silliness is looked at derisively by others	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-KŠ- ‘CLOWN / ABSURDISM AS ART / SURREALISM AS ART’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/state/instance of performing as a clown; to perform as a clown	<b>STEM 2:</b> (to be) an act/state/instance of absurdist/dada-esque art  <b>STEM 3:</b> (to be) an act/state/instance of surrealist art
<b>CTE</b>	(to be) clownish, clown-like	
<b>CSV</b>	(to be) a clown-like act; to act as a clown, do what a clown does/would do	
<b>OBJ</b>	(to be) a clown	

<b>-RJ- ‘EMBARRASSMENT / SHAME / HUMILIATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of embarrassment; to embarrass (i.e., make one feel embarrassed)	<b>Stem 2:</b> (to be) a state/act of shaming someone; to shame someone (i.e., to make someone feel guilty about something)  <b>Stem 3:</b> (to be) a state/act of humiliation/abasement; to humiliate/abase someone
<b>CTE</b>	(to be) a state of embarrassment	
<b>CSV</b>	(to be) an act of embarrassing someone; to do something to embarrass another	
<b>OBJ</b>	(to be) what one is (or should be) embarrassed about	

<b>-VP- ‘LAXITY / LENIENCY / NEGLIGENCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of laxity, being lax about something; to be lax about something (i.e., not having a strong desire or sense of responsibility about controlling or overseeing something/someone where it is appropriate to have such a desire or sense of responsibility)	<b>Stem 2:</b> (to be) a state/act of leniency; be lenient toward another, act leniently (i.e., allow another to act with a lesser degree of oversight than others might expect based on one’s belief/sense that the party one has oversight of or responsibility for is capable of making their own decisions or able to act responsibly themselves)  <b>Stem 3:</b> (to be) a state/act of being remiss/negligent; to be remiss/negligent
<b>CTE</b>	(to be) a state of feeling lax/unconcerned regarding a responsibility	
<b>CSV</b>	(to be) a physical act of laxity; to do something that manifests one’s laxity about something	
<b>OBJ</b>	(to be) what one is lax about	

<b>-ŇZ- ‘CRITICIZE / DISPARAGE / DENIGRATE / REBUKE / SCOLDING / DEFAMATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of criticizing/disparaging/denigrating/putting down/speaking ill of; to criticize/disparage/put down/ speak ill of a party/entity	<b>Stem 2:</b> (to be) a state/act of rebuking, scolding, reproaching, berating, chastisement, castigation; to rebuke/scold/reproach/berate/chastise/castigate  <b>Stem 3:</b> (to be) a state/act of defamation/slander/libel (i.e. attempt to damage the reputation of a party/entity)
<b>CTE</b>	(to be) a state of disparagement/denigration	
<b>CSV</b>	(to be) an act of criticizing/disparaging/putting down/speaking ill of	
<b>OBJ</b>	(to be) what one is being criticized/disparaged for or about	

<b>-TÇ- ‘INTENTION / DECISION / DETERMINATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of intending (to do) something; to intend (to do) something	<b>Stem 2:</b> (to be) a state/act/process of deciding, decision-making; to weigh a decision [CPT version = decide, make a decision]  <b>Stem 3:</b> (to be) a state/act/process of determining something, a process of determination; to undergo a process of determining [CPT version = determine, make a determination]
<b>CTE</b>	(to be) a state of intension; to have an intention	
<b>CSV</b>	(to be) an act of intention; do something that manifests one’s intention	
<b>OBJ</b>	(to be) what one intends (to do), one’s intention	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RTÇ- ‘PURPOSE / JUDGEMENT / RESOLUTION’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of having a purpose; to have a purpose	<b>STEM 2:</b> (to be) a state/act/process of judging, a process of judgement; to judge over, to weigh evidence toward making a judgement [CPT version = to judge, make/render a judgement]  <b>STEM 3:</b> (to be) a state/act/process of resolving something, coming up with a resolution; to consider/work out a resolution [CPT version = to resolve, come to a resolution]
<b>CTE</b>	(to be) a state of purposefulness; to have a feeling of purpose	
<b>CSV</b>	(to be) an act of purposefulness; do something that manifests one’s purposefulness	
<b>OBJ</b>	(to be) one’s purpose	

<b>-TB- ‘AUDACITY / “NERVE” ’ / CONFRONTATION / CIVIL DISOBEDIENCE</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of audacity; be audacious (i.e., have the “nerve” or pluck or “balls” to do something]	<b>Stem 2:</b> (to be) a state of facing/confronting an adverse entity/situation; to face/confront an adverse entity/situation  <b>Stem 3:</b> (to be) a state/act of civil disobedience; to practice/engage in civil disobedience [i.e., a willful refusal to comply with certain laws that are perceived to constrain or restrict one’s rights]
<b>CTE</b>	(to be) a psychological state of being/feeling audacious	
<b>CSV</b>	(to be) a physical act of audacious behavior; to do something audacious	
<b>OBJ</b>	(to be) what one is audacious about or towards	

<b>-ČČ- ‘NAIVETE / FOOLISHNESS / IGNORANCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being naïve/foolish; act naively or foolishly (i.e., ill-conceived thinking/behavior due to a failure to analyze a situation or one’s circumstances realistically and/or thoroughly)	<b>Stem 2:</b> (to be) a state of being obtuse or “clueless”; be obtuse or clueless (i.e., fail to draw appropriate/expected conclusions from a situation or fail to recognize a situation for what it is despite the seeming obviousness thereof)  <b>Stem 3:</b> (to be) a state of ignorance, “blindness” or unawareness; be unaware or ignorant of something
<b>CTE</b>	(to be) a state of naïveté or foolishness	
<b>CSV</b>	(to be) a physical act/manifestation of naïveté or foolishness; to do/say something that is naïve or foolish	
<b>OBJ</b>	(to be) the situation or circumstances one is (being) foolish/naïve about	

<b>-ŘZ- ‘DISINTEREST / PROBITY / HONESTY / SUBLIMITY / NOBILITY / VIRTUE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an state/act of personal disinterest* (i.e., not concerned with or motivated by personal interest, personal gain, or self-centered motivations)	<b>Stem 2:</b> (to be) an act/state of probity, moral uprightness, honesty in one’s dealings with others; to behave/act in an honest, morally upright, probitive manner  <b>Stem 3:</b> (to be) a state/act of moral sublimity, nobility, virtue; to behave/act/be morally sublime, noble, virtuous
<b>CTE</b>	(to be) a state of disinterest(edness)	
<b>CSV</b>	(to be) a physical act manifesting personal disinterest; to do something that displays one’s disinterest	
<b>OBJ</b>	(to be) that regarding which one is disinterested	

\* does not mean “lack of interest” or “boredom” or “indifference”

<b>-ST- ‘MAGNANIMITY / ACCEPTING / RESIGNATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act magnanimity, being forgiving; to behave/act/be magnanimous(ly), to be forgiving	<b>Stem 2:</b> (to be) an act/state of being accepting of one’s adverse circumstances, discomfiture, unfair treatment, etc.; to behave/act/be accepting of one’s adverse circumstances, discomfiture, unfair treatment, etc.  <b>Stem 3:</b> (to be) an act/state of being resigned to one’s adverse circumstances, discomfiture, unfair treatment, etc.; to behave/act/be resigned to one’s adverse circumstances, discomfiture, unfair treatment, etc., behave/act/be stoical(ly)
<b>CTE</b>	(to be) a state of magnanimity, forgivingness	
<b>CSV</b>	(to be) a physical act/manifestation of magnanimity or forgivingness	
<b>OBJ</b>	(to be) that toward which/whom one is magnanimous or forgiving	

<b>-BX- ‘GENEROSITY / ALTRUISM / SELF-SACRIFICE / SELF-ABNEGATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/state of generosity; to be generous, act generously	<b>Stem 2:</b> (to be) an act/state of altruism; to be altruistic, act altruistically (i.e., helping/giving to another against one’s own self-interest, self-sacrifice)  <b>Stem 3:</b> (to be) an act of self-abasement, self-abnegation, self-denial
<b>CTE</b>	(to be) a state of generosity as a character trait	
<b>CSV</b>	(to be) a physical act of being generous; to do something generous	
<b>OBJ</b>	(to be) the party/entity toward which/whom one is generous	

<b>-LS- 'AMIABILITY / VIVACIOUSNESS / BOISTEROUSNESS'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being friendly/amiable, having a sunny/amiable/warm disposition	<b>Stem 2:</b> (to be) a state of being vivacious; having joie-de-vivre; be vivacious, display joie-de-vivre  <b>Stem 3:</b> (to be) a state of being larger-than-life/boisterous/ebullient/spunky; behave/be larger-than-life/boisterous/ebullient/spunky; act/behave with boisterousness/ebullience/spunkiness
<b>CTE</b>	(to be) a state of friendliness/amiability/suniness as a character trait	
<b>CSV</b>	(to be) a physical act/manifestation of friendliness/amiability/suniness	
<b>OBJ</b>	(to be) the party/entity toward which/whom one is (being) friendly/amiable/warm/sunny	

<b>-MF- 'APPRECIATION / HONORING / VENERATION'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of appreciation or commendation for someone/something; appreciate/commend someone/something	<b>Stem 2:</b> (to be) a state/act of honoring upon someone; to honor someone  <b>Stem 3:</b> (to be) a state/act of veneration or reverence for someone/something; venerate or revere someone/something
<b>CTE</b>	(to be) the feeling of appreciation itself as a personal emotional state	
<b>CSV</b>	(to be) the physical manifestation (i.e., act(s)/word(s)/behavior) of a state of appreciation felt for an entity	
<b>OBJ</b>	(to be) the entity/party/event/situation/state one appreciates	

<b>-ČR- 'HOSTILITY / AGGRESSION'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of verbal abuse, verbally hostile behavior toward another party, to attack someone verbally	<b>Stem 2:</b> (to be) a state/act of passive-aggressive hostility toward another party; to attack someone via passive-aggressive behavior  <b>Stem 3:</b> (to be) an act of physical hostility/aggression toward another party; to deliberately physically abuse or harm someone, to assault, to attack physically
<b>CTE</b>	(to be) a state of being verbally abused; to suffer verbal abuse	
<b>CSV</b>	(to be) a physical act/manifestation of verbal abuse, i.e., the word(s)/phrase(s) used	
<b>OBJ</b>	(to be) the entity/party which is the target of verbal hostility/abuse/aggression	

	<b>-RRS- ‘URGENCY / EXIGENCY / EMERGENCY’</b>	
<b>BSC</b>	Stem 1: (be) something pressing or urgent, requiring one’s attention/action	Stem 2: (be) something exigent or critical, of critical importance requiring immediate attention/action
<b>CTE</b>	(be) a state of pressing or urgent need, a state of urgency	
<b>CSV</b>	(be) the physical/tangible aspects/characteristics of an event/situation that is pressing/urgent	Stem 3: (be) something constituting an emergency; a situation of dire need for immediate action/aid/resolution
<b>OBJ</b>	(be) what is pressing or urgent, i.e., the entity/event/situation that is the source of the urgency	

This root is also used as the **EXIGENT (EXG) Bias Affix:** — *‘It’s now or never!’*

	<b>-MSK- ‘NECESSITY / REQUIREMENT / DEMAND / ORDER’</b>	
<b>BSC</b>	Stem 1: (be) a necessity/requirement, something needed/required of someone	Stem 2: (be) a demand; to make a demand
<b>CTE</b>	(be) a state of there being something needed/required of someone; to need, to require	
<b>CSV</b>	(be) the physical/tangible aspects/characteristics of an event/situation needing/requiring something of someone	Stem 3: (be) an order or command; to order, to (issue a) command
<b>OBJ</b>	(be) what is needed/required	

This root is also used as the **MANDATORY (MAN) Bias Affix:** — *‘take it or leave it,’ ‘this is your last chance,’*

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-RMSK- ‘IMPERATIVE / MANDATE / ULTIMATUM’</b>	
<b>Stem 1:</b> (be) an imperative, something essential; to state an imperative	
<b>Stem 2:</b> (be) a mandate or injunction or precept; to mandate	
<b>Stem 3:</b> (be) an ultimatum; to issue an ultimatum	

**-LŇ- ‘PSYCHE / MIND’**

<b>BSC</b>	<b>Stem 1:</b> one’s psyche (i.e., the amalgamation of both the conscious and unconscious mind)	<b>Stem 2:</b> (to be) one’s conscious mind (i.e., the amalgamation of consciousness, perception, thinking, judgment, imagination, language, and memory)  <b>Stem 3:</b> one’s unconscious mind (i.e., the seat of subliminal perceptions, automatic skills, repressed feelings and values, instinct, etc.)
<b>CTE</b>	(to be) the state of having a psyche; to have a psyche	
<b>CSV</b>	(to be) a state/act of one’s psyche in operation; to experience or engage in conscious or unconscious mental activity	
<b>OBJ</b>	(to be) a phaneron or qualia (i.e., the “content” of what is being experienced by one’s mind at any given moment)	

**-RL- ‘SENTIENCE / SUBJECTIVITY’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of sentience (i.e., self-awareness plus awareness of both a [seemingly] external reality and a subjective, personal reality); to be sentient	<b>Stem 2:</b> (to be) a state of subjectivity (i.e., one’s personal viewpoint or way of thinking about something based on one’s conscious and unconscious values, biases, memories, experiences, etc.)  <b>Stem 3:</b> (to be) a subjective experience; to undergo a subjective experience (i.e., an experience which occurs solely within one’s mind, or which entails subjective/introspective implications/consequences for oneself)
<b>CTE</b>	(to be) the state of sentience itself as an ontological phenomenon	
<b>CSV</b>	(to be) an act/state of awareness of self and/or external/internal reality by which one manifests sentience; to manifest sentience	
<b>OBJ</b>	(to be) a thought/feeling/instinctive reaction by which one determines one’s sentience	

**-DK- ‘MENTAL IMAGE / IMAGINATION / CREATIVITY’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a mental image of something that is or might be; to form an image in one’s mind of something that is or might be [NOTE: while use of the word “image” here suggests only a visual mental construct, this stem also refers to tactile, olfactory, gustatory, aural, interoceptive, or other sensory mental constructs]	<b>Stem 2:</b> (to be) a state/act of imagination; to imagine something (i.e., to form a subjective mental image/narrative about something which does not exist in reality)  <b>Stem 3:</b> (to be) a state/act of creativity or being creative; to be creative (i.e., to engage in a mental or physical manipulation of subjective and/or objective reality for the purpose of personal artistic expression or to test/disturb/alter/extend the boundaries of socio-cultural expectations or one’s own psychological expectations)
<b>CTE</b>	(to be) the state of being (only) a mental image	
<b>CSV</b>	(to be) an act/process of forming/holding a mental image	
<b>OBJ</b>	(to be) the mental image itself that one holds/forms in one’s mind	



<b>-ŃŁ- ‘EXISTENCE / REALITY / SOLIPSISM’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) something ontologically existent/real; to exist ontologically, be ontologically real (i.e., to exist in reality regardless of anyone’s beliefs, opinions, philosophy, interpretation, societal convention, decree, etc.	<b>Stem 2:</b> (to be) something epistemologically real; to exist epistemologically, be epistemologically real (i.e., to exist based on another entity’s beliefs, opinions, philosophy, interpretation, societal convention, decree, etc.  <b>Stem 3:</b> (to be) one’s own solipsistic existence; to exist solipsistically (i.e., the existence of one’s own psyche as the only ontologically existent entity)
<b>CTE</b>	(to be) a state of ontological existence; to exist in reality regardless of anyone’s beliefs, opinions, etc.	
<b>CSV</b>	(to be) the physical manifestation of one’s ontological existence *	
<b>OBJ</b>	(to be) the entity that ontologically exists	

\*The CSV Specification of this stem is essentially synonymous with the CTE Specification of Stem 1 of the root **-ŠŘ-** ‘SPACETIME / SPACE / PASSAGE OF TIME’.

<b>-LÇ- ‘PSYCHO-SOCIAL IDENTITY’</b>		Affix: <b>SID</b>
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest) one’s psychological identity; to psychologically identify as a particular type of person) — [both the particular gender identity and the psychological state/process of identifying as such]	<b>STEM 2:</b> (to be/manifest) a state/act of realizing/understanding that one’s identity is surfacing psycho-social identity is changing or that a suppressed psycho-social  <b>STEM 3:</b> (to be/manifest) a process of transition / change to a particular psychological identity; to change/transition to a different psychological identity
<b>CTE</b>	(to be) a state of having a psycho-social identity	
<b>CSV</b>	(to be) an act/process/state of psycho-social identification; to (self-)identify as a particular type of person	
<b>OBJ</b>	(to be) the particular psycho-social identity one has/seeks	

<b>-NŠ- ‘WELL-MANNERED BEHAVIOR / DECORUM / CIVILITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being well-behaved; display good behavior, be well-behaved	<b>Stem 2:</b> (to be) a state/act of being well-mannered; display good manners  <b>Stem 3:</b> (to be) a state of manifesting decorum/civility; have/display a sense of decorum, politeness and civility
<b>CTE</b>	(to be) the psychological state which allows/causes one to behave well	
<b>CSV</b>	(to be) a physical act/manifestation of good behavior	
<b>OBJ</b>	(to be) the party/entity thought of as / observed to be behaving well	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

**-NŠW- ‘DIGNITY / POLITENESS / COURTESY / NOBLE-BREEDING’**

**Stem 1:** (to be) a state/act of having/displaying dignity; have dignity, be dignified

**Stem 2:** (to be) a state/act of being polite/courteous; show politeness/courtesy, be polite/courteous

**Stem 3:** (to be) a state of being well-bred, noble, distinguished, refined, cultivated, being a person of quality/taste; have/display a noble, distinguished or cultivated air

**-MBR- ‘SUCCESS / COMPETITION / WINNING / ACHIEVMENT’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act/process of striving to succeed at something; to strive to succeed at something; to pursue success at something [CPT Version = to succeed]	<b>Stem 2:</b> (to be) a state/act/process of competing to win something; to compete [CPT Version = state/act of winning something; to win something]
<b>CTE</b>	(to be) a state of striving for success [CPT Version = state of success]	<b>Stem 3:</b> (to be) a state/act of attempting to achieve something; to work at achieving something [CPT Version = state/act of achievement; to achieve something]
<b>CSV</b>	(to be) a physical act of striving to succeed; to strive to succeed [CPT = succeed]	
<b>OBJ</b>	(to be) what one is striving to succeed at [CPT Version = what one succeeds at]	

**-PG- ‘FOOLING / PSYCHO-LINGUISTIC MANIPULATION / HYPNOSIS’**

<b>BSC</b>	<b>Stem 1:</b> (to be) an instance/act of fooling another party (i.e., into believing/doing something);	<b>Stem 2:</b> (to be) an instance/act of “playing games” with someone, i.e., to psychologically manipulate another via words/behavior/actions as a means of temporarily making them feel inferior, sad, confused, etc.; to play games with, to toy with
<b>CTE</b>	(to be) a state of having been fooled	
<b>CSV</b>	(to be) the psychological/linguistic or other means employed by which someone is fooled; to take actions or employ means to fool a party	
<b>OBJ</b>	(to be) the entity/party fooled	<b>Stem 3:</b> (to be) an act/state of hypnosis; to hypnotize

**-ZK- ‘SELF-RIGHTEOUSNESS / SANCTIMONIOUSNESS / HYPOCRISY’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being self-righteous/sanctimonious; behave/act self-righteously or sanctimoniously	<b>Stem 2:</b> (to be) a state/act of unctuousness/holier-than-thou behavior; to behave/act/speak unctuously/in a holier-than-thou manner
<b>CTE</b>	(to be) a state of self-righteousness/sanctimoniousness	
<b>CSV</b>	(to be) a physical act of self-righteous/sanctimonious behavior; to behave/speak/act self-righteously or sanctimoniously	<b>Stem 3:</b> (to be) a state/act of hypocrisy; to behave/act hypocritically or as a hypocrite
<b>OBJ</b>	(to be) what one is self-righteous/sanctimonious about	

<b>-ČX- ‘IRRATIONALITY / HYSTERIA / PARANOIA’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being irrational; behave/act irrationally	<b>Stem 2:</b> (to be) a state/act of being hysterical and impervious to serenity; to behave/act hysterically  <b>Stem 3:</b> (to be) a state/act of being paranoid; behave/act in a paranoid manner
<b>CTE</b>	(to be) a state of irrationality as a character trait; to be chronically irrational	
<b>CSV</b>	(to be) a physical act/manifestation of irrationality; to do/say something irrational	
<b>OBJ</b>	(to be) what one is irrational about	

<b>-ŤV- ‘INTELLIGENCE / ASTUTENESS / PERSPICACITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of intelligence, demonstrating intelligence; be/act intelligent(ly)	<b>Stem 2:</b> (to be) a state/act of astuteness/quick-wittedness/clever; to be/act astute(ly), quick-witted(ly), clever(ly)  <b>Stem 3:</b> (to be) state/act of being farsighted/perceptive/perspicacious; to have foresight about something, to be perceptive/perspicacious
<b>CTE</b>	(to be) a state of intelligence	
<b>CSV</b>	(to be) an act of intelligence; do/say something that demonstrates one’s intelligence	
<b>OBJ</b>	(to be) what one does/says to demonstrate/manifest their intelligence	

<b>-ČP- ‘STUPIDITY / “SHALLOWNESS” ’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being stupid/“dumb”/simple-minded; to be stupid/dumb, act stupidly/simple-mindedly	<b>Stem 2:</b> (to be) a state/act of being non-intellectual, non-conceptual/non-analytical in one’s thinking; to be non-intellectual/non-analytical in one’s thinking  <b>Stem 3:</b> (to be) a state of being “shallow”/anti-intellectual; be “shallow”/anti-intellectual, act in a “shallow”/anti-intellectual manner (i.e., unconcerned with or indifferent to intellectual prowess or analytical thinking)
<b>CTE</b>	(to be) a state of stupidity/simple-mindedness	
<b>CSV</b>	(to be) an act of stupidity; do something stupid	
<b>OBJ</b>	(to be) what one is (being) stupid about	

<b>-RS- ‘SINCERITY / HONESTY / GUILLESSNESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of sincerity/personal genuineness; to be sincere/personally genuine	<b>Stem 2:</b> (to be) a state/act of honesty; to be/act honest(ly) (i.e., without deceit, withholding necessary information)  <b>Stem 3:</b> (to be) a state/act of guilelessness, being without guile; be/act without guile, to be/act guileless(ly) (i.e., be/act without ulterior motive)
<b>CTE</b>	(to be) a state of sincerity//personal genuineness	
<b>CSV</b>	(to be) an act of sincerity/honesty; to do/say something sincere/genuine	
<b>OBJ</b>	(to be) what one is sincere/genuine about	

<b>-JM- ‘DEGREE OF OPEN-MINDEDNESS / BIGOTRY / ABSOLUTISM’ (use EXN/SUF, etc. affixes)</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a degree of open-mindedness vs. narrow-mindedness, willingness to consider new ideas; to manifest a particular degree of open-mindedness	<b>Stem 2:</b> (to be) a degree of one’s capacity to see/consider the world from a relative as opposed to an absolute perspective
<b>CTE</b>	(to be) a state of having a particular degree of open-mindedness vs. narrow-mindedness	
<b>CSV</b>	(to be) a physical act which manifests a particular degree of open-mindedness vs. narrow-mindedness	
<b>OBJ</b>	(to be) the particular degree of open-mindedness vs. narrow-mindedness	<b>Stem 3:</b> (to be) a degree of personal prejudice/bigotry

<b>-TR- ‘RESPECT / ESTEEM / HONOR’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of feeling respect/esteem for someone/something	<b>Stem 2:</b> (to be) a state/act of respectability; be respectable/estimable (i.e., having a degree of potential for being respected/esteemed)
<b>CTE</b>	(to be) a state of respect/esteem	
<b>CSV</b>	(to be) an act of respect/esteem; do/say something that conveys/manifests one’s respect for something/someone	<b>Stem 3:</b> (to be) a state/act of being honorable; to have honor (i.e., a sense of high regard and great respect given or received based on one’s adherence to actions or principles considered by one’s community/society as right)
<b>OBJ</b>	(to be) the party/entity respected/esteemed	

<b>-ŽT- ‘MODESTY / HUMILITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being modest/humble; to be modest/humble, act modestly/humbly	<b>Stem 2:</b> (to be) a state/act of being demure/reserved; be/act demure(ly)/reserved(ly)
<b>CTE</b>	(to be) a state of humility/modesty	
<b>CSV</b>	(to be) an act of modesty/humility; to do something modest/humble	<b>Stem 3:</b> (to be) a state of being unassuming/unobtrusive; be/act unassuming(ly)/unob-trusive(ly)
<b>OBJ</b>	(to be) what one is modest/humble about	

<b>-ÇF- ‘CIVILITY / PEACEABLENESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of civility; be civil, act civilly (i.e., in accordance with socio-cultural/societal norms and expectations)	<b>Stem 2:</b> (to be) a state/act of conciliation; to be/act in a conciliatory manner
<b>CTE</b>	(to be) a state of peace/civility	
<b>CSV</b>	(to be) a physical act of civility; to do something that constitutes an act of civility or peaceableness	<b>Stem 3:</b> (to be) a state/act of being peaceable, peace-inspiring, non-violent; to be/act peaceably, non-violently
<b>OBJ</b>	(to be) a symbol of peace/civility	

<b>-ŘŠ- ‘DIFFIDENCE / SHYNESS / BASHFULNESS / TIMIDITY / TIMOROUSNESS / PUSILLANIMITY / COWARDICE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (be) an act/instance of diffidence/shyness/bashfulness; to act/behave diffidently/shyly/bashfully; to be diffident/shy/bashful/timidly (i.e., lacking self-confidence to the point of being incapable of self-assertiveness or behaving/communicating in a straightforward manner)	<b>STEM 2:</b> (be) an act/instance of timidity/timorousness, i.e., being/feeling easily frightened by everyday occurrences and interactions  <b>STEM 3:</b> (be) an act/instance of pusillanimity/cowardice/faint-heartedness
<b>CTE</b>	(be) a diffident/shy/bashful person, have a modest character/personality	
<b>CSV</b>	(be) an appearance of diffidence/shyness/bashfulness, i.e., to behave/act as (if) one who is	
<b>OBJ</b>	(be) a person whom others generally perceive as being diffident/shy/bashful	

<b>-CJ- ‘SMUGNESS / CONCEIT / FOPPISHNESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being conceited, full of oneself; be conceited, act conceitedly	<b>Stem 2:</b> (to be) a state/act of smugness; to be smug, act smugly  <b>Stem 3:</b> (to be) a state/act of being prim, foppish, priggish; be/act prim(ly), foppish(ly), priggish(ly)
<b>CTE</b>	(to be) a state of conceit	
<b>CSV</b>	(to be) an act of conceited behavior; do/say something conceited	
<b>OBJ</b>	(to be) what one is smug/conceited about	

<b>-FL- ‘POMPOSITY / PRETENSION / OSTENTATIOUSNESS / BRAGGADOCCIO / BOASTING / ONE-UPMANSHIP’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of pomposity/ostentation/pretentiousness; be/act pompous(ly)/ostentatious(ly)/pretentious(ly)	<b>Stem 2:</b> (to be) an act of bragging/boasting; to brag/boast about something  <b>Stem 3:</b> (to be) an act of one-upmanship; to one-up (i.e., do/say something to another with the intent to impress upon them that one’s own story/experience/feat, etc. is better or more impressive than theirs)
<b>CTE</b>	(to be) a state of ostentatiousness/pomposity/pretentiousness	
<b>CSV</b>	(to be) an act of ostentatiousness/pomposity/pretentiousness; do/say something ostentatious/pretentious/pompous	
<b>OBJ</b>	(to be) what one is being pompous/pretentious/ostentatious about	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-RFL-    ‘VAINGLORIOUSNESS / MEGALOMANIA / SELF-AGGRANDIZEMENT’</b>	
<b>Stem 1:</b> (to be) a state of vaingloriousness; be/act vainglorious(ly)	
<b>Stem 2:</b> (to be) a state megalomania; be/act megalomaniacal(ly)	
<b>Stem 3:</b> (to be) a state self-aggrandizement; to self-aggrandize	

<b>-ZČ-    ‘SELF-CONCERN / SELFISHNESS / SELF-CENTEREDNESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being self-centered and inconsiderate of the state of others	<b>Stem 2:</b> (to be) a state of state of being selfish (as a negative, i.e., where one’s being considerate of others would not constitute altruism or self-sacrifice)
<b>CTE</b>	(to be) a state of self-centeredness as a psychological character trait	
<b>CSV</b>	(to be) a physical act of self-centered behavior; to behave in a self-centered manner or do something self-centered(ly)	
<b>OBJ</b>	(to be) one’s sense of self-interest without consideration/concern for others or the negative consequences to oneself or others caused by one’s self-concern	<b>Stem 3:</b> (to be) a state/act of being self-indulgent and whim-worshipping at the expense of others

<b>-TG-    ‘SELF-INTEREST / INDIVIDUALITY / INTEGRITY’</b>		
NOTE: This root reflects self-interest as a virtue, in that it implies egoism not at the expense of others nor interference with others’ rights. This root should be distinguished from -ZČ- “selfishness/self-centeredness” above which implies negative traits which potentially affect others adversely.		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being egoistic [NOT ‘egotistical’]; concerned with one’s self-interest (but not at the expense of other’s rights); to be egoistic [NOT ‘egotistical’]	<b>Stem 2:</b> (to be) a state of being individualistic; pursuing of one’s own rationally-conceived goals to one’s own benefit and implicitly to the benefit of others (or at least without harming them)  <b>Stem 3:</b> (to be) a state of having personal integrity, i.e., adherence to one’s own values in the face of real-life circumstances
<b>CTE</b>	(to be) a psychological state of awareness of one’s own self-interest	
<b>CSV</b>	(to be) an act of egoism/self-interest [NOT ‘egotism’]	
<b>OBJ</b>	(to be) one’s (sense of) self-interest	

<b>-ŽM- ‘HEEDLESSNESS / IMPETUOSITY / IMPRUDENCE / INDISCRETION / TEMERITY / FOOLHARDINESS / RASHNESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of heedlessness/impetuosity; be/act heedlessly/impetuously [i.e., without giving thought to the (potential) consequences of one’s action/behavior]	<b>Stem 2:</b> (to be) a state/act of imprudence/indiscretion; be act imprudently/indiscretely (i.e., without concern for the (potential) consequences of one’s action/behavior)  <b>Stem 3:</b> (to be) a state of temerity/recklessness/rashness/foolhardiness; be/act in a reckless/rash/foolhardy manner (i.e., without proper concern for and/or realization of the adverse, or even dangerous consequences of one’s action/behavior)
<b>CTE</b>	(to be) a psychological state of being heedless/impetuous	
<b>CSV</b>	(to be) a physical act that is heedless/impetuous	
<b>OBJ</b>	(to be) the expected/normative state of affairs, situation, event or act that should/would occur or exist if not for the heedless/impetuous act	

<b>-ŠX- ‘ARROGANCE / HAUGHTINESS / INSOLENCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of arrogant behavior; be arrogant, display arrogance [i.e., behavior consistent with a belief that one is physically or intellectually superior to another]	<b>Stem 2:</b> (to be) a state/act of haughtiness; be haughty, display haughtiness [i.e., behavior consistent with a belief that one is socially/morally superior to another]  <b>Stem 3:</b> (to be) a state/act of insolence/impudence; be insolent/impudent, display insolence/impudence [i.e., behavior that is disrespectful toward and/or heedless of the authority of another]
<b>CTE</b>	(to be) a psychological state/trait of arrogance	
<b>CSV</b>	(to be) a physical act of arrogant behavior; to do something considered arrogant	
<b>OBJ</b>	(to be) the party toward whom one is arrogant	

<b>-PŠX - ‘CONDESCENSION / PATRONIZING BEHAVIOR / “BABY-ING” ’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of condescending behavior toward another; be condescending toward another, display condescension [i.e., behavior toward another as if they are stupid/ignorant/incompetent]	<b>Stem 2:</b> (to be) a state/act of patronizing behavior toward another; be patronizing toward another [i.e., behavior toward another as if they are child-like, immature, incapable of understanding/learning]  <b>Stem 3:</b> (to be) a state/act of “babying” or “fussing” or “coddling” over another as if they are helpless; to “baby” another, “fuss” over another as if they are helpless
<b>CTE</b>	(to be) a psychological state/trait of condescension	
<b>CSV</b>	(to be) a physical act of condescending behavior; to do/say something considered condescending	
<b>OBJ</b>	(to be) the party toward whom one is condescending	

<b>-ŃZ- ‘EMOTIONALISM / WHIM-WORSHIPPING / MYSTICISM’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being emotion-driven and controlled by melodrama in one’s daily life decisions, as opposed to relying on reason	<b>Stem 2:</b> (to be) a state of being whim-driven in one’s daily life decisions, as opposed to relying on reason or long-range analysis of one’s self-interest  <b>Stem 3:</b> (to be) a state of relying on mysticism and anti-rational superstitions and supernatural forces as a basis for one’s life decisions, as opposed to relying on reason
<b>CTE</b>	(to be) the underlying psychological nature/essence of a person who is an emotionalist (as opposed to one who bases their life upon dispassionate reason)	
<b>CSV</b>	(to be) an act of emotion-driven decision-making	
<b>OBJ</b>	(to be) a decision made based on emotions as opposed to reason	

<b>-ŘY- ‘DEGREE OF CAPACITY FOR EMOTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a degree of emotional/intellectual engagement or interest vs. degree of boredom	<b>Stem 2:</b> (to be) a degree of emotional engagement/involvement or devotion vs. emotional detachment or noncommittedness  <b>Stem 3:</b> (to be) a degree of capacity for or depth of emotional engagement/involvement or interest vs. emotional shallowness or lack of emotional development
<b>CTE</b>	(to be) the actual emotional/intellectual feeling of experiencing a particular degree of emotional/intellectual engagement or interest	
<b>CSV</b>	(to be) the physical manifestation (or lack thereof) of a particular degree of emotional/intellectual engagement or interest	
<b>OBJ</b>	(to be) what one feels a particular degree of emotional/intellectual engagement or interest (or not)	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-ŘNY- ‘DEGREE OF EMOTIONAL/INTELLECTUAL FULFILLMENT/STABILITY/OPENNESS’</b>
<b>Stem 1:</b> (to be) a degree of emotional/intellectual fulfillment vs. emotional emptiness/hollowness <b>Stem 2:</b> (to be) a degree of emotional/intellectual stability vs. instability <b>Stem 3:</b> (to be) a degree of emotional openness or “being in touch” with one’s emotions vs. degree of emotional repression



<b>-KH- ‘DEGREE OF SUBTLETY / NUANCE / CUNNING / GUILF / STEALTH / INSIDIOUSNESS’</b> Affix: <b>SBT</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of subtlety/nuance ( = slight but meaningful variation in appearance/manifestation/color/sound, etc.) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of cunning / guile ( = subtlety/nuance in terms of wordplay/behavior/actions, etc. with intention to manipulate a situation)
<b>CTE</b>	(to be) something with a degree of subtlety/nuance	
<b>CSV</b>	(to be) a degree of subtlety/nuance	<b>STEM 3:</b> (to be/manifest a) degree of stealth/insidiousness ( = attempt to manipulate/act in an unseen/hidden/discreet manner for (quasi-)nefarious purposes)
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of subtlety/nuance	

<b>-XT- ‘DEGREE OF CONCERN / CARE / INDIFFERENCE / NEGLECT’</b> Affix: <b>CNC</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of concern for, worry over — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of care for, degree to which one looks after / takes care of / has responsibility for the care or oversight of
<b>CTE</b>	(to be) something with a degree of concern for, worry over	
<b>CSV</b>	(to be) a degree of concern for, worry over	<b>STEM 3:</b> (to be/manifest a) degree of vigilance, watchfulness, surveillance
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of concern for, worry over	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-RXT- ‘DEGREE OF EMPATHY / NUTURING / PROTECTION’</b> (use SUF/EXN/EXD, etc. )	
<b>Stem 1:</b>	(to be/have a) degree of empathy for
<b>Stem 2:</b>	(to be/have a) degree to which one nurses / nutures / provides for / has responsibility for the health and well-being of
<b>Stem 3:</b>	(to be/have a) degree to which one portects/guards something ( = protection via watchfulness/vigilance)

<b>-ŘH- ‘DEGREE OF TRUSTWORTHINESS / RELIABILITY / DEPENDENCY’</b>		Affix: <b>TRS</b> (use SUF/EXN/EXD, etc. )
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of trust(worthiness) ( = extent of one’s belief in another party’s steadfastness/reliability/loyalty/sturdiness, etc.) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of reliance upon; degree to which one must rely on the aid/help/resources/energy, etc. of another  <b>STEM 3:</b> (to be/manifest a) degree of dependency upon; degree to which one’s status/identity/nature/essence/form, etc. is determined by another
<b>CTE</b>	(to be) something with a degree of trust(worthiness)	
<b>CSV</b>	(to be) a degree of trust(worthiness)	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of trust(worthiness)	

<b>-FS- ‘WAITING / ANTICIPATION / EXPECTATION / READINESS / PREPAREDNESS’</b>		Affix: <b>ATI</b> (use SUF/EXN/EXD, etc. )
<b>BSC</b>	<b>STEM 1:</b> (to be in) a state of anticipating/expectating/awaiting something (not the emotion thereof but rather the status of one’s circumstances) — [both the state and the entity manifesting such]; to wait for, to await/expect/anticipate	<b>STEM 2:</b> (to be in a) state of readiness / preparedness for an anticipated / expected occurrence / phenomenon
<b>CTE</b>	(to be) something in a state of anticipating/expectating/awaiting something	<b>STEM 3:</b> (to be in a) state of readiness / preparedness in case of an unexpected / unpredictable occurrence / phenomenon
<b>CSV</b>	(to be) a state of anticipating/expecting/awaiting something	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s a state of anticipating / expectating / awaiting something	

**NOTE:** For the emotional aspect(s) of anticipation/expectation, see the emotion roots **-NTK-**, **-NŘ-**, and Stem 2 of **-VVZ-**.

<b>-CB- ‘MOTIVE / INTENTION / GOAL / INCENTIVE / STIMULUS’</b>		Affix: <b>RSN</b>
<b>BSC</b>	<b>Stem 1:</b> (to be/manifest) a motive / reason why — [both the psychological/epistemological state of having a motive and its content]	<b>Stem 2:</b> (to be/manifest) a purpose/intention/goal/aim; to aim to/for <b>Stem 3:</b> (to be/manifest) an incentive/stimulus
<b>CTE</b>	(to be) the psychological/epistemological state of having a motive/reason	
<b>CSV</b>	(to be) an act based upon or driven by one’s motive; to act based on a motive	
<b>OBJ</b>	(to be) a party/entity that embodies/represents a motive / reason why	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RCB- ‘PRINCIPLE / BASIS / ASPIRATION / WILL’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a principle (moral or ontological) / grounds / basis; be/have a principle / be/have grounds / be/have a basis for something	<b>STEM 2:</b> (to be) an aspiration / “dream” ; to aspire, to “dream”  <b>STEM 3:</b> (to be) one’s (free) will; to follow one’s will
<b>CTE</b>	(to be) a state of there being a principle or grounds	
<b>CSV</b>	(to be) an act based upon or driven by a principle; to act based on a principle	
<b>OBJ</b>	(to be) a party/entity that embodies/represents a (moral or ontological) principle/grounds/basis	

<b>-DH- ‘DEGREE OF DIRECTNESS / FRANKNESS / OBVIOUSNESS’</b> Affix: <b>DRC</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of directness/plain-spokenness/bluntness/candor/frankness ( = easy to interpret/understand/see) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of obviousness / blatancy / be “glaring” ( = inability to avoid noticing)  <b>STEM 3:</b> (to be/manifest a) degree of straight-forwardness, simplicity, matter-of-factness ( = absence of guile / trickery / chicanery)
<b>CTE</b>	(to be) something with a degree of directness/plain-spokenness/bluntness/candor/frankness	
<b>CSV</b>	(to be) a degree of directness/plain-spokenness/bluntness/candor/frankness	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of directness/plain-spokenness/bluntness/candor/frankness	

<b>-BY- ‘COMMON-SENSE / PRUDENCE / WISDOM’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of having common sense; use common sense	<b>Stem 2:</b> (to be) a state of being prudent/circumspect/discerning  <b>Stem 3:</b> (to be) a state of being wise/sagacious based on keen analysis and introspection regarding one’s experiences and longterm observations
<b>CTE</b>	(to be) the feeling/subjective experience of having common sense; to experience the feeling of knowing one is using common sense	
<b>CSV</b>	(to be) a physical manifestation (i.e., actions, words) of using common sense	
<b>OBJ</b>	(to be) the particular situation/dilemma/event/state requiring the use/application of common sense	

<b>-MŠ- ‘COURAGE / BRAVERY / VALOR’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being brave, undaunted by dangerous situation at hand; to be brave	<b>Stem 2:</b> (to be) a state of being courageous/intrepid; have courage  <b>Stem 3:</b> (to be) a state of being valorous/gallant/bold; act with valor/gallantry/boldness
<b>CTE</b>	(to be) the psychological state of being brave	
<b>CSV</b>	(to be) a physical act/manifestation of bravery; do something brave	
<b>OBJ</b>	(to be) that which one is brave against or undaunted by	

<b>-KJ- ‘“TOUGHNESS” / RESILIENCY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of “toughness” or perseverance; to be “tough” or perseverant o(i.e., having the ability to withstand an adverse situation without significant harm to oneself)	<b>Stem 2:</b> (to be) a state of personal resiliency; to be personally resilient (i.e., able to quickly recover from an adverse situation)  <b>Stem 3:</b> (to be) a state of “anti-fragility”; to be “anti-fragile” (i.e., not only able to recover from and deal with an adverse situation, but to learn from it so as to be able to handle or deal with such situations in the future more easily)
<b>CTE</b>	(to be) the psychological state of being tough	
<b>CSV</b>	(to be) the physical manifestation of one’s toughness	
<b>OBJ</b>	(to be) that which one is tough against	

<b>-ŽŽ- ‘NOSINESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of nosiness; be nosy, “poke one’s nose” into another’s business [to allow curiosity to cause one to attempt to find or learn something that is not one’s business]	<b>Stem 2:</b> (to be) an act of prying; to pry (i.e., to persistently attempt to discover another’s secrets or learn about another’s private affairs)  <b>Stem 3:</b> (to be) an act of interfering or “butting in” where/when one is not wanted or where/when inappropriate
<b>CTE</b>	(to be) a state of nosiness as a character trait	
<b>CSV</b>	(to be) a physical act of being nosy (i.e., what actions and/or words one employs that constitute an act of nosiness)	
<b>OBJ</b>	(to be) that which one discovers or attempts to discover while being nosy	

<b>-JF- ‘VACILLATION / WISHY-WASHINESS / INDECISIVENESS / FLAKINESS / UNRELIABILITY / FICKLENESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of vacillation/wishy-washiness/indecisiveness; to vacillate, be/act indecisively	<b>Stem 2:</b> (to be) a state/act of being fickle, changing one’s mind for no apparent/good reason; to be fickle, act in a fickle manner, be changing one’s mind for no reason  <b>Stem 3:</b> (to be) a state/act of flakiness/unreliability; be flaky/unreliable, act in a flaky/unreliable manner
<b>CTE</b>	(to be) a state of wishy-washiness/indecisiveness as a character trait	
<b>CSV</b>	(to be) a physical act/instance of vacillating or being wishy-washy/indecisive; to do/say something that demonstrates/mqanifests vacillation/wishy-washiness/indecisiveness	
<b>OBJ</b>	(to be) that which one is vacillating over or indecisive/wishy-washy about	

<b>-ŠR- ‘MOOD / TEMPERAMENT / COUNTENANCE / BEHAVIOR / DEMEANOR’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) one’s mood; to be in a particular mood [i.e., one’s temperament in a given/specific situation or temporary context]	<b>Stem 2:</b> (to be) one’s behavior; to behave in a certain way [i.e., how one acts/behaves in a given/specific situation or context]  <b>Stem 3:</b> (to be) one’s (emotional) temperament/countenance/demeanor [i.e., how one behaves in general in regard to one’s mood or emotional reaction to situations]
<b>CTE</b>	(to be) what one feels mentally/emotional when one is in a particular mood	
<b>CSV</b>	(to be) an act or behavioral manifestation associated with a particular mood	
<b>OBJ</b>	(to be) a [particular] mood	

<b>-ŽM- ‘OUTLOOK-ON-LIFE / SENSE-OF-LIFE / PERSONAL VALUE / CHARACTER’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) one’s sense-of-life, one’s outlook-on-life [i.e., one’s underlying subjective attitude toward life and the world in relation to oneself]	<b>Stem 2:</b> (to be) one’s personal value(s) [i.e., what one seeks to uphold, obtain, preserve, pursue, keep in furtherance of maintaining and living one’s life the way one desires or in the way one believes one’s life should be lived]  <b>Stem 3:</b> (to be) one’s character [i.e., the combination of one’s temperament, values, sense-of-life, and life-stance]
<b>CTE</b>	(to be) an underlying (moral/ethical/pragmatic/religious, etc.) principle by which one forms one’s sense-of-life	
<b>CSV</b>	(to be) one’s life-stance [i.e., one’s subjective idea(s) on how to go about living life based on one’s sense-of-life]	
<b>OBJ</b>	(to be) that which reflects or demonstrates one’s sense-of-life or life-stance.	

<b>-ŠŦ- ‘RECOGNITION/CONSIDERATION OF ANOTHER’S PERSPECTIVE / COMPROMISE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an instance of seeing/understanding another party’s perspective or point of view; recognize a difference of values/perspective/point of view between oneself and another party	<b>Stem 2:</b> (to be) an instance of recognizing an opportunity for a potential “win-win” situation due to being able to see/understand another party’s perspective or point of view  <b>Stem 3:</b> (to be) an instance of recognizing the value of, or necessity for, compromise [i.e., recognize the potential for a “lose-lose” situation otherwise]
<b>CTE</b>	(to be) one’s consideration of another party’s perspective; to consider another party’s perspective or point of view	
<b>CSV</b>	(to be) an instance of (attempting to) understand(ing) another party’s perspective or point of view [use CPT version to indicate success]	
<b>OBJ</b>	(to be) the perspective or point of view of another party; how another party views/understands a situation	

**NOTE:** The above root is used with the EMO affix to create the equivalent of Ithkuil-2011’s (in)famous word ‘*aštal*’.

<b>-JT- ‘FAMILIARITY / CUSTOM / TRADITION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) something/someone with which one feels familiar, something/someone with which one is well-acquainted or well-versed	<b>Stem 2:</b> (to be) something which is customary; something to which people (in a community/culture/society) are naturally accustomed  <b>Stem 3:</b> (to be) something which is traditional; something which people (in a community/culture/society) feel is a practice/artifact/manifestation of their historical/cultural ties to each other
<b>CTE</b>	(to be) a sense of familiarity; to feel a sense of familiarity/being acquainted with or well-versed in	
<b>CSV</b>	(to be) an instance/act of familiarity; to demonstrate/manifest one’s sense of familiarity with something/someone	
<b>OBJ</b>	(to be) the party or object one is familiar with or well-versed in	

<b>-ZZ- EFFRONTERY / APPALL / AGHAST</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/instance of someone committing an act of effrontery to another	<b>Stem 2:</b> (to be) an act/instance of something/someone being appalling to another  <b>Stem 3:</b> (to be) an act/instance of something/someone being ghastly to another; to cause another to be aghast
<b>CTE</b>	(to be) an instance of feeling effronted; to be subject to someone’s effrontery	
<b>CSV</b>	(to be) a physical act/instance of effrontery	
<b>OBJ</b>	(to be) something/someone who effronts or commits an act of effrontery	

	<b>-LZP- ‘IRONIC FORTUITOUSNESS / DRAMATIC IRONY’</b>	
<b>BSC</b>	Stem 1: (be) a situation in which one believes/assumes/expects something to be true or believes/assumes/expects something will happen, but in fact it is not true or does not happen, however, the non-existence or non-occurrence of the expectation/assumption turns out to be fortuitous or at least does not have the negative consequences that were/would have been anticipated.	Stem 2: (be) a seemingly adverse/undesirable/harmful situation/event whose outcome/aftermath ironically leaves the participant in a better/improved/beneficial state that is ultimately interpreted as “having been worth” the pain/suffering/turmoil/distress undergone.  Stem 3: (be) a situation/event constituting a case of dramatic irony (i.e., where an audience or uninvolved third party has knowledge/awareness of information of importance to another party who is ignorant of that information).
<b>CTE</b>	(be) the psychological state/reaction by a party subject to the type of irony described by the BSC Specification	
<b>CSV</b>	(be) the physical/tangible acts/events constituting a situation involving the type of irony described by the BSC Specification	
<b>OBJ</b>	(be) the party/entity/situation/circumstance at the focal point of an anticipated but ultimately unrealized outcome, whose non-occurrence does not have the adverse impact/consequences one would have expected.	

This root is also used as the **FORTUITOUS (FOR) Bias affix:** = *‘It’s just as well that...’* or *‘All’s well that ends well...’*

	<b>-ŠŠČ- ‘COINCIDENCE’</b>	
<b>BSC</b>	Stem 1: (be) a coincidence, i.e., a situation in which a seemingly separate/unrelated but similar, parallel, corollary, or quasi-identical situation also occurs/exists at (approximately) the same time or place; to coincide	Stem 2: (be) a coincidence temporally-speaking (i.e., occurring at the same approximate time)  Stem 3: (be) a coincidence, spatially-speaking (i.e., occurring in the same approximate place)
<b>CTE</b>	(be) the psychological impact of perceiving a coincidence	
<b>CSV</b>	(be) the physical/tangible circumstances constituting what makes an event/occurrence/state/act perceivable as being a coincidence	
<b>OBJ</b>	(be) a party/entity/object that is involved in, or is the focal point of, a coincidence	

Morphological Derivatives: serendipity, good timing, bad timing, bad luck, fortuitousness, be fortuitous

This root is also used as the **COINCIDENTAL (COI) Bias affix:** = *“What a coincidence!”*

<b>-LF- ‘DEGREE OF LUCK/FORTUNE/FATE/CHANCE/PROBABILITY’</b> Associated Affix: <b>LCK</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of luck/fortune ( = unpredictable circumstances/outcome/event based on non-random or quasi-predictable input/circumstances) [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of fate/chance ( = unpredictable circumstances/outcome/event based on unpredictable or random input/circumstances)  <b>STEM 3:</b> (to be/manifest a) degree of probability; the “odds” ( = quasi-predictable circumstances/outcome based on statistical probability)
<b>CTE</b>	(to be) a state of having/experiencing a particular degree of luck/fortune, be (un)lucky to a certain degree	
<b>CSV</b>	(to be) a degree of luck/fortune; to manifest a degree of luck/fortune	
<b>OBJ</b>	(to be) something with a degree of luck/fortune	

This root is also used as the **ACCIDENTAL (ACC) Bias Affix:** ‘*As luck would have it...*’ ‘*Fate has decided that...*’ ‘*What luck!*’

<b>-MLL- ‘IRONIC RELIEF / IRONIC SURPRISE’</b> (Specification pattern for this root follows that of the Emotion roots)
<b>Stem 1:</b> feel(ing of) ironic surprise + relief + exasperation that an expected/anticipated adverse or detrimental state/event/outcome has not, in fact, occurred (the exasperation being due to a feeling of having either embarrassed oneself and/or feeling one has wasted one’s time and emotional energy fretting about the situation)
<b>Stem 2:</b> feel(ing of) negative astonishment (i.e., astonishment at perceiving/experiencing/discovering something awful/sad/horrible/devastating/terrible, etc.)
<b>Stem 3:</b> feel(ing of) negative wonder (i.e., a sense of wonder and awe at the power/formidableness of something awful/sad/horrible/devastating/terrible, etc.)

This root is also used as the **PROFITIOUS (PPT) Bias Affix:** — ‘*it’s a wonder that*’ as in *It’s a wonder he didn’t break a bone in that fall.*

<b>-LLH- ‘UNEXPECTED/EXASPERATED BEWILDERMENT’</b> (Specification pattern for this root follows that of the Emotion roots)
<b>Stem 1:</b> feel(ing of) exasperated bewilderment, an “Huh?” feeling consisting of exasperation due to a situation/event/outcome turning out to be utterly different than expected/anticipated and utterly bewildering.
<b>Stem 2:</b> feel(ing of) angry surprise, a “What the hell?!” feeling due to a situation/event/outcome turning out to be utterly different than expected/anticipated and utterly enraging, disquating or offensive
<b>Stem 3:</b> feel(ing of) feeling of emotional shock and not knowing what to do/say, due to a situation/event/outcome turning out to be utterly different than expected/anticipated and utterly outrageous/shocking.

This root is also used as the **PERPLEXIVE (PPX) Bias Affix:** — sudden angry bewilderment, as in ‘*Huh? What do you mean...? What the hell? You gotta be kidding me!*’



<b>-FF- ‘PSYCHOLOGICAL PLEASURE’</b> Associated Affix: <b>PLE</b> (Specification pattern for this root follows that of the Emotion roots)	
<b>Stem 1</b>	feel psychological/emotional pleasure
<b>Stem 2</b>	feel psychological relief (from previous state of mental stress, grief, worry, etc.)
<b>Stem 3</b>	feel psychological sense of satisfaction/satiety

This root is also used as the **SATIATIVE (SAT) Bias Affix:** *‘How satisfying...!’ ‘At last, the pleasure of knowing/being/seeing/doing...’* [psychological/emotional pleasure/satiety only]

<b>-NNT- ‘SINGLE-MINDEDNESS / PRESUMPTUOUSNESS / NARROW-MINDEDNESS’</b>		
<b>BSC</b>	Stem 1: (be) an instance of single-mindedness, i.e., having one’s mental focus on one thing to the seeming exclusion of all other considerations or influences	Stem 2: (be) an instance of presumptuousness; having pre-conceived notion/idea before (or without) considering evidence to the contrary
<b>CTE</b>	(be) the feeling/state of being single-minded	
<b>CSV</b>	(be) the actions/words or physical manifestation associated with being single-minded	Stem 3: (be) an instance of narrow-mindedness; imperviousness to differing points of view; unable to consider any viewpoint
<b>OBJ</b>	(be) the idea/ /opinion/belief/event/act/state that one is single-minded about	

This root is also used as the **PRESUMPTIVE (PSM) Bias Affix:** *‘It can only mean one thing...,’ ‘and that’s that!’ ‘and that’s all there is to it!’ or ‘There’s no two ways about it,...’*

<b>-MMŽ- ‘IRONY / SARCASM’</b>		
<b>BSC</b>	Stem 1: (be) an instance of situational irony, i.e., an act/event/state/situation whose circumstances are different from (or opposite to) what is expected/assumed/appropriate	Stem 2: (be) an instance of verbal irony, i.e., a use of words to connote something other than their literal interpretation
<b>CTE</b>	(be) a state of irony caused by or arising from an act/event/state/situation	
<b>CSV</b>	(be) the physical/tangible aspects/circumstances that constitute an instance of irony	Stem 3: (be) an instance of sarcasm; say something sarcastic *
<b>OBJ</b>	(be) the focal point or source of an instance of irony	

\* this stem can be used with the EMO affix to name various emotions associated with giving/receiving sarcasm

This root is also used as the **IRONIC (IRO) Bias affix:** *“Oh, nice!” “Just great!” “Well, now, isn’t this lovely!”*

<b>-ŘS- ‘DEGREE OF ACCEPTANCE/TOLERANCE/CONSENT/PERMISSION/APPROVAL/AGREEMENT’</b>			Affix: <b>CNS</b>
<b>BSC</b>	<b>Stem 1:</b> (to be/manifest a) degree of acceptance/tolerance, “being okay with something” [both the state of acceptance and that which is accepted]	<b>Stem 2:</b> (to be/manifest a) degree of assent/consent (= granting of informal permission)  <b>Stem 3:</b> (to be/manifest a) degree of agreement/concurrence/accordance with	
<b>CTE</b>	(to be) a state of acceptability/being accepted		
<b>CSV</b>	(to be) the physical act/state of accepting or being okay with		
<b>OBJ</b>	(to be) that which one accepts/tolerates or is okay with		

This root is also used as the **APPROBATIVE (APB) Bias Affix:** ‘(That’s) OK’ ‘(That’s) alright’ ‘(That’s) good’ ‘(That’s) fine’ ‘Very well’ ‘Sure’

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-ŘSW- ‘PERMISSION / AFFIRMATION / CONFIRMATION / APPROVAL / ENDORSEMENT’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a granting of permission; granting license to; to permit	<b>STEM 2:</b> (to be) a state/act of affirming/confirming or formally recognizing something; an affirmation/confirmation/formal recognition; to affirm, confirm, formally recognize
<b>CTE</b>	(to be) a state of something being/happening by permission	
<b>CSV</b>	(to be) an act of granting permission; to give/grant permission	
<b>OBJ</b>	(to be) what is permitted, what is allowed to be/happen by permission	<b>STEM 3:</b> (to be) a state/act of approval/endorsement; to approve, endorse

<b>-ĐM- ‘BLUFF / TRICK / DELUDE / DISGUISE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of bluffing, misleading, feinting; to bluff, mislead, feint	<b>Stem 2:</b> (to be) a state/act of trickery; to trick, to delude  <b>Stem 3:</b> (to be) a state/act of disguising something or oneself; to disguise
<b>CTE</b>	(to be) a state of being bluffed or misled	
<b>CSV</b>	(to be) an act of bluffing, misleading; to do something that constitutes a bluff or feint	
<b>OBJ</b>	(to be) a the entity/party being bluffed or misled	

NOTE: This root lends itself to use with the EMO affix.

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-RḌM- ‘DECEPTION / CHEAT / SWINDLING’</b>	
<b>Stem 1:</b>	a state/act of deception/deceit or duplicity; to deceive
<b>Stem 2:</b>	a state/act of cheating; to cheat
<b>Stem 3:</b>	a state/act of chicanery, swindling; to swindle

<b>-ŘF- ‘FOOLING / LEGERDEMAIN / “MAGIC” TRICK’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act of fooling/duping someone [i.e., causing someone to appear/act foolishly or be perceived as naive/gullible for having fallen for a deception]; to fool, to dupe someone	<b>Stem 2:</b> (be) an act of legerdemain; perpetrate an act of legerdemain [i.e., an informal or circumstantial trick to give someone the illusion that something has occurred which in fact has not]  <b>Stem 3:</b> (be) an act of “magic”; a magic trick [i.e., a formally created illusion for the purposes of entertainment]
<b>CTE</b>	(be) a state of being a fool or dupe; to play the fool or dupe	
<b>CSV</b>	(be) the physical act of fooling/duping; to say/do what constitutes an act of fooling/duping	
<b>OBJ</b>	(be) the party being fooled or duped	

<b>-XČ- ‘MURDER / HOMICIDE / MANSLAUGHTER’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act of murder/homicide; to [commit] murder/homicide [both the act of commission and the death of the victim]	<b>Stem 2:</b> (be) a state/act of negligent homicide (i.e., death caused by criminal negligence)  <b>Stem 3:</b> (be) a state/act of manslaughter (i.e., unintentional killing of another)
<b>CTE</b>	(be) the state/act of being/having been murdered	
<b>CSV</b>	(be) a physical act of murdering	
<b>OBJ</b>	(be) a murder victim	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

**-RXČ- 'HOMICIDE IN SELF-DEFENSE / ASSASSINATION / EXECUTION'**

**Stem 1:** (be) an act of killing another in self-defense or war-time battle

**Stem 2:** (be) a state/act of assassination

**Stem 3:** (be) a state/act of legal execution

**-XTR- 'BATTERY / AGGRAVATED ASSAULT / MAIMING / TORTURE'**

<b>BSC</b>	<b>Stem 1:</b> (be) an act of battery or aggravated assault against another; to assault with great bodily harm, to commit battery against another [both the act and the undergoing of the act by a victim]	<b>Stem 2:</b> (be) a state/act of maiming another; to maim another
<b>CTE</b>	(be) a state of being/having been assaulted	<b>Stem 3:</b> (be) a state/act of torturing someone; to torture another
<b>CSV</b>	(be) a physical act of battery; to violently assault another	
<b>OBJ</b>	(be) a victim of battery or aggravated assault	

**-XPR- 'SEXUAL HARRASMENT / SEXUAL ASSAULT / RAPE'**

<b>BSC</b>	<b>Stem 1:</b> (be) state/act of sexual harrassment against another; to sexually harrass another [both the act and the state undergone by the victim]	<b>Stem 2:</b> (be) a state/act of sexual aassault/molestation; to sexually assault/molest
<b>CTE</b>	(be) a state of being a victim of sexual harrassment	<b>Stem 3:</b> (be) an act of rape; to rape someone, commit rape
<b>CSV</b>	(be) a physical act of sexually harrassing; to sexually harrass	
<b>OBJ</b>	(be) a victim of sexual harrassment	

**-DPL- 'THEFT / BURGLARY / ROBBERY'**

<b>BSC</b>	<b>Stem 1:</b> (be) state/act of stealing something from someone, the theft of something from someone; to steal something from someone, to commit the theft of something from someone	<b>Stem 2:</b> (be) a state/act of burglary of something from someone (i.e., theft under cover of secrecy or despite security measures)
<b>CTE</b>	(be) what one steals	<b>Stem 3:</b> (be) a state/act of robbery (i.e., theft under threat of, or commission of violence)
<b>CSV</b>	(be) a physical act of stealing; to steal	
<b>OBJ</b>	(be) the party whose property is stolen	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

**-RDPL- 'EMBEZZLEMENT / LOOT / PLUNDER'**

**Stem 1:** (be) an act embezzlement; to embezzle

**Stem 2:** (be) a state/act of looting; to loot (i.e., to plunder private property left unprotected or undefended)

**Stem 3:** (be) a state/act of plundering/pillaging/ransacking/spoliation; to plunder/pillage/ransack/spoliate/despoil

**-DPR- 'KIDNAPPING / FALSE IMPRISONMENT / SLAVERY'**

<b>BSC</b>	<b>Stem 1:</b> (be) a state/act of kidnapping someone; to kidnap someone [both the act and the process undergone by the victim]	<b>Stem 2:</b> (be) a state/act of false imprisonment (i.e., restricting/preventing another's freedom of movement without legal grounds to do so); to falsely imprison another  <b>Stem 3:</b> (be) a state/act of slavery; to enslave someone
<b>CTE</b>	(be) a state of being a victim of kidnapping	
<b>CSV</b>	(be) a physical act of kidnapping; to commit an act of kidnapping	
<b>OBJ</b>	(be) a kidnap victim	

**-DPW- 'BLACKMAIL / EXTORTION / LARCENY'**

<b>BSC</b>	<b>Stem 1:</b> (be) state/act of blackmailing someone over something; to blackmail someone over something	<b>Stem 2:</b> (be) a state/act of extortion (i.e., obtaining a benefit through coercion of another)  <b>Stem 3:</b> (be) a state/act of larceny (i.e., non-consensual removal of another's property under threat of punishment or adverse consequences)
<b>CTE</b>	(be) what one is being blackmailed regarding	
<b>CSV</b>	(be) a physical act of blackmailing; to (commit) blackmail, do something that constitutes an act/state of blackmail	
<b>OBJ</b>	(be) the party being blackmailed	

**-DPY- 'QUID PRO QUO ARRANGEMENT / BRIBERY'**

<b>BSC</b>	<b>Stem 1:</b> (be) state/act of offering or being offered a <i>quid pro quo</i> arrangement; to offer or be offered a <i>quid pro quo</i> arrangement [CPT = to engage in a <i>quid pro quo</i> arrangement]	<b>Stem 2:</b> (be) a state/act of offering a <i>quid pro quo</i> arrangement; to offer a <i>quid pro quo</i> arrangement [CPT = act of bribery; to bribe]  <b>Stem 3:</b> (be) a state/act of accepting a <i>quid pro quo</i> arrangement; to accept a <i>quid pro quo</i> arrangement [CPT = act of accepting a bribe; to accept a bribe, to be bribed]
<b>CTE</b>	(be) a state of a <i>quid pro quo</i> arrangement having been offered	
<b>CSV</b>	(be) a physical act of offering a <i>quid pro quo</i> arrangement	
<b>OBJ</b>	(be) a party offering or being offered a <i>quid pro quo</i> arrangement, be one of the parties in a potential <i>quid pro quo</i> arrangement	

<b>-DPŘ-    ‘TRADE IN STOLEN GOODS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) state/act of trading in (i.e., offering/receiving) stolen goods; to trade in (i.e., engage in the transportation/receipt of) stolen goods [both the offering and accepting/receipt/possession thereof]	<b>Stem 2:</b> (be) a state/act of offering [for sale or use] stolen goods  <b>Stem 3:</b> (be) a state/act of possessing/receiving stolen goods; to possess/receive stolen goods
<b>CTE</b>	(be) a party engaged in the possession/offering/receipt of stolen goods	
<b>CSV</b>	(be) a physical act of trading in stolen goods; to engage in a trade of stolen goods	
<b>OBJ</b>	(be) a stolen item	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RDPŘ-    ‘SMUGGLING’</b>	
<b>Stem 1:</b> (to be) an act of smuggling, to smuggle (i.e., the transportation and offering/receipt of contraband for sale or use); to deal in smuggled goods	
<b>Stem 2:</b> (to be) a state/act of offering (for sale or use) smuggled goods; to offer (for sale or use) smuggled goods	
<b>Stem 3:</b> (to be) a state/act of receiving/possessing smuggled good; to possess/receive stolen goods	

<b>-DPČ-    ‘FRAUD / BREACH OF CONTRACT / FORGERY / COUNTERFEITING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) state/act of fraud against another; to defraud another [i.e., engage in a deception in the realm of business, contracts, or formal agreements]	<b>Stem 2:</b> (be) a state/act of breach of contract; to breach the terms of a contract, to renege on a contract  <b>Stem 3:</b> (be) a state/act of counterfeiting or forgery; to forge, to counterfeit
<b>CTE</b>	(be) a fraudulent state, (be) the circumstance(s) or nature of the fraudulent act/state	
<b>CSV</b>	(be) a physical act of fraud; to engage in or commit an act of defrauding	
<b>OBJ</b>	(be) the defrauded party	

<b>-DPL-    ‘PLAGIARISM / INTELLECTUAL PROPERTY THEFT / COPYRIGHT INFRINGEMENT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) state/act of plagiarism; to plagiarize	<b>Stem 2:</b> (be) a state/act of intellectual property theft  <b>Stem 3:</b> (be) a state/act of copyright or trademark infringement
<b>CTE</b>	(be) the written/spoken content that has been plagiarized	
<b>CSV</b>	(be) a physical act of plagiarizing; to engage in an act of plagiarism	
<b>OBJ</b>	(be) the victim of an act of plagiarism	

<b>-PJ- ‘JUSTIFICATION / VINDICATION / EXHONDERATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) state/act of justification; to justify (i.e., to present an evidential/intellectual basis explaining the reason/necessity behind one’s actions)	<b>Stem 2:</b> (be) a state/act of vindication (i.e., being proved correct/right after the fact)  <b>Stem 3:</b> (be) a state/act of exoneration/acquittal
<b>CTE</b>	(be) a state of being justified (in one’s actions/state/behavior)	
<b>CSV</b>	(be) a physical act of justification; do/say something that justifies one’s actions/state/behavior	
<b>OBJ</b>	(be) the state/act/situation/behavior one is justifying	

<b>-ŘJ- ‘PRIVACY VIOLATION / STALKING / ASSAULT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) a state/act of violating the privacy of another	<b>Stem 2:</b> (be) a state/act of stalking; to stalk  <b>Stem 3:</b> (be) a state/act of assault (i.e., to make non-consensual physical contact with another)
<b>CTE</b>	(be) a state of having one’s privacy violated	
<b>CSV</b>	(be) a physical act of violating someone’s privacy; to do something that constitutes a violation of another’s privacy	
<b>OBJ</b>	(be) the party whose privacy is violated	

NOTE: This root lends itself to use with the EMO affix.

<b>-ḐN- ‘LYING / DUPLICITY / DISHONESTY / PERJURY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of lying; tell a lie; state a falsehood	<b>Stem 2:</b> (be) state/act of dishonesty/disingenuousness  <b>Stem 3:</b> (be) perjury
<b>CTE</b>	(be) the state of being lied to; the state of there being a lie having been told	
<b>CSV</b>	(be) the actual speaking/writing/communicating of words which constitutes a lie	
<b>OBJ</b>	(be) that which is the reason for (i.e., the pre-existing state giving rise to the need for) telling a lie	

NOTE: This root lends itself to use with the EMO affix.

<b>-ČL-    ‘BETRAYAL / DEVIOUSNESS / UNDERHANDEDNESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of breaking/betraying one’s oath/promise/trust in/to someone/something; to break/betray one’s oath/promise/trust in/to someone/something	<b>Stem 2:</b> (be) an act/instance of deviousness/underhandedness; to do something devious or underhanded (i.e., act secretly without others knowing or in a manner which will be perceived to be innocent when in fact it is not)
<b>CTE</b>	(be) the state of having been betrayed	
<b>CSV</b>	(be) the act/words/deed which constitutes a betrayal of one’s promise/oath/trust	
<b>OBJ</b>	(be) the promise/oath or terms/understanding/bond which is betrayed/broken	<b>Stem 3:</b> (be) an act/instance of going behind one’s back; an act of deception based on playing on one’s trust; to go behind one’s back, to deceive another by playing on their trust in you

NOTE: This root lends itself to use with the EMO affix.

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-RČL-    ‘TREACHERY / PERFIDY / INFIDELITY / TREASON’</b>	
<b>Stem 1:</b> (be) an act of treachery, perfidy <b>Stem 2:</b> (be) an act/instance of infidelity <b>Stem 3:</b> (be) an act of treason	

<b>-RŽ-    ‘REVENGE / VENGEANCE / VINDICTIVENESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) state/act of revenge/vengeance; to avenge, take/get revenge	<b>Stem 2:</b> (be) a state/act of retaliation
<b>CTE</b>	(be) a state of desire for revenge	
<b>CSV</b>	(be) a physical act of taking one’s revenge; to do something that takes revenge on someone for something, perpetrate an act of vengeance	
<b>OBJ</b>	(be) what one is avenging, what one is taking revenge for	<b>Stem 3:</b> (be) a state/act of vindictiveness (i.e., a desire for revenge)

NOTE: This root lends itself to use with the EMO affix.



<b>-ÇÇT- ‘CONTEMPLATION OF MORTALITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an instance of contemplating one’s mortality; realize/contemplate that one is going to die someday and that there is nothing one can do about it	<b>Stem 2:</b> (be) an instance of contemplating whether one’s life has any ultimate or lasting meaning or purpose  <b>Stem 3:</b> (be) an instance of contemplating whether there is an afterlife
<b>CTE</b>	(be) the state of contemplation about one’s mortality	
<b>CSV</b>	(be) a specific thought associated with contemplating one’s mortality	
<b>OBJ</b>	(be) the state of being dead / no longer being alive (as the focus of one’s contemplation) [does not mean ‘death’ as in the actual act/process of dying, i.e., transitioning from life into death’]	

NOTE: This root lends itself to use with the EMO affix.

<b>-SL- ‘FAUX PAS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an instance of committing a social faux pas	<b>Stem 2:</b> (be) an instance of being aware that one has committed a social faux pas  <b>Stem 3:</b> (be) an instance of not presuming to speak or act upon one’s own opinion/viewpoint due one’s awareness of the potential for committing a social faux pas
<b>CTE</b>	(be) the state one finds oneself in socially (i.e., as perceived/judged by others) once one commits a social faux pas	
<b>CSV</b>	(be) the actual act/word(s) constituting a social faux pas	
<b>OBJ</b>	(be) the object/party/entity which constitutes the focal point of a faux pas*	

NOTE: This root lends itself to use with the EMO affix.

\* Translating the OBJECTIVE specification for this stem depends upon the nature of the faux pas, specifically as to whether it signifies the person committing the faux pas or whether the ‘impropriety’ is due to a third-party object/person/entity. For example, if the faux pas consists of something inappropriate being said, the OBJ would refer to the person saying the words (since the words themselves would be indicated by the CSV Specification), whereas if the faux pas consists of using the wrong fork or wearing an inappropriate tie, then it would be the fork or the tie marked by OBJ. This should be distinguished from the CSV Specification, which in these examples would not signify the fork or the tie themselves, but rather the incorrect use of the fork or the inappropriateness of wearing the tie.

<b>-ŽŘ- ‘TEASE / RIDICULE / SNICKERING / SNIGGERING / SCOFFING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of teasing; to tease (i.e., make light-hearted embarrassment of someone for the sake of humor/fun or mild come-uppance)	<b>Stem 2:</b> (be) an act/instance of ridicule, making fun of; to ridicule, make fun of  <b>Stem 3:</b> (be) a state/act of snickering/sniggering/scoffing at; to snigger/snicker/scoff at
<b>CTE</b>	(be) the state of being teased	
<b>CSV</b>	(be) the actual act/word(s) constituting an act of teasing; to do/say something that teases another	
<b>OBJ</b>	(be) what one is teased about	

NOTE: This root lends itself to use with the EMO affix.

**NOTE:** the meaning of the old FORMAL and FORMAL stems previously associated with this root have been distributed between this and the following new root:

**-ŘŽŘ- ‘DERISION / MOCKERY / PARODY / SATIRE / LAMPOONING’**

**Stem 1:** a state/act of derision/mockery; to deride, be derisive of, to mock

**Stem 2:** a state/act of parody or caricature; to parody, to make a caricature of

**Stem 3:** a state/act of satire/lamprooning; to satirize, lampoon

**-ṬṢ- ‘INTROSPECTIVE CONTEMPLATION / ETHICAL WELL-BEING AND GROWTH**

<b>BSC</b>	<b>Stem 1:</b> (be) a state of deep personal introspection, contemplation, deliberation or meditation resulting in important personal decisions/conclusions being made	<b>Stem 2:</b> (be) a state/act of ethical maturation/growth (i.e., becoming more ethically enlightened based on the acquiring of wisdom and empathy)  <b>Stem 3:</b> (be) a state/act of discovering that achieving a long-awaited vengeance/vindication is hollow/meaningless due to personal ethical maturation or present irrelevance of the original circumstances
<b>CTE</b>	(be) meditative, contemplative state of deep introspection	
<b>CSV</b>	(be) a state/act of contemplation/introspection/deep personal reflection; to undergo such a state/act	
<b>OBJ</b>	(be) what one contemplates, introspects upon, or deliberates	

NOTE: This root lends itself to use with the EMO affix.

**-JD- ‘PREDICAMENT / QUANDARY / CRISIS / DILEMMA’**

<b>BSC</b>	<b>Stem 1:</b> (be) a state/act of having/facing/being in a predicament/quandary; be in or have/face a predicament/quandary, be in a “spot/jam/fix/pickle” (i.e., being involved in or having to deal with an unexpected negative situation)	<b>Stem 2:</b> (be) a state/act of having/facing/being in a crisis  <b>Stem 3:</b> (be) a state/act of having/facing/being in a dilemma
<b>CTE</b>	(be) a state of being unable to know what to do or how to escape a predicament	
<b>CSV</b>	(be) a state/act of doing something that creates/causes a predicament; to do something to cause/create a predicament	
<b>OBJ</b>	(be) the predicament itself, i.e., the (set of) circumstance(s)/situation which constitutes an unexpected and undesirable situation	

NOTE: This root lends itself to use with the EMO affix.

**-LY- ‘WITNESSING’**

<b>BSC</b>	<b>Stem 1:</b> (be) a state/act of being a witness to something; to witness something (visually and/or aurally)	<b>Stem 2:</b> (be) a state/act of witnessing something one wishes they hadn’t; to witness something negatively consequential, witness something one wishes they hadn’t witnessed  <b>Stem 3:</b> (be) a state/act of witnessing something inappropriate or taboo; to witness something one shouldn’t or isn’t supposed to witness
<b>CTE</b>	(be) a state of having witnessed something	
<b>CSV</b>	(be) a state/act of doing something that causes one to witness something	
<b>OBJ</b>	(be) what one witnesses or has witnessed	

NOTE: This root lends itself to use with the EMO affix.

**-LPH- ‘CONTEMPLATION OF THE WORLD’S COMPLEXITY OR ABSURDITY’**

<b>BSC</b>	<b>Stem 1:</b> (be) a state/act of contemplating/realizing just how little of the world and all its available experiences and people you will ever get to experience or meet	<b>Stem 2:</b> (be) a state/act of suddenly realizing that absolute strangers/passersby are living lives as full and complex as yours are have opinions, beliefs, values, feelings as strong as yours  <b>Stem 3:</b> (be) a state/act of contemplating the ubiquity of the small everyday absurdities of life, especially those that are human-made (e.g., overkill technology, useless social customs, ridiculous fashions, etc.)
<b>CTE</b>	(be) the state of unimaginable complexity itself that constitutes the nature of the world and its inhabitants	
<b>CSV</b>	(be) a state/act of contemplating such; to contemplate such	
<b>OBJ</b>	(be) the realizations/sense of understanding one comes to in contemplating such	

NOTE: This root lends itself to use with the EMO affix.

**-ČŘ- ‘HINDSIGHT’**

<b>BSC</b>	<b>Stem 1:</b> (be) a state/act of having hindsight about something; to have hindsight about something (i.e., to have a perspective/viewpoint on something via contemplation about it after the fact)	<b>Stem 2:</b> (be) a state/act of discovering in hindsight that one’s risk-avoidance or over-cautiousness was needless and has only succeeded in creating a lost opportunity; to discover such in hindsight  <b>Stem 3:</b> (be) a state/act of discovering in hindsight that a well-intentioned act has backfired due to having unintended/unforeseen consequences more harmful than if nothing had been done at all; to discover such in hindsight
<b>CTE</b>	(be) a state of hindsight	
<b>CSV</b>	(be) a state/act of contemplating something in hindsight; to contemplate/ponder/consider something in hindsight	
<b>OBJ</b>	(be) what one has (or engages in) hindsight about	

NOTE: This root lends itself to use with the EMO affix.

The following root follows the same Specification pattern as the root **-ČŘ-** above:

**-ŘL-    ‘MISTAKE DISCOVERED THROUGH HINDSIGHT’**

**Stem 1:** (to be) a state/act of changing one’s mind after the consequences of one’s previous choice/opinion/belief have already occurred

**Stem 2:** (to be) a state/act of discovering one has misread/misinterpreted/misjudged someone/something after having already acted on one’s initial interpretation/judgement

**Stem 3:** (to be) a state/act of finally understanding a previously confusing/complex situation but only after it’s too late

NOTE: This root lends itself to use with the EMO affix.

**-SKY-    [meaning explained below]**

(to experience/feel/live by) a striving for (and, if achieved, the serenity resulting from) a delicate but sustained balance of the following personal states/ideals:

- a calm appreciation for, and acceptance of, those aspects of one’s life/existence that cannot be controlled/avoided (e.g., death, pain, loss, misfortune, etc.), due to understanding that such things are necessary to have a true appreciation for the value of life’s joys;
- being able to identify/recognize opportunities to improve one’s chances for happiness/achievement/self-esteem and having the willingness and determination to pursue such opportunities as long as doing so causes no harm to others or to Nature;
- a deep appreciation and sense of wonder at the beauty and majesty of Nature;
- a deep appreciation and sense of pride in those achievements of humankind that have brought happiness, prosperity and well-being to people’s lives, while at the same time having a keen ability to distinguish the difference between those achievements which have truly benefited humankind versus those seeming achievements which are ultimately divisive, alienating, anxiety-causing or destructive in the long-term;
- a sense of personal reward, pride, and personal sanction (i.e., a feeling that one’s existence is justified) when experiencing joy in one’s life;
- joy from, and humble appreciation for, the giving and receiving of love to/from others;
- humbleness in understanding that one’s own joy and sense of personal sanction/reward for achieving one’s goals/desires is a private, personal matter not to be used arrogantly as a weapon against the self-esteem of other people.

<b>BSC</b>	<b>STEM 1:</b> (to be) the outlook-on-life as described above, including the mental/emotional experience thereof as well as its associated beliefs/thoughts/tenets	<b>STEM 2:</b> (to be) the outlook-on-life described above as the basis for one’s public face, i.e., personal relationships, business dealings, negotiating principles, politics, public expression, etc.  <b>STEM 3:</b> (to be) the outlook-on-life described above as an aesthetic principle or basis for artistic self-expression
<b>CTE</b>	(to be) the mental/emotional experience associated with the “life-stance” described above	
<b>CSV</b>	(to be) a belief/tenet associated with the outlook-on-life described above	
<b>OBJ</b>	(to be) a tangible praxis/behavior/activity/act associated with the outlook-on-life as described above	

<b>-NKR- ‘ONE’S SURROUNDINGS/ENVIRONMENT/SPACE/LOCALE/HOME / “THE WORLD” ’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) one’s surroundings/environment/space/locale/home (i.e., one’s current quasi-permanent location as it relates to the interaction between oneself and one’s environment)	<b>Stem 2:</b> (to be) one’s personal situation/circumstances as it/they relate to, or are determined by, one’s location/locale/surroundings/environment/locale/home  <b>Stem 3:</b> (to be) “the World” (i.e., one’s sense of their being an external reality/universe in which one lives and with which one interacts); to have/experience a sense of one’s place in the World, one’s niche, how/where one “fits in” to the grand scheme of things
<b>CTE</b>	(to be) the state one is in due to one’s environment/surroundings	
<b>CSV</b>	(to be) a physical interaction with one’s environment/surroundings; to interact with one’s environment/surroundings/home/locale	
<b>OBJ</b>	(to be) an object/entity directly associated with one’s surroundings/environment/space/locale/home	

<b>-LTM- ‘SOCIAL INTERACTION / SOCIETAL NORM / SOCIAL RESPONSIBILITY/ MEMBER OF SOCIETY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act/process of social interaction; to socially interact (i.e., for a member of a social group or society to interact/deal with/engage with another member or other members of the group or society)	<b>Stem 2:</b> (to be) a state/act/process of having/meeting one’s social responsibilities; to have/meet one’s social responsibilities (e.g., to abide by the law, behave well toward one’s neighbors, adhere to social norms and societal expectations, etc.)  <b>Stem 3:</b> (to be) a member of a social group or society; to do one’s part or participate (as expected/appropriate) in one’s social group or society
<b>CTE</b>	(to be) the sense of community and reciprocal responsibilities one feels and upholds and adheres to (or is expected to do so) as a member of a social group or society	
<b>CSV</b>	(to be) a physical act of interacting/dealing /engaging with another member or other members of a social group or one’s society	
<b>OBJ</b>	(to be) a societal norm, a societal custom (i.e., an expected behavior/act or adherence to a rule/law/custom which demonstrates one’s place and role in a social group or society)	

<b>-ÇTL- ‘TRADITION / CUSTOM / RITUAL / CEREMONY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of there being something (considered) time-honored or traditional; to adhere to or engage in some traditional or time-honored practice	<b>Stem 2:</b> (to be) a state of there being something (considered) customary; to adhere to or engage in a custom(ary practice)  <b>Stem 3:</b> (to be) a state of there being a ritual/ceremony; to practice or engage in a ritual/ceremony
<b>CTE</b>	(to be) a state/feeling of or belief in tradition	
<b>CSV</b>	(to be) an act of engaging in a traditional practice; to do something traditional, do something out of tradition	
<b>OBJ</b>	(to be) an object/entity utilized as part of a traditional practice	

<b>-TKL- ‘SETTING / PLACE / SITE / VENUE’ *</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being/functioning as the setting for something that exists or takes place	<b>Stem 2:</b> (to be) an assigned/allocated space/setting/area/room, etc. for something to be situated or to take place, the assigned/allocated site of/for something; to assign/allocate a space/setting/area/room, etc. for something
<b>CTE</b>	(to be) a physical setting, a physical place * (i.e., the physical 3-dimensional space involved along with any infrastructure/ building structure/boundary walls, and demarcated space/seating for persons/observers/participants, etc.)	
<b>CSV</b>	(to be) a state/act of something existing or taking place/occurring at a particular physical place or in a particular physical setting; to exist or occur at a particular physical place or physical setting	<b>Stem 3:</b> (to be) a venue/theater/hall/arena/stadium/gathering place for an assembly or public event or private/public entertainment or exhibition
<b>OBJ</b>	(to be) what takes place at, exists at, or distinguishes a particular place/setting from anywhere else	

\* This root does not refer to the geographical location or spatial position of something relative to a system of spatial coordinates, but rather refers to the setting in and of itself where something exists or takes place (as distinguished from anywhere else).

<b>-VTW- ‘RESTRICTED ACCESS / AUTHORIZED ENTRY / FARE / TICKET’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act/process of restricting/controlling access/entry/admission to an area/event/assembly/school, etc.; to restrict/control access/entry/admission to something	<b>Stem 2:</b> (to be) a state/act/process of charging an admission fare for an entry ticket to a venue/event
<b>CTE</b>	(to be) a state of there being restrictions/controls in allowing access/entry/admission to something	
<b>CSV</b>	(to be) a physical act of restricting/control access/entry/admission to something; to restrict/control; to carry out access-control procedures at an entry gate, border crossing, venue entrance, admissions counter, etc.	<b>Stem 3:</b> (to be) a state/act/process of charging a fare or fee for the use of some public/commercial utility or service (e.g., transportation fare, bridge toll, poll tax, customs duty, trash disposal, water delivery, etc.)
<b>OBJ</b>	(to be) a document or other tangible (and potentially verifiable) indicator/credentials that one has met the qualifications for entry/admission to a restricted-access area/event/assembly/school, etc.	

<b>-LTY- ‘VISUAL DESIGN / VISUAL MODEL’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) an act/instance of drawing or painting or producing (e.g., via electronic means or photography) a 2-dimensional visual image or visual representation of something	<b>Stem 2:</b> (be) an act/instance of manually-manipulated creating a visual design (via manually-manipulated means)
<b>CTE</b>	(be) what is depicted in a drawing or painting or 2-D image/representation	
<b>CSV</b>	(be) the physical act of creating a drawing or painting or 2-dimensional visual image or representation; to draw, to paint, to produce a 2-dimensional visual representation	<b>Stem 3:</b> (be) an instance of crafting a 3-dimensional visual representation/model of something
<b>OBJ</b>	(be) the medium utilized to create a drawing or painting or 2-D image/representation	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-LY- ‘VISUAL ARTWORK / ARTISTIC DESIGN / WORK OF SCULPTURE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act/instance of creating a work of visual art (e.g., a painting, a watercolor, a fine drawing, an etching, etc.)	<b>STEM 2:</b> (to be) an act/instance of creating an visual design/image/picture/pattern for aesthetic purposes (e.g., a textile design, a wallpaper pattern, a design for a font, a visual representation of something, etc.)
<b>CTE</b>	(be) what is depicted in a work of visual art	
<b>CSV</b>	(be) the physical act of creating a work of visual art	
<b>OBJ</b>	(be) the medium utilized to create a work of visual art	<b>STEM 3:</b> (to be) an act/instance of creating a work of sculpture

<b>-ZD- ‘FORESIGHT / PREDICTION / PROGNOSTICATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of foresight; to foresee	<b>Stem 2:</b> (to be) a state/act of prediction; to predict  <b>Stem 3:</b> (to be) a state/act of forecasting/prognostication; to forecast/prognosticate
<b>CTE</b>	(to be) a state of (having) foresight	
<b>CSV</b>	(to be) an act of foresight; to do something that manifests foresight or one’s ability to foresee	
<b>OBJ</b>	(to be) what one foresees	

<b>-LÇP- ‘BOREDOM / TEDIUM / INSIPIDITY’</b>		
<b>BSC</b>	Stem 1: (be) something boring (based on inactivity) which causes one to feel languor or torpidity; to be bored by something boring	Stem 2: (be) something tedious (based on mindless repetition or drudgery) causing one’s mind to wander or be inattentive  Stem 3: (be) something insipid, dull, jejune, or uninteresting, which fails to inspire any positive emotional reaction or interest
<b>CTE</b>	(be) a state of experiencing boredom; be bored	
<b>CSV</b>	(be) physical/tangible aspects/characteristics of a party/entity/object/event/situation that is boring	
<b>OBJ</b>	(be) what is boring, i.e., the party/entity/object/event/situation that is the source of the boredom	

This root is also used as the **INSIPID (ISP) Bias Affix:** — *‘Meh... (said due to lack of interest)’ ‘How boring/tedious/dull!’*

#### 4.4 COMPLEMENTARY INTERPERSONAL RELATIONSHIPS/INTERACTIONS

This section deals with roots/stem indicating complementary two-party interpersonal interaction, where a “primary” or “alpha” party is, does, performs, offers, or initiates some state, act, service, etc. which is directed toward, received, dealt with, undergone, submitted to, reacted to, or acted upon by a “secondary” or “beta” party (whether or not intentionally or consensually), the overall nature of the interaction being complementary in nature (i.e., the state/act/service does not take place or get accomplished without the presence/participation/submission/receipt, etc. of the secondary party).

<b>-LÇL-    ‘COMPLEMENTARY INTERPERSONAL RELATIONSHIP OR INTERACTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) a complementary interpersonal relationship or interaction (i.e., where one party is, does, performs, offers, or initiates some state, act, service, etc. which is directed toward, received, dealt with, undergone, submitted to, acted upon, or reacted to, by a “secondary” or “beta” party)	<b>Stem 2:</b> (be) the state/act/situation initiated, performed, offered, or undergone by the “alpha” or “primary” party of a complementary interpersonal relationship or interaction  <b>Stem 3:</b> (be) the state/act/situation received, submitted to, dealt with, or undergone by the “beta” or “secondary” party of a complementary interpersonal relationship or interaction
<b>CTE</b>	(be) a state of a complementary interpersonal relationship or interaction taking place or having taken place	
<b>CSV</b>	(be) the physical act of engaging in the specifics of a complementary interpersonal relationship or interaction	
<b>OBJ</b>	(be) a party engaged in a complementary interpersonal relationship or interaction	

Roots delineating the various sorts of such complementary interpersonal relationships or interactions are listed below. The Stem & Specification structure/pattern of each root is modeled after the above root **-LÇL-**. As an example, the root for the ‘PREDATION ~ PREY’ complementary interaction is given below:

<b>-NTN-    ‘PREDATION ↔ PREY’</b>			
	<b>Stem 1</b>	<b>Stem 2</b>	<b>Stem 3</b>
<b>BSC</b>	(to be) a state/act of [attempted] predation upon a prey and the prey’s attempt to flee or defend itself	(to be) a state/act of stalking a prey; to stalk prey, to prey upon another [CPT = to attack a prey]	(to be) a state/act of being stalked or preyed upon; to be stalked or preyed upon; [CPT = to fall victim as prey to a predator]
<b>CTE</b>	(to be) a state of a predation (i.e., the “nature” of the predator/prey relationship)	(to be) a state of being a predator	(to be) a state of being prey
<b>CSV</b>	(to be) the physical act of predation by a predator and defensive act of its (potential) prey	(to be) the physical act of stalking/attacking prey; to engage in preying upon another	(to be) the physical act of fleeing or defending oneself from a predator
<b>OBJ</b>	(to be) a party to a predator~prey relationship	(to be) a predator	(to be) a predator’s prey



- DDW- 'BEING A SAGE/GURU ↔ BEING A DISCIPLE'
- DDY- 'TEACHING ↔ BEING A STUDENT/PUPIL'
- JBV- 'LENDING ↔ BORROWING'
- JBR- 'OFFERING OR GRANTING OF CREDIT ↔ BEING IN & PAYING OFF DEBT'
- SXW- 'COMMISSION/PERPETRATION OF A CRIME ↔ BEING CRIMINALLY VICTIMIZED'
- TNW- 'PROCESS OF JAILING/INCARCERATION ↔ BEING IMPRISONED/INCARCERATED'
- TNY- 'ENSLAVEMENT ↔ BEING ENSLAVED'
- BST- 'BEING A PRIEST/MINISTER/IMAM/RABBI, ETC. ↔ BEING A RELIGIOUS FOLLOWER/ACOLYTE/RELIGIOUS DISCIPLE'
- VSW- 'PERFORMING ARTS PERFORMANCE ↔ ATTENDING AN ARTISTIC PERFORMANCE'
- VSY- 'VISUAL ARTS EXHIBITION ↔ ATTENDING/VIEWING A VISUAL ARTS EXHIBITION'
- VSM- 'AUTHORSHIP OF A WRITTEN WORK ↔ BEING A READER THEREOF'
- VSN- 'COMPOSORSHIP OF A MUSICAL COMPOSITION ↔ BEING A LISTENER THEREOF'
- NSF- 'BEING A PUBLIC CELEBRITY ↔ BEING A FAN'
- RDM- 'BEING A PHYSICIAN/MEDICAL DOCTOR/HEALER/MEDICINEMAN/MEDICINWOMAN ↔ BEING A MEDICAL PATIENT'
- SCW- 'CONDUCTING AN INTERVIEW ↔ BEING INTERVIEWED'
- SCW- 'CONDUCTING AN INTERROGATION ↔ BEING INTERROGATED'
- ZJ- 'INTIMIDATION ↔ BEING INTIMIDATED/DAUNTED'
- ZXM- 'MAKING A THREAT/THREATENING ↔ BEING THREATENED'
- ZXW- 'HARRASSMENT (NON-SEXUAL) ↔ BEING HARRASSED'
- ZXL- 'MENACE ↔ FACING A MENACE'
- ZXR- 'BULLYING ↔ BEING BULLIED'
- NTR- 'NAGGING/BROWBEATING ↔ BEING NAGGED/BROWBEATEN'
- KSY- 'CLAIRVOYANCE/BEING PSYCHIC ↔ SEEKING/RECEIVING THE SERVICES THEREOF'
- RXN- 'BEING A MAGE/WIZARD/WITCH ↔ SEEKING/RECEIVING THE SERVICES THEREOF'
- LXM- 'BEING A SUPERVISOR/BOSS ↔ BEING AN UNDERLING'
- LXN- 'BEING AN EMPLOYER ↔ BEING AN EMPLOYEE'
- DDY- 'BEING A COMMISSIONING PATRON ↔ BEING A COMMISSIONED ARTIST OR ARTISAN'
- LT- 'BEING AUTARCH/AUTOCRAT/RULER ↔ BEING A SUBJECT'
- BSK- 'BEING AN ORATOR ↔ BEING AN AUDIENCE MEMBER'
- FKR- 'BEING AN IDOL ↔ BEING A SYCOPHANT'
- NTM- 'BEING A MASTER ↔ BEING A SERVANT'

- MPL**- ‘ADVICE/COUNSEL ↔ SEEKING/RECEIVING ADVICE/COUNSEL’  
 -**ŠTH**- ‘BEING A LAWYER/ATTORNEY/LEGAL ADVOCATE ↔ SEEKING/RECEIVING THE SERVICES THEREOF’  
 -**BŠP**- ‘BEING A GOVERNMENT OFFICIAL/AUTHORITY ↔ BEING A PETITIONER/APPLICANT/SUPPLICANT’  
 -**ČXL**- ‘OWNING A PET ↔ BEING A PET’  
 -**PPR**- ‘CRITICISM ↔ RECEIVING CRITICISM’  
 -**STM**- ‘PSYCHOLOGICAL/RHETORICAL MANIPULATION ↔ BEING PSYCHOLOGICALLY/RHETORICALLY MANIPULATED’  
 -**ŁKR**- ‘CONSIDERATION OF FORGIVENESS ↔ SEEKING FORGIVENESS/PENANCE’

#### 4.5 SENSORY PHENOMENA

- <b>ŠK</b> - ‘EXTERNAL SENSATION / EXTERNAL SENSORY PERCEPTION’ * Associated affix: <b>SNX</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be/manifest) a sense/sensation [act of sensing + sensation itself]; an act of sensing something — [both the sensation and the sensing thereof]	<b>Stem 2:</b> (to be) a sensory organ  <b>Stem 3:</b> (to be a) a sensory faculty; a bodily sense
<b>CTE</b>	(to be) a sensation, feeling, sensory input	
<b>CSV</b>	(to be) an act of sensing; to sense; to engage one’s sense(s); perceive via one’s sense(s)	
<b>OBJ</b>	(to be) the entity/event/object one applies/aims one’s senses at or which is the stimulus for one’s sensory state	

\* Does not include proprioceptive, interoceptive, or vestibular senses

**NOTE:** the meaning of the old FORMAL stems previously associated with this root can be expressed by the following: for Stems 1 and 3, use appropriate Transrelative case marking for the arguments/participants; for Stem 2, utilize the MEC affix.

- <b>ŇJ</b> - ‘AWARENESS’		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act of noticing something; to notice; take note of	<b>STEM 2:</b> (to be) an act of being aware of something; the awareness of something  <b>STEM 3:</b> (to be) an act of keeping/bearing something in mind; to have in the back of one’s mind
<b>CTE</b>	(to be) the ability/capacity to notice something	
<b>CSV</b>	(to be) the physical/mental process of (an act of) noticing something	
<b>OBJ</b>	(to be) what one notices	

This root is also used as the **ATTENTIVE (ATE) Bias Affix**: ‘Well, whaddya know...’ ‘Well, will you look at that...!’ ‘Well, go figure...’ ‘Who would’ve thought...?’ ‘Well I’ll be!’

<b>-MGR- ‘INTEROCEPTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an interoceptive sensation and the sensing thereof [act of sensing + sensation itself]; an act of interoceptively sensing something — [both the sensation and the sensing thereof]	<b>Stem 2:</b> (to be) one of the body’s potentially interoceptive organs/structures/tissues
<b>CTE</b>	(to be) an interoceptive sensation, interoceptive feeling	
<b>CSV</b>	(to be) an act of interoception; to sense interoceptively; to perceive via one’s interoceptive sense(s)	<b>Stem 3:</b> (to be) the interoceptive faculty; the sense of interoception
<b>OBJ</b>	(to be) the organ/bodily system/process which gives rise to an interoceptive sensation	

**NOTE:** the meaning of the old FORMAL stems previously associated with this root can be expressed by the following: for Stems 1 and 3, use appropriate Transrelative case marking for the arguments/participants; for Stem 2, utilize the MEC affix.

<b>-LVŘ- ‘PROPRIOCEPTION / KINAESTHESIA’</b> i.e., physical sense of bodily movement, position, and coordination		
<b>BSC</b>	<b>Stem 1:</b> (to be) an proprioceptive sensation and the sensing thereof [act of sensing + sensation itself]; an act of proprioceptively sensing something — [both the sensation and the sensing thereof]	<b>Stem 2:</b> (to be) one of the body’s proprioceptive organs/structures/tissues, i.e., muscle, joint, tendon. <b>Stem 3:</b> (to be) the proprioceptive/kinaesthetic faculty; the sense of proprioception/kinaesthesia
<b>CTE</b>	(to be) an proprioceptive sensation, proprioceptive feeling, feeling of bodily motor coordination	
<b>CSV</b>	(to be) an act of proprioception; to sense proprioceptively; to perceive via one’s proprioceptive sense(s)	
<b>OBJ</b>	(to be) an organ/bodily system/process which gives rise to an proprioceptive sensation, i.e., muscle, joint, tendon.	

**NOTE:** the meaning of the old FORMAL stems previously associated with this root can be expressed by the following: for Stems 1 and 3, use appropriate Transrelative case marking for the arguments/participants; for Stem 2, utilize the MEC affix.

<b>-NDR- ‘VESTIBULAR SENSATION’</b> i.e., physical sense of bodily balance and spatial orientation		
<b>BSC</b>	<b>Stem 1:</b> (to be) a vestibular sensation and the sensing thereof [act of sensing + sensation itself]; an act of sensing one’s balance and spatial orientation — [both the sensation and the sensing thereof]	<b>Stem 2:</b> (to be) one of the body’s vestibular organs/structures/tissues
<b>CTE</b>	(to be) one’s feeling of physical balance and spatial orientation	
<b>CSV</b>	(to be) an act of vestibular sensation; to perceive one’s feeling of balance and spatial orientation	<b>Stem 3:</b> (to be) the vestibular faculty; the sense of balance and spatial orientation
<b>OBJ</b>	(to be) an organ/bodily system/process which gives rise to a vestibular sensation, i.e., inner ear organelle(s).	

**NOTE:** the meaning of the old FORMAL stems previously associated with this root can be expressed by the following: for Stems 1 and 3, use appropriate Transrelative case marking for the arguments/participants; for Stem 2, utilize the MEC affix.

#### 4.5.1 Auditory/Aural Sense

<b>-C- ‘HEAR(ING) / SOUND’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a sound and the hearing thereof [act of hearing + sound heard]; an act of hearing something — [both the sound and the hearing thereof]	<b>Stem 2:</b> (to be) an inner ear (i.e., the organ(s)/tissue(s) responsible for generating aural signals to the brain)  <b>Stem 3:</b> (to be) one’s aural faculty; one’s sense of hearing
<b>CTE</b>	(to be) a sound; something heard	
<b>CSV</b>	(to be) an act of hearing; to hear; to use one’s aural faculty	
<b>OBJ</b>	(to be) the entity/event/object whose sound(s) one hears	

**NOTE:** the meaning of the old FORMAL stems previously associated with this root can be expressed by the following: for Stems 1 and 3, use appropriate Transrelative case marking for the arguments/participants; for Stem 2, utilize the MEC affix.

##### 4.5.1.1 Various Types of Sounds

**NOTE:** Particular attention should be paid to the use of Phase categories when using the following roots, as well as various qualitative affixes, e.g., the word for a “crackling” sound would be derived from stem referring to a more basic single sound such as “pop” or “snap”, “rattle” would be derived from “click” or “clack”, while “jingling/tinkling” would be derived from “clank” or “ping/ding/ring” (or perhaps the incorporation of one into the other).

<b>-BJ- ‘SOUND OF A BANG / BOOM / SUDDEN EXPLOSIVE SOUND’</b>		
	<b>STEM 1</b>	<b>STEM 2:</b> (be) a state/instance of hearing a boom (i.e., a low-pitched bang/explosive sound)  <b>STEM 3:</b> (be) a state/instance of hearing an explosion (e.g., detonation of a bomb, an explosion of an engine or large powerful machine, etc.)
<b>BSC</b>	(be) a state/instance of hearing a banging sound; a sound of a bang(ing), / sharp explosive sound (e.g., automobile engine backfiring, gunshot, etc.), including the circumstance(s) creating the sound and the hearing thereof.	
<b>CTE</b>	(be) the sound of a bang	
<b>CSV</b>	(be) the act/state of hearing a bang(ing sound); to hear a banging sound	
<b>OBJ</b>	(be) the entity or circumstances creating a banging sound	

The following sixteen roots/stems for various types of sound have Specification patterns modeled after the above root **-BJ-**.

	<b>-GP- ‘SOUND OF A CLAP / SNAP / CRACK’</b>
<b>Stem 1</b>	clap / slap (e.g., sound of hand clap or a hand slap onto a flat surface)
<b>Stem 2</b>	snap(ping) (e.g., finger snap, bone breaking, twig being stepped on, sudden burst of sparks from a wood fire, etc.)
<b>Stem 3</b>	crack (e.g., large tree branch snapping, thunderclap, sudden cracking of a machine block, etc.)

	<b>-DP- ‘SOUND OF A KNOCK / THUMP / SMACK’</b>
<b>Stem 1</b>	sound of a knock (i.e., sound of a light impact between solid objects)
<b>Stem 2</b>	sound of a thump (i.e., sound of a light impact between semi-solid objects)
<b>Stem 3</b>	sound of a smack (i.e., sound of a forceful impact between semi-solid objects)

	<b>-ÇG- ‘SOUND OF A CRUNCH / SLAM / CRASH’</b>
<b>Stem 1</b>	sound of a crunch / scrunch / grinding sound (e.g., something being pulverized/crushed, hard cookie being eaten, junked automobile being mechanically crushed, etc.)
<b>Stem 2</b>	sound of a slam (i.e., sound of a forceful impact between solid objects)
<b>Stem 3</b>	sound of a crash

	<b>-ZŇ- ‘SOUND OF A CLINK / CLANK / CLACK’</b>
<b>Stem 1</b>	sound of a clink (e.g., sound of a wineglass being lightly struck or “light” metallic striking sound, etc. )
<b>Stem 2</b>	sound of a clank(ing) (e.g., something metallic striking a hard surface)
<b>Stem 3</b>	sound of a clack (i.e., a higher-pitched knock between solid objects, e.g., of passing train wheels on a track)

	<b>-ŽP- ‘SOUND OF A THUD / CLUNK / POP’</b>
<b>Stem 1</b>	sound of a thud
<b>Stem 2</b>	sound of a pop
<b>Stem 3</b>	sound of a clunk / kerplunk

	<b>-LT- ‘SOUND OF TICKING / CLICKING / TAPPING’</b>
<b>Stem 1</b>	sound of a tick(ing)
<b>Stem 2</b>	sound of a click(ing)
<b>Stem 3</b>	sound of a tap(ping)

	<b>-ÇŦ- ‘SOUND OF A HISS / WIND HOWLING / WHISTLE’</b>
<b>Stem 1</b>	sound of a hiss
<b>Stem 2</b>	sound of wind blowing/howling
<b>Stem 3</b>	sound of whistle (i.e., the sound of air under pressure/constriction, e.g., high wind, a teapot, a person whistling [the sound, not the melody])

	<b>-ŘŽ- ‘SOUND OF A LOW HUM / WHIR / RUMBLE’</b>
<b>Stem 1</b>	sound of a low hum / drone (e.g., an electrical or electronic device, a power line, etc.)
<b>Stem 2</b>	sound of a whirl(ring) (i.e., continuous sound of light machinery in operation, e.g., an electric fan, an electric blender, a dentist’s drill, etc.)
<b>Stem 3</b>	sound of a rumble (e.g., of an idling engine, of a distant thunderstorm, etc.)

	<b>-ŽD- ‘SOUND OF A ZAP / BUZZ / BEEP / PING’</b>
<b>Stem 1</b>	sound of a zap / buzz (i.e., a low-oscillating sound which becomes the word “buzz” under duration, e.g., a bee flying, a door buzzer, a “wrong answer” signal on a TV game show, etc.)
<b>Stem 2</b>	sound of a beep / bleep (i.e., a high-pitched buzz)
<b>Stem 3</b>	sound of a ping / ding

	<b>-ŘĹ- ‘SOUND OF CREAKING / SQUISHING / SQUELCHING / TEARING’</b>
<b>Stem 1</b>	sound of a creak (e.g., walls of old wooden house shifting, old floorboards being walked upon, etc.)
<b>Stem 2</b>	sound of squishing / squelching (i.e., a sound of something “liquidy” or gelatinous being squeezed or crushed)
<b>Stem 3</b>	sound of a tearing (e.g., of paper, cardboard, fabric, etc.)

	<b>-ŽB- ‘SOUND OF RINGING / CHIMING / CLANGING’</b>
<b>Stem 1</b>	sound of a ring (e.g., of a small bell)
<b>Stem 2</b>	sound of a chime(e.g., of a bell)
<b>Stem 3</b>	sound of a clang (e.g., of a large bell)

	<b>-LB- ‘SOUND OF FIZZING / GUGLING / BUBBLING / SPLASHING’</b>
<b>Stem 1</b>	sound of fizz(ing) (e.g., sound of a carbonated beverage or effervescent liquid)
<b>Stem 2</b>	sound of babbling / gurgling / boiling / bubbling sound
<b>Stem 3</b>	sound of a splash

	<b>-ŠL- ‘SOUND OF RUSHING / WHOOSHING / SWISHING’</b>
<b>Stem 1</b>	sound of rushing / swirling / whooshing (i.e., of a large volume of fast-moving water or air)
<b>Stem 2</b>	sound of swishing / swooshing (e.g., a broom sweeping, a scrub-brush being used, etc.)
<b>Stem 3</b>	sound of ocean wave crashing

	<b>-ČD- ‘SOUND OF CHIRPING / SQUEAKING / SQUEALING / TOOTING’</b>
<b>Stem 1</b>	sound of a cheep /chirp
<b>Stem 2</b>	sound of a squeak / squeal
<b>Stem 3</b>	sound of a toot / hoot (e.g., an old-style steam-based train whistle, an owl, etc.)

	<b>-MŇ- ‘SOUND OF A WHINE / SNARL / GROWL / ROAR / HOWL / SHRIEK’</b>
<b>Stem 1</b>	sound of a whine / screech / shriek (i.e., a general high-pitched annoying sound, e.g., of metal-on-metal friction, an animal in distress, fingernails on a chalkboard, etc.)
<b>Stem 2</b>	sound of a defensive animal (e.g., growl, snarl, hiss)
<b>Stem 3</b>	sound of an animal at maximum vocalization (i.e., due to hostility/pain/excitement/alarm, etc., e.g., roar, bark, bray, neigh/whinny, howl, scream, shriek, squawk, etc.)

<b>-PD- ‘SOUND OF A FOOTFALL / BODILY MOVEMENT / ORAL SOUND’</b>	
<b>Stem 1</b>	sound of footstep / footfall / footpad / patter of animal paw
<b>Stem 2</b>	sound of a body moving (e.g., a person, an animal)
<b>Stem 3</b>	a non-linguistic oral sound (e.g., clucking of tongue, smacking of lips, sound of swallowing/gulping, etc.)

#### 4.5.1.2 General Sound Parameters and Reaction To Sound

<b>-TKR- ‘AUDIBILITY / EMISSION OF SOUND / LOUDNESS’</b>		
	<b>STEM 1</b>	<b>STEM 2:</b> (be) a state/act/instance of emitting a sound; to emit a sound  <b>STEM 3:</b> (be) a state/instance of being loud [i.e., having a greater audible volume than desired/necessary]
<b>BSC</b>	(be) a state/instance of being audible; be able to hear a sound, [for a sound] to be audible	
<b>CTE</b>	(be) the audible volume/level of a sound, i.e., how loud/soft it is	
<b>CSV</b>	(be) an act/state of a sound being within the threshold of hearing	
<b>OBJ</b>	(be) an entity or circumstances creating an audible sound	

<b>-DVY- ‘SOUND PATTERN / RHYTHM’</b>		
	<b>STEM 1</b>	<b>STEM 2:</b> (be) a state/act/instance of emitting a patterned sound; to emit a sound containing an audible pattern  <b>STEM 3:</b> (be) a state/instance of a sound being rhythmic; [for a sound] to have a rhythm(ic pulse) or “beat”
<b>BSC</b>	(be) a state/instance of a sound having a discernible/audible pattern; to hear a pattern within a sound	
<b>CTE</b>	(be) the pattern heard within a sound	
<b>CSV</b>	(be) an act/state of hearing or listening to the pattern within a sound	
<b>OBJ</b>	(be) the entity or circumstances creating a patterned sound	



<b>-DVW- ‘ECHO / REVERBERATION’</b>		
	<b>STEM 1</b>	<b>STEM 2:</b> (be) a state/act/instance of emitting an echo; to emit an echo  <b>STEM 3:</b> (be) a state/instance of a sound reverberating; [for a sound] to have a reverberation
<b>BSC</b>	(be) a state/instance of a sound echoing; to (make an) echo [both the making of the echo and hearing it]	
<b>CTE</b>	(be) the pattern of sonic repetition constituting an echo	
<b>CSV</b>	(be) an act/state of hearing or listening to an echo	
<b>OBJ</b>	(be) the entity or circumstances creating an echo	

<b>-RČX- ‘ANNOYING/SHRILL/IRRITATING SOUND’</b>		
	<b>STEM 1</b>	<b>STEM 2:</b> (be) a state/act/instance of emitting an annoying/shrill sound; to emit an annoying/shrill sound  <b>STEM 3:</b> (be) the degree of desire/capacity to listen to a sound due to its unpleasant nature [use with EXN, SUF or similar affix]
<b>BSC</b>	(be) a state/instance of a sound being annoying/irritating/shrill; to hear/listen to an annoying/irritating/shrill sound [both the sound and the hearing/listening to it]	
<b>CTE</b>	(be) an annoying/irritating/shrill sound	
<b>CSV</b>	(be) an act/state of hearing or listening to an annoying/irritating/shrill sound	
<b>OBJ</b>	(be) the entity or circumstances creating an annoying/irritating/shrill sound	

The following roots have the same Stem & Specification pattern as the above root **-RČX-**:

- ČXW-** ‘RAUCOUS SOUND / NOISE’
- ŠFY-** ‘MUFFLED/UNCLEAR SOUND’
- MŽV-** ‘SONOROUS/RESONANT SOUND’
- LÇW-** ‘PLAINTIVE / WISTFUL SOUND’
- MSY-** ‘PLEASANT/MELLIFLUOUS SOUND’
- LCL-** ‘MELLOW/DULCET SOUND’
- RÇW-** ‘LILTING VOCAL SOUND’

## 4.5.1.3 Music

<b>-LK-      ‘MUSIC/ PLAY MUSIC / COMPOSE MUSIC’</b>			
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of music playing (whether recorded or live)	<b>Stem 2:</b> (to be) a state/act of playing/making music (i.e., on a musical instrument)	<b>Stem 3:</b> (to be) a state/act of composing a passage of music, a musical phrase, a melody, a tune; to compose a melody/tune/musical phrase or passage
<b>CTE</b>	(to be) the state of there being music to be heard (playing)	(to be) the state of music being made by the playing of a musical instrument	(to be) the state of there being a musical phrase/passage/tune or melody in one’s mind; to be a melody/tune/musical phrase or passage one hears in one’s mind when composing
<b>CSV</b>	(to be) a state/act of hearing/listening to music	(to be) an act of playing music on a musical instrument; to (be) play(ing) a musical instrument	(to be) a state/act of composing music; to compose (a passage/piece) of music
<b>OBJ</b>	(to be) the sound of music, the particular (piece of) music being heard	(to be) a particular musical instrument (used to play music)	(to be) the particular melody/tune/musical phrase or passage being composed or played from one’s mind

<b>-LLY-      ‘SING / SONG’</b>			
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of singing being produced and heard (whether recorded or live)	<b>Stem 2:</b> (to be) a state/act of singing a song; to sing a song [both the physical act thereof and the audible song produced]	<b>Stem 3:</b> (to be) a state/act of composing a passage of singing, a musical vocal phrase, a vocal melody/tune and its lyrics; to compose a vocal melody/tune and its lyrics
<b>CTE</b>	(to be) the state of there being singing to be heard	(to be) the state of singing	(to be) the state of there being a vocal musical phrase/passage/ melody in one’s mind and associated lyrics; to be a melody/tune/musical phrase and lyrics one hears in one’s mind when composing vocal music or song
<b>CSV</b>	(to be) a state/act of hearing/listening to singing	(to be) an act of using one’s voice to sing; to physically use one’s voice to sing	(to be) a state/act of composing vocal music or song; to compose (a passage/piece) of vocal music/song
<b>OBJ</b>	(to be) the sound of singing, the particular (piece of) musical vocalization being heard	(to be) the song one sings	(to be) the particular melody/tune/musical phrase/passage and lyrics being composed or played from one’s mind

#### 4.5.1.3.1 Musical Instruments

<b>-LHW- ‘MUSICAL INSTRUMENT / MUSICAL VOCALIZATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of playing a musical instrument (or object/device used to make musical sound or to accompany singing or music)	<b>Stem 2:</b> (to be) a state/act of sounding a musical instrument (i.e., making a sound/note on a musical instrument, but not necessarily playing something musical)  <b>Stem 3:</b> (to be) a state/act of using one’s voice or vocal apparatus to make/mimic a musical sound (i.e., not singing a song with words [see the root <b>-LLY-</b> ], but rather used in its capacity to make musical sound, as in humming, mimicking percussion sounds, used as a drone accompaniment, chanting, etc.); to make/mimic a musical sound using one’s vocal apparatus
<b>CTE</b>	(to be) a musical instrument itself	
<b>CSV</b>	(to be) an act/state of playing a musical instrument; to play (i.e., make musical sound from) a musical instrument	
<b>OBJ</b>	(to be) the sound emanating from playing a musical instrument	

This following affixes are used with the above root to indicate specific musical notes/tones:

<b>MNA Musical Notes A</b>		<b>MNB Musical Notes B</b>		<b>MNC Musical Notes C</b>		<b>MND Musical Notes D</b>	
1	note/tone in A-flat/G-sharp	1	note/tone in B	1	note/tone in D	1	note/tone in F
2	bending/ <i>meend</i> applied to note/tone in A-flat/G-sharp	2	bending/ <i>meend</i> applied to note/tone in B	2	bending/ <i>meend</i> applied to note/tone in D	2	bending/ <i>meend</i> applied to note/tone in F
3	“blue” note/tone between A-flat and A	3	“blue” note/tone between B and C	3	“blue” note/tone between D and D-sharp/E-flat	3	“blue” note//tone between F and F-sharp/G-flat
4	note/tone in A	4	note/tone in C	4	note/tone in E-flat/D-sharp	4	note tone in F-sharp/G-flat
5	bending/ <i>meend</i> applied to note/tone in A	5	bending/ <i>meend</i> applied to note/tone in C	5	bending/ <i>meend</i> applied to note/tone in E-flat/D-sharp	5	bending/ <i>meend</i> applied to note/tone in F-sharp/G-flat
6	“blue” note/tone between A and A-sharp/B-flat	6	“blue” note/tone between C and C-sharp/D-flat	6	“blue” note/tone between E-flat and E	6	“blue” note//tone between G-flat and G
7	note/tone in B-flat/A-sharp	7	note/tone in C-sharp/D-flat	7	note/tone in E	7	note/tone in G
8	bending/ <i>meend</i> applied to note/tone in B-flat/A-sharp	8	bending/ <i>meend</i> applied to note/tone in C-sharp/D-flat	8	bending/ <i>meend</i> applied to note/tone in E	8	bending/ <i>meend</i> applied to note/tone in G
9	“blue” note/tone between B-flat and B	9	“blue” note/tone between D-flat and D	9	“blue” note/tone between E and F	9	“blue” note//tone between G and G-sharp/A-flat

The following roots/stems utilize the Specification pattern of the root **-LHW-** above:

<b>-ŽP- ‘IDIOPHONIC PERCUSSIVE MUSICAL INSTRUMENT’</b> (i.e., vibration of the instrument itself)		
<b>Stem 1:</b> concussion/percussion idiophonic musical instrument (struck with the hand or other non-vibrating foreign object, or by being struck against each other)		
<b>Stem 2:</b> friction/rattling idiophonic musical instrument (shaking and/or scraping)		
<b>Stem 3:</b> lamellophone / plucked idiophonic musical instrument (e.g., jaw harp, mbira, music box)		

<b>-ŽPW-</b>	<b>Stem 1:</b> musical block (e.g., of wood or metal)	<b>Stem 2:</b> musical stick	<b>Stem 3:</b> clave
<b>-ŽPY-</b>	<b>Stem 1:</b> castanet	<b>Stem 2:</b> musical clapper (e.g., khartal, qraqeb)	<b>Stem 3:</b> musical spoon
<b>-ŽPL-</b>	<b>Stem 1:</b> wooden musical plaque (e.g., of xylophone)	<b>Stem 2:</b> musical metal plaque (e.g., of vibraphone)	<b>Stem 3:</b> musical gourd plaque (e.g., of balafon)
<b>-ŽPR-</b>	<b>Stem 1:</b> cymbal	<b>Stem 2:</b> finger cymbal / hand cymbal (e.g., manjira, taal)	<b>Stem 3:</b> gong
<b>-ŽPŘ-</b>	<b>Stem 1:</b> bell	<b>Stem 2:</b> chime	<b>Stem 3:</b> standing bell / resting bell / singing bowl
<b>-ŽPÇ-</b>	<b>Stem 1:</b> musical rattle/shaker	<b>Stem 2:</b> vibra-slap/quijada	<b>Stem 3:</b> flexatone
<b>-ŽPF-</b>	<b>Stem 1:</b> tambourine (without membrane)	<b>Stem 2:</b> maraca	<b>Stem 3:</b> rainstick
<b>-ŽPT-</b>	<b>Stem 1:</b> güiro/ güira/guayo/guacharaca/reco-reco	<b>Stem 2:</b> washboard/frottoir	<b>Stem 3:</b> ratchet/noisemaker
<b>-ŽPL-</b>	<b>Stem 1:</b> slit drum	<b>Stem 2:</b> steel drum	<b>Stem 3:</b> steel tongue drum / tank drum
<b>-ŽPH-</b>	<b>Stem 1:</b> musical saw	<b>Stem 2:</b> thunder sheet / wobble board	<b>Stem 3:</b> daxophone
<b>-ŽPHW-</b>	<b>Stem 1:</b> clay/ceramic pot (e.g., ghatam, fou)	<b>Stem 2:</b> aerophone ceramic pot (e.g., udu, botija)	<b>Stem 3:</b> handpan (e.g., Hang)
<b>-ŽMW-</b>	<b>Stem 1:</b> jaw harp	<b>Stem 2:</b> morsing/gogona	<b>Stem 3:</b> mbira/kalimba
<b>-ŽMY-</b>	<b>Stem 1:</b> nail violin	<b>Stem 2:</b> waterphone	<b>Stem 3:</b> glass harmonica / glass harp / verrophone

<b>-ŘBW- ‘STRUCK, SHAKEN, OR PLUCKED MEMBRANOPHONE MUSICAL INSTRUMENT’</b> (i.e., vibration of a membrane)		
<b>Stem 1:</b> struck membranophone (e.g., drum, conga drum, bongo, bodhran, tar, etc.)		
<b>Stem 2:</b> shaken membranophones (e.g., rattle drum)		
<b>Stem 3:</b> plucked membranophone (e.g., khamak/bugchu/anondo lahari, gubguba)		

<b>-ŘBY-</b>	<b>Stem 1:</b> tubular/cylindrical two-headed drum	<b>Stem 2:</b> tubular/cylindrical single-headed (open-ended) drum	<b>Stem 3:</b> kettle drum/bowl-shaped drum
<b>-ŘBL-</b>	<b>Stem 1:</b> snare drum	<b>Stem 2:</b> tom-tom	<b>Stem 3:</b> bass drum / kick-drum
<b>-ŘBR-</b>	<b>Stem 1:</b> bongo	<b>Stem 2:</b> conga drum	<b>Stem 3:</b> taiko / Japanese drum
<b>-ŘBŘ-</b>	<b>Stem 1:</b> tabla drum (either dayan or bayan)	<b>Stem 2:</b> dayan (of a set of tabla drums)	<b>Stem 3:</b> bayan (of a set of tabla drums)
<b>-ŘBV-</b>	<b>Stem 1:</b> pakhawaj	<b>Stem 2:</b> dholak	<b>Stem 3:</b> naal

<b>-ŘBZ-</b>	<b>Stem 1:</b> mridangam	<b>Stem 2:</b> mridanga	<b>Stem 3:</b> dhol
<b>-ŘBŽ-</b>	<b>Stem 1:</b> djembe	<b>Stem 2:</b> dabakan	<b>Stem 3:</b> other goblet-type drum (e.g., davul, tapan, atabal, tabl, darbuka, tonbak)
<b>-ŘBZW-</b>	<b>Stem 1:</b> tambourine (w/membrane)/riq/mazhar/dayereh	<b>Stem 2:</b> bodhrán	<b>Stem 3:</b> tar / daf / frame drum
<b>-ŘBŽW-</b>	<b>Stem 1:</b> rattle drum	<b>Stem 2:</b> khamak/gopichand	<b>Stem 3:</b> bugchu/anondo lahori/gubguba

**-GZDV- ‘FRICTION, RUBBED, OR AIR-DRIVEN MEMBRANOPHONE MUSICAL INSTRUMENT’**

**Stem 1:** friction membranophone (e.g., cuica, rommelpot)  
**Stem 2:** rubbed membranophone  
**Stem 3:** air-driven membranophone (e.g., kazoo, mirliton, swazzle)

<b>-GZDW-</b>	<b>Stem 1:</b> cuica	<b>Stem 2:</b> rommelpot	<b>Stem 3:</b> other friction-driven membranophone
<b>-GZDY-</b>	<b>Stem 1:</b> kazoo	<b>Stem 2:</b> mirliton	<b>Stem 3:</b> swazzle

**-ŇÇN- ‘CHORDOPHONE MUSICAL INSTRUMENT’ (i.e., vibration of a string or strings)**

**Stem 1:** zither-like or zither-based musical instrument (i.e., strings stretched across a frame with or without a non-integrated resonator box)  
**Stem 2:** lute-like musical instrument [whether strummed/, plucked, or bowed (i.e., string-bearing frame is integrated with a resonator box)  
**Stem 3:** harp-like musical instrument (i.e., plane of strings is perpendicular to the resonator box)

<b>-ŇÇT-</b>	<b>Stem 1:</b> guitar	<b>Stem 2:</b> guitarrón/huapanguera	<b>Stem 3:</b> Latin guitar-like instrument (e.g., jarana, bajo quinto, bajo sexto, requinto jarocho) *
<b>-ŇÇTW-</b>	<b>Stem 1:</b> lute	<b>Stem 2:</b> ukulele	<b>Stem 3:</b> dulcimer-guitar
<b>-ŇÇTY-</b>	<b>Stem 1:</b> Portuguese guitar	<b>Stem 2:</b> cavaquinho	<b>Stem 3:</b> viola braguesa
<b>-ŇÇTL-</b>	<b>Stem 1:</b> cittern/cithren/waldzither	<b>Stem 2:</b> tamburica/tamburitza	<b>Stem 3:</b> bağlama / saz
<b>-ŇÇTR-</b>	<b>Stem 1:</b> oud	<b>Stem 2:</b> sintir/guembri	<b>Stem 3:</b> kabuli rebab/rubab
<b>-ŇÇTŘ-</b>	<b>Stem 1:</b> mandolin	<b>Stem 2:</b> mandola	<b>Stem 3:</b> Algerian mandole
<b>-ŇÇTF-</b>	<b>Stem 1:</b> domra	<b>Stem 2:</b> bandura	<b>Stem 3:</b> kobza/bandurka
<b>-ŇÇTC-</b>	<b>Stem 1:</b> balalaika	<b>Stem 2:</b> torban	<b>Stem 3:</b> shamisen/sangen
<b>-ŇÇTL-</b>	<b>Stem 1:</b> pipa	<b>Stem 2:</b> ruan	<b>Stem 3:</b> yueqin / moon lute
<b>-ŇÇTH-</b>	<b>Stem 1:</b> charango/charanga	<b>Stem 2:</b> đàn tỳ bà	<b>Stem 3:</b> dranyen
<b>-ŇÇTM-</b>	<b>Stem 1:</b> çifteli	<b>Stem 2:</b> geierleier	<b>Stem 3:</b> tar (Persian/Middle-Eastern long-necked lute) *

\* incorporate a number stem into these stems to indicate the number of strings in order to create words for Latin guitar-like instruments such as the *tres*, *cuatro*, *bajo quinto*, etc., and Central Asian lutes such as the *dutar*, *chartar*, *setar*, *shashtar*, etc.

-ŃÇTLW-	<b>Stem 1:</b> bouzouki (Greek)	<b>Stem 2:</b> Irish bouzouki	<b>Stem 3:</b> bandurria
-ŃÇTÇW-	<b>Stem 1:</b> topshur	<b>Stem 2:</b> tovshuur	<b>Stem 3:</b> doshpuluur
-ŃÇTHW-	<b>Stem 1:</b> banjo	<b>Stem 2:</b> sazbüş	<b>Stem 3:</b> sanxian / sanshin
-ŃÇC-	<b>Stem 1:</b> zither or zither-like instrument	<b>Stem 2:</b> musical bow / harp-bow / berimbau	<b>Stem 3:</b> harp-zither
-ŃÇCW-	<b>Stem 1:</b> psaltery	<b>Stem 2:</b> koto	<b>Stem 3:</b> gayageum
-ŃÇČ-	<b>Stem 1:</b> piano	<b>Stem 2:</b> harpsichord	<b>Stem 3:</b> clavichord
-ŃÇČW-	<b>Stem 1:</b> dulcimer	<b>Stem 2:</b> santur	<b>Stem 3:</b> cimbalon or dulcimer/cimbalon-like instruments (e.g., yangquin, khim, klezmer)
-ŃÇCM-	<b>Stem 1:</b> harp	<b>Stem 2:</b> lyre	<b>Stem 3:</b> kora
-ŃÇCN-	<b>Stem 1:</b> cithara / kithara	<b>Stem 2:</b> krar/kirar	<b>Stem 3:</b> qanun
-ŃÇP-	<b>Stem 1:</b> viola/violin *	<b>Stem 2:</b> cello/double-bass *	<b>Stem 3:</b> pochette / sardino / kit violin / treble violin
-ŃÇPW-	<b>Stem 1:</b> viola d'amore	<b>Stem 2:</b> viol/viola da gamba	<b>Stem 3:</b> baryton
-ŃÇPY-	<b>Stem 1:</b> Hardanger fiddle	<b>Stem 2:</b> lătfiol	<b>Stem 3:</b> nyckelharpa
-ŃÇPL-	<b>Stem 1:</b> bowed zither (e.g., bowed psaltery, ajaeng, harppu, gue, yazheng/yaqin, zhengni)	<b>Stem 2:</b> crwth	<b>Stem 3:</b> bowed lyre (e.g., jouhikko, talharpa)
-ŃÇPR-	<b>Stem 1:</b> lyra	<b>Stem 2:</b> gadulka	<b>Stem 3:</b> gudok/gudochek/hudok
-ŃÇPŘ-	<b>Stem 1:</b> rebab	<b>Stem 2:</b> lijerica	<b>Stem 3:</b> rabeca
-ŃÇPF-	<b>Stem 1:</b> kemenche	<b>Stem 2:</b> ghijak	<b>Stem 3:</b> gheychak
-ŃÇPT-	<b>Stem 1:</b> sataer	<b>Stem 2:</b> khushitar	<b>Stem 3:</b> yayli tambur
-ŃÇPC-	<b>Stem 1:</b> imzad	<b>Stem 2:</b> kobyz	<b>Stem 3:</b> sorahi
-ŃÇPL-	<b>Stem 1:</b> morin khuur	<b>Stem 2:</b> igil	<b>Stem 3:</b> byzaanchy
-ŃÇPS-	<b>Stem 1:</b> tro (incl. tro Khmer, tro sau toch, tro sau thorn)	<b>Stem 2:</b> [Thai] saw (incl. saw duang, saw sam sai, saw u, saw lo)	<b>Stem 3:</b> masenqo
-ŃÇPŠ-	<b>Stem 1:</b> đàn nhị	<b>Stem 2:</b> đàn hồ	<b>Stem 3:</b> đàn gáo
-ŃÇPH-	<b>Stem 1:</b> kokyū	<b>Stem 2:</b> haegeum	<b>Stem 3:</b> suroz
-ŃÇPHW-	<b>Stem 1:</b> agiarut	<b>Stem 2:</b> tautirut	<b>Stem 3:</b> laruan
-ŃÇPLW-	<b>Stem 1:</b> zhuihu/zhuiqin	<b>Stem 2:</b> leihu/leiqin	<b>Stem 3:</b> paqin
-ŃÇPÇW-	<b>Stem 1:</b> mid-pitched huqin-type instrument (e.g., erhu, banhu, erxian, tiqin, sihu, maguhu, niutuiqin/niubaqin/niubatui) <b>Stem 2:</b> lower-pitched huqin-type instrument (e.g., zhonghu, dihu, gehu, dihu, diyingehu, tuhu) <b>Stem 3:</b> higher-pitched huqin-type instrument (e.g., gaohu, jinghu)		

\* use the CAM/3 affix below with Stem 1 to designate a violin; use the CAM/1 affix below with Stem 2 to designate a double-bass from a cello

-ŃÇM-	<b>Stem 1:</b> sarod *	<b>Stem 2:</b> sitar *	<b>Stem 3:</b> tanpura
-ŃÇMW-	<b>Stem 1:</b> saraswati veena	<b>Stem 2:</b> rudra veena	<b>Stem 3:</b> vichitra veena / sagar veena
-ŃÇMY-	<b>Stem 1:</b> ektara	<b>Stem 2:</b> dotara	<b>Stem 3:</b> tumbi
-ŃÇML-	<b>Stem 1:</b> swarmandal	<b>Stem 2:</b> swarabat	<b>Stem 3:</b> gethuvadyam/jhallari
-ŃÇMR-	<b>Stem 1:</b> sarangi	<b>Stem 2:</b> sarinda	<b>Stem 3:</b> chikara
-ŃÇMR̃-	<b>Stem 1:</b> esraj / tarshenai	<b>Stem 2:</b> dilruba	<b>Stem 3:</b> taus / mayuri vina

\* use CAM/2 affix below with Stem 1 to designate a *surshringar* and with Stem 2 to designate a *surbahar*

-ŃÇŃ-	<b>Stem 1:</b> hurdy-gurdy	<b>Stem 2:</b> dulcigurdy	<b>Stem 3:</b> other rosined wheel instrument (e.g., bowed clavier / ninera / viola organista)
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<b>-ÇKM-</b> ‘AEROPHONE MUSICAL INSTRUMENT’ (i.e., vibration of a volume of air)			
<b>Stem 1:</b> “wind” instrument which, when played, contains an enclosed column of vibrating air (e.g., clarinet, oboe, flute, didgeridoo, etc.)			
<b>Stem 2:</b> “free reed” instrument which utilize a reed or band but do not contain the vibrating air (e.g., harmonica, accordion, harmonium)			
<b>Stem 3:</b> instrument where an unenclosed air flow is interrupted other than by a reed or band (e.g., bullroarer, siren, boomwhacker, corrugaphone, whip)			

-ÇKW-	<b>Stem 1:</b> end-blown flute	<b>Stem 2:</b> end-blown flute w/fingerholes	<b>Stem 3:</b> end-blown flute without fingerholes
-ÇKY-	<b>Stem 1:</b> side-blown flute	<b>Stem 2:</b> side-blown flute w/fingerholes	<b>Stem 3:</b> side-blown flute without fingerholes
-ÇKL-	<b>Stem 1:</b> ductless flute (e.g., hocchiku, palendagpulalu/shakuhachi/tumpong) <b>Stem 2:</b> pan pipe <b>Stem 3:</b> Western concert flute (use CAM/3 affix below to signify a piccolo)		
-ÇKR-	<b>Stem 1:</b> kaval	<b>Stem 2:</b> kawala	<b>Stem 3:</b> ney
-ÇKR̃-	<b>Stem 1:</b> blul	<b>Stem 2:</b> svirka/tsafara/svorche	<b>Stem 3:</b> kobyrach/quray/choor
-ÇKF-	<b>Stem 1:</b> duct flute	<b>Stem 2:</b> suling/barbarak/lantey, dagoyong	<b>Stem 3:</b> whistle
-ÇKT-	<b>Stem 1:</b> fipple flute (e.g., bansuri, diple, flabiol, flageolet, khloy, khloi, salamuri, shvi, souravli, stabule, txistu, frula) <b>Stem 2:</b> recorder <b>Stem 3:</b> fujara		
-ÇKÇ-	<b>Stem 1:</b> willow flute/sallow flute	<b>Stem 2:</b> tin whistle/penny whistle	<b>Stem 3:</b> slide whistle/piston flute/swanee

<b>-ÇKH-</b>	<b>Stem 1:</b> vessel flute (e.g., xun, jug)	<b>Stem 2:</b> ocarina / huaca	<b>Stem 3:</b> gemshorn
<b>-ÇKHW-</b>	<b>Stem 1:</b> pipe organ	<b>Stem 2:</b> calliope	<b>Stem 3:</b> non-pipe organ (e.g., reed organ / pump organ / harmonium, electric organ)
<b>-MÇKW-</b>	<b>Stem 1:</b> single-reed instrument	<b>Stem 2:</b> double-reed instrument	<b>Stem 3:</b> reedless brass instrument (e.g., horn, trumpet)
<b>-MÇKY-</b>	<b>Stem 1:</b> clarinet	<b>Stem 2:</b> chalumeau	<b>Stem 3:</b> zummara / double clarinet
<b>-MÇKL-</b>	<b>Stem 1:</b> saxophone	<b>Stem 2:</b> xaphoon	<b>Stem 3:</b> venova
<b>-MÇKR-</b>	<b>Stem 1:</b> octavin	<b>Stem 2:</b> (modern) táragató	<b>Stem 3:</b> sneng
<b>-MÇKRř-</b>	<b>Stem 1:</b> hornpipe	<b>Stem 2:</b> pku/pzuk	<b>Stem 3:</b> erkencho
<b>-MÇKF-</b>	<b>Stem 1:</b> stock-and-horn	<b>Stem 2:</b> pibgorn	<b>Stem 3:</b> alboka
<b>-MÇKT-</b>	<b>Stem 1:</b> zhaleika/bryolka	<b>Stem 2:</b> birbyné	<b>Stem 3:</b> ganurags
<b>-MÇKÇ-</b>	<b>Stem 1:</b> diplica	<b>Stem 2:</b> launeddas	<b>Stem 3:</b> çifte
<b>-MÇKH-</b>	<b>Stem 1:</b> arghul/yarghul	<b>Stem 2:</b> mijwiz	<b>Stem 3:</b> sipsi
<b>-MÇKHW-</b>	<b>Stem 1:</b> dozaleh/zanbooreh	<b>Stem 2:</b> pungi/geen/murli	<b>Stem 3:</b> pepa
<b>-LÇK-</b>	<b>Stem 1:</b> oboe	<b>Stem 2:</b> cor anglais	<b>Stem 3:</b> oboe d'amore
<b>-LÇKW-</b>	<b>Stem 1:</b> bassoon	<b>Stem 2:</b> contrabassoon	<b>Stem 3:</b> sarrusophone
<b>-LÇKY-</b>	<b>Stem 1:</b> shawm	<b>Stem 2:</b> surma	<b>Stem 3:</b> bombard
<b>-LÇKL-</b>	<b>Stem 1:</b> crumhorn	<b>Stem 2:</b> cromorne	<b>Stem 3:</b> (traditional) táragató
<b>-LÇKR-</b>	<b>Stem 1:</b> zurna	<b>Stem 2:</b> mizmar	<b>Stem 3:</b> duduk/tsiranapogh
<b>-LÇKRř-</b>	<b>Stem 1:</b> hichiriki / fue	<b>Stem 2:</b> piri	<b>Stem 3:</b> taepyeongso/hojok/nallari/saenap
<b>-LÇKF-</b>	<b>Stem 1:</b> guan/bili/houguan	<b>Stem 2:</b> gyaling	<b>Stem 3:</b> suona/laba/haidi
<b>-LÇKT-</b>	<b>Stem 1:</b> shehnai	<b>Stem 2:</b> nadaswaram	<b>Stem 3:</b> kuzhal
<b>-LÇKÇ-</b>	<b>Stem 1:</b> sundari	<b>Stem 2:</b> tangmuri	<b>Stem 3:</b> mukhavina
<b>-LÇKH-</b> serunai)	<b>Stem 1:</b> sralai	<b>Stem 2:</b> pi nai	<b>Stem 3:</b> Southeast Asian quadruple reed instrument (e.g., hne, sawnay, sarunay,
<b>-LÇKHW-</b>	<b>Stem 1:</b> dulzaina/dolçaina	<b>Stem 2:</b> piffero	<b>Stem 3:</b> sophile
<b>-ÇKN-</b>	<b>Stem 1:</b> bagpipe(s)	<b>Stem 2:</b> breath-blown bagpipes	<b>Stem 3:</b> bellows-driven bagpipes (e.g., uilleann pipes)



-NÇK-	<b>Stem 1:</b> conch-shell/seashell horn	<b>Stem 2:</b> didgeridoo	<b>Stem 3:</b> shofar
-NÇKW-	<b>Stem 1:</b> alphorn	<b>Stem 2:</b> trembita	<b>Stem 3:</b> vuvuzela / kuduzela
-NÇKY-	<b>Stem 1:</b> lur	<b>Stem 2:</b> buciun	<b>Stem 3:</b> Tibetan horn
-NÇKL-	<b>Stem 1:</b> tiba	<b>Stem 2:</b> erke	<b>Stem 3:</b> trutruca
-NÇKR-	<b>Stem 1:</b> jez kernei/karnay	<b>Stem 2:</b> muiuz kernei/karnay	<b>Stem 3:</b> surnai
-NÇKRř-	<b>Stem 1:</b> ekkalam	<b>Stem 2:</b> kamal	<b>Stem 3:</b> kombu/kompu
-NÇKF-	<b>Stem 1:</b> bhankora	<b>Stem 2:</b> buki	<b>Stem 3:</b> putaatara
-NÇKT-	<b>Stem 1:</b> nabal	<b>Stem 2:</b> kakaki	<b>Stem 3:</b> other straight and long valveless horn
-NÇKÇ-	<b>Stem 1:</b> cornetto/zink	<b>Stem 2:</b> serpent	<b>Stem 3:</b> vladimirskiy rozhok
-NÇKH-	<b>Stem 1:</b> natural horn	<b>Stem 2:</b> natural trumpet	<b>Stem 3:</b> bugle

-TÇK-	<b>Stem 1:</b> valved horn *	<b>Stem 2:</b> baritone horn	<b>Stem 3:</b> euphonium
-TÇKW-	<b>Stem 1:</b> valved trumpet	<b>Stem 2:</b> cornet	<b>Stem 3:</b> flugelhorn
-TÇKY-	<b>Stem 1:</b> saxhorn	<b>Stem 2:</b> helicon	<b>Stem 3:</b> mellophone
-TÇKL-	<b>Stem 1:</b> tuba	<b>Stem 2:</b> sousaphone	<b>Stem 3:</b> contrabass bugle
-TÇKR-	<b>Stem 1:</b> trombone	<b>Stem 2:</b> sackbut / slide trumpet	<b>Stem 3:</b> bazooka (musical instrument)
-TÇKRř-	<b>Stem 1:</b> Firebird trumpet	<b>Stem 2:</b> saxotromba	<b>Stem 3:</b> saxtuba
-TÇKF-	<b>Stem 1:</b> jazzophone	<b>Stem 2:</b> kuhlohorn	<b>Stem 3:</b> ophicleide / sudrophone

\* whether a French horn, German horn, or Vienna horn

-ÇÇKW-	<b>Stem 1:</b> harmonica	<b>Stem 2:</b> melodica	<b>Stem 3:</b> shruti box
-ÇÇKY-	<b>Stem 1:</b> accordion	<b>Stem 2:</b> concertina	<b>Stem 3:</b> melodeon
-ÇÇKL-	<b>Stem 1:</b> sheng / yu / he	<b>Stem 2:</b> khaen	<b>Stem 3:</b> sho
-ÇÇKR-	<b>Stem 1:</b> hulusi / gourd flute	<b>Stem 2:</b> hulusheng	<b>Stem 3:</b> bawu

#### -LHL- ‘ELECTRO-MECHANICAL OR ELECTRONIC MUSICAL INSTRUMENT’

**Stem 1:** electro-mechanical taped music controller (e.g., mellotron, byrotron)

**Stem 2:** early electronic (or electronic-mechanical) musical instrument (e.g., telharmonium, theramin, Ondes Martenot, Trautonium, Hammond Organ, Novachord)

**Stem 3:** electronic synthesizer

**-LHR- ‘PRE-PROGRAMMED MUSICAL INSTRUMENT’**

**Stem 1:** music(al) box

**Stem 2:** player piano

**Stem 3:** pre-programmed musical instrument/device (use MEC/5, MEC/9, or MEA/4 affixes as appropriate to designate modern MIDI, sequenced, or software-based music)

The following new affixes are available for use with many of the above musical instrument roots/stems (where applicable):

<b>-řš</b>	<b>MIA Musical Instrument Attributes</b>
1	instrument is non-pitched
2	instrument has a (quasi-) fixed pitch but is untunable
3	instrument is tunable to a fixed pitch
4	instrument is tunable and capable of a controllable range of pitches while being played (e.g., talking drum, banyan drum of a set of tabla, cuica, etc.)
5	instrument is a single component with various sub-parts or surfaces each of which is tunable/tuned to a distinct pitch (e.g., tongue drum, steel drum)
6	instrument is a set of tunable individual component instruments, each set/tunable to a distinct pitch
7	instrument is normally played using an additional implement rather than the hand or mouth (e.g., stick, beater, hammer, rod, bow, pulling of cord, etc.)
8	instrument's primary interface is via a keyboard or set of patterned buttons which trigger the actual striking/plucking/air-flow sounding mechanism
9	instrument is electrically/electronically amplified

<b>-đç</b>	<b>CAM Customizations &amp; Modifications</b>
1	a larger, bass-oriented version of the usual X
2	a larger, baritone-oriented version of the usual X
3	a smaller, treble- or soprano-oriented version of the usual X
4	a modified/enhanced version of the usual X (to give it a greater note-range)
5	a modified/enhanced version of the usual X (to make it louder)
6	a modified/enhanced version of the usual X (to give it more power/resonance)
7	a customized/modified version of the usual X tailored to the operator's specifications
8	a customized/modified version of the usual X tailored/sized for a child
9	a customized/modified version of the usual X tailored/simplified for learning

**NOTE:** While this affix primarily applies to stems for musical instruments, Degrees 5 through 9 may be used as needed for other devices/objects where applicable.

The eleven new **Areal/Cultural Association** affixes may also be used with musical instrument stems (see v.0.7 of the Affixes document)

### 4.5.2 Olfactory Sense

<b>-ŽG- ‘SMELL / ODOR’</b>		Affix: <b>OLF</b>
<b>BSC</b>	<b>Stem 1:</b> (to be) a smell/odor and the smelling thereof [act of smelling + the odor itself]; an act of smelling something — [both the odor and the smelling thereof]	<b>Stem 2:</b> (to be) one’s nose [as olfactory organ, not one’s nasal proboscis ( <a href="#">see -LMW-</a> )]  <b>Stem 3:</b> (to be) one’s olfactory faculty; one’s sense of smell
<b>CTE</b>	(to be) a smell/odor	
<b>CSV</b>	(to be) an act of smelling; to smell; to engage one’s olfactory sense	
<b>OBJ</b>	(to be) the entity/event/object whose odor one smells	

MORPHOLOGICAL DERIVATIONS: sniff, aroma, “bouquet”, perfume, stench

**NOTE:** the meaning of the old FORMAL stems previously associated with this root can be expressed by the following: for Stems 1 and 3, use appropriate Transrelative case marking for the arguments/participants; for Stem 2, utilize the MEC affix.

The four odor roots below have the following Specification pattern:

<b>BSC</b>	(to be) something having a (particular) smell/odor
<b>CTE</b>	(to be/manifest) the particular odor (of something)
<b>CSV</b>	(to be) the odor perceived by an observer as being identifiable as a particular odor (i.e., the odor of something known)
<b>OBJ</b>	(to be) an entity having a particular odor (e.g., “the acrid-smelling one”)

	<b>-NKY- ‘PUNGENT/FUNKY/PUTRID/STINKY’</b>
<b>Stem 1</b>	<b>pungent odor</b> (e.g., vinegar, ammonia, urine, stale coffee, vomit, etc.)
<b>Stem 2</b>	<b>funky odor</b> (e.g., of sweat, livestock, musk, tamri, ambergris, stinky cheeses, etc.)
<b>Stem 3</b>	<b>putrid odor</b> (e.g., as of rotting eggs, roadkill, feces, sulfur, low-tide, etc.)

	<b>-RGY- ‘VEGETAL/PIQUANT/MUSTY’</b>
<b>Stem 1</b>	<b>vegetal odor</b> (e.g., grass, garlic, onion, parsley, coriander, celery, etc.)
<b>Stem 2</b>	<b>piquant odor</b> (e.g., ginger, cinnamon, clove, chilies, horseradish, hot mustard, etc.)
<b>Stem 3</b>	<b>musty odor</b> (e.g., soil, mushrooms, aged compost, mold, moss, petrichor, etc.)

	<b>-LMS- ‘SWEET/FRAGRANT/RESINOUS’</b>
<b>Stem 1</b>	<b>sweet odor</b> (e.g., honey, raisin, caramel, apple, date, yam, etc.)
<b>Stem 2</b>	<b>fragrant odor</b> (e.g., vanilla, rose, almond, peach, jasmine, etc.)
<b>Stem 3</b>	<b>resinous odor</b> (e.g., camphor, sagebrush, eucalyptus, lavender, peppermint, etc.)

	<b>-RZG- ‘CHEMICAL/BURNT/ACRID’</b>
<b>Stem 1</b>	<b>chemical odor</b> (e.g., alcohol, gasoline, solvents, paint, etc.)
<b>Stem 2</b>	<b>burnt odor</b> (e.g., leather, toasted nuts, woodsmoke, tobacco, etc.)
<b>Stem 3</b>	<b>acrid odor</b> (e.g., salt, copper, blood, tar, burning rubber, etc.)

In addition to the above four roots, the OLF affix is available to identify the odor associated with any applicable formative.

### 4.5.3 Gustatory Sense

<b>-SF- ‘SENSE OF TASTE / THE TASTE OF SOMETHING’</b> Associated Affix: <b>GST</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) the flavor of something and the act of tasting thereof [act of tasting + the flavor itself]; an act of tasting the flavor of something — [both the flavor and the sensing thereof]	<b>Stem 2:</b> (to be) a taste bud (i.e., the gustatory organ)  <b>Stem 3:</b> (to be) one’s gustatory faculty; one’s sense of taste
<b>CTE</b>	(to be) a flavor	
<b>CSV</b>	(to be) an act of tasting; to taste; to engage one’s gustatory sense	
<b>OBJ</b>	(to be) the entity/event/object whose flavor one tastes	

**NOTE:** the meaning of the old FORMAL stems previously associated with this root can be expressed by the following: for Stems 1 and 3, use appropriate Transrelative case marking for the arguments/participants; for Stem 2, utilize the MEC affix.

The six flavor roots below take the following Specification pattern:

<b>BSC</b>	(to be) something having a (particular) flavor
<b>CTE</b>	(to be/manifest) the particular flavor (of something)
<b>CSV</b>	(to be) an identifiable flavor
<b>OBJ</b>	(to be) an entity having a particular flavor (e.g., “the bitter-tasting one”)

	<b>-MS- ‘SWEET FLAVOR’</b>
<b>Stem 1</b>	sweet flavor
<b>Stem 2</b>	fruity/citrus/tarty-flavor
<b>Stem 3</b>	floral-like sweet flavor

	<b>-ZG- ‘BITTER FLAVOR’</b>
<b>Stem 1</b>	bitter flavor
<b>Stem 2</b>	bitter + sweet
<b>Stem 3</b>	bitter + sour

	<b>-SṚ- ‘SOUR FLAVOR’</b>
<b>Stem 1</b>	sour flavor
<b>Stem 2</b>	sour + rancid flavor
<b>Stem 3</b>	sweet + sour flavor

	<b>-Ḳ- ‘SALTY / SPICY / UMAMI’</b>
<b>Stem 1</b>	salty flavor
<b>Stem 2</b>	spiciness / piquant flavor
<b>Stem 3</b>	umami/savory flavor

	<b>-XX- ‘FOUL/RANCID FLAVOR’</b>
<b>Stem 1</b>	foul/rancid flavor
<b>Stem 2</b>	spoiled/rotten flavor
<b>Stem 3</b>	vinegary flavor

	<b>-Ṇ- ‘CHEMICAL-LIKE FLAVOR’</b>
<b>Stem 1</b>	chemical-like flavor
<b>Stem 2</b>	metallic flavor
<b>Stem 3</b>	astringent/acidic flavor

The following affix allows one to name any flavor:

<b>-sf</b>	<b>GST Gustatory Associations</b>
1	having the flavor of X
2	having an flavor like/similar to X
3	having an flavor reminiscent of X
4	having an flavor that has the same effect as X
5	having an flavor that has an effect similar to that of X
6	having both a flavor and aroma reminiscent of X
7	having both the flavor and aroma like/similar to X
8	having both the flavor and aroma of X
9	X’s flavor; the flavor which one tastes when one eats/chews/drinks/consumes X

#### 4.5.4 Visual Sense

<b>-Z-</b> ‘SEE / SIGHT / VISION’		
<b>BSC</b>	<b>Stem 1:</b> (to be) a sight and the seeing thereof; to see something [act of seeing + the sight itself]; an act of seeing something	<b>Stem 2:</b> (to be) an eye (as organ of vision)  <b>Stem 3:</b> (to be a) the visual faculty/sense; one’s vision
<b>CTE</b>	(to be) a visual image; the image one sees	
<b>CSV</b>	(to be) an act of seeing; to see; to engage one’s visual faculty	
<b>OBJ</b>	(to be) the object/entity/sight one sees	

DERIVATIONS: view, glimpse, glance, ogle, gawk, stare, spy, espy, peep, voyeur, panorama, scrutinize (visually), camera, telescope, microscope, binoculars, magnifying glass, lens, glasses

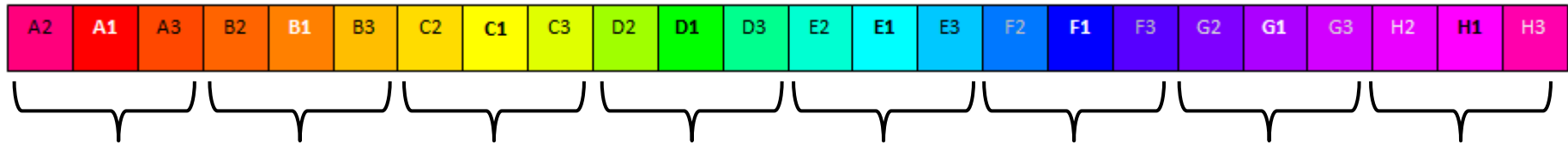
**NOTE:** the meaning of the old FORMAL stems previously associated with this root can be expressed by the following: for Stems 1 and 3, use appropriate Transrelative case marking for the arguments/participants; for Stem 2, utilize the MEC affix.

<b>-ŠP-</b> ‘COLOR’ Associated affix: <b>VSR</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) something having a (particular) color / something colored	<b>STEM 2:</b> Same as Stem 1 but a hue 15 degrees counter-clockwise on a 8-basic-valued 360-degree color-wheel (i.e., one-third of the way to the next basic color value, or half-way to Stem 3 of the next basic color value).  <b>STEM 3:</b> Same as Stem 1 but a hue 15 degrees clockwise on a 8-basic-valued 360-degree color-wheel (i.e., one-third of the way to the next basic color value, or half-way to Stem 2 of the next basic color value).
<b>CTE</b>	(to be/manifest) the particular color (of something)	
<b>CSV</b>	(to be/manifest) the (reflected) light of (a certain wavelength) that is perceived by an observer as being a particular color	
<b>OBJ</b>	(to be) an entity having a particular color (e.g., “the red one”)	

**INFORMAL** Stems refer the (seemingly or presumed) natural or inherent color of objects

**NOTE:** the meaning of the old FORMAL stems previously associated with this root can be expressed by utilizing the TRF/3 or REA/4 affixes.

**10.1.4.1 Primary Color Roots/Stems.** There are eight roots for basic colors, shown below as A through H. The prototype color is Stem 1 (labeled as a numeral 1 following the letter); Stem 2 is the color one-third of the way to the next basic color to the left (labeled as a numeral 2 following the letter); Stem 3 is the color one-third of the way to the next basic color to the right (labeled as a numeral 3 following the letter). Thus, 24 basic color terms exist in the language.

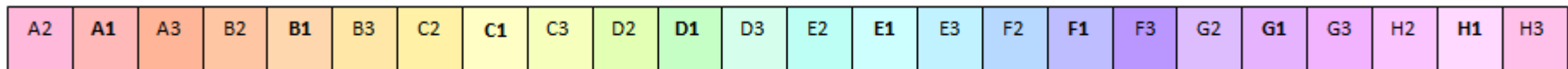


	<b>-GY- ‘RED’</b>	<b>-ŃR- ‘ORANGE’</b>	<b>-ML- ‘YELLOW’</b>	<b>-ČW- ‘GREEN’</b>	<b>-DR- ‘CYAN’</b>	<b>-LW- ‘BLUE’</b>	<b>-ŽL- ‘VIOLET’</b>	<b>-VM- ‘MAGENTA’</b>
<b>Stem 1</b>	red	orange	yellow	green	cyan	blue	violet, purple	magenta
<b>Stem 2</b>	pinkish-red, rose	reddish orange	orangy-yellow, gold(en yellow)	yellowish-green, chartreuse	greenish blue, teale blue	lighter blue, royal blue	blue-violet	violet-magenta, purple-magenta
<b>Stem 3</b>	orangy-red	yellowish orange, ochre	greenish-yellow	light-bluish green, teale green	azure blue	violet-blue	magenta-violet, magenta-purple	dark rose, rose-magenta

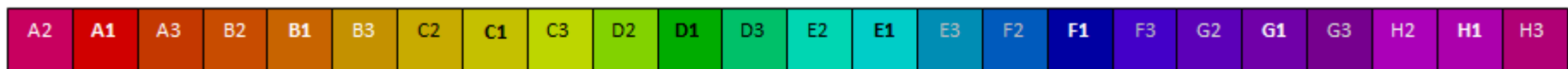
The CLD and COL affixes may be utilized with all color stems (as well as non-color stems where semantically productive). For dichroic (2-colored) descriptions, incorporate one color stem into another using COMITATIVE format.

As can be seen from the two strips below, the eight basic color roots with their three stems, in conjunction with the CLD affix, are sufficient to provide equivalents to standard Western color terms. Note that the Western basic color terms ‘pink’ and ‘brown’ do not have roots. The various shades covered by those two color terms are expressed as derivatives of red or magenta, and orange respectively. Use of the CLD affix also provides terms for more obscure shades such as “peach”, “mauve”, “turquoise”, “indigo”, “olive”, “rust”, “burnt sienna”, “cobalt blue”, “forest green”, “beige”, “burgundy”, etc.

**Light/pale colors:** below is the same color strip of the basic color roots/stems plus the CLD/2 affix:



**Dark/deep colors:** Here is the color strip of the basic color roots/stems plus the CLD/8 affix:



Using the COL affix, in conjunction with Phase and the Modulative affixes, one can add qualities such as “gleaming,” “twinkling,” “opalescent,” “glittering,” etc. In addition to the above scheme, the COL/7 affix provides for terms based on the color of a tangible object.

**Three Additional Basic Color Roots:** The following three roots do not follow the same template as the eight roots above (as they do not have hue variation):

**-BV-** ‘WHITE’: Stem 1) something white; 2) something light-colored or pale-tinted; 3) something whose color/visibility is washed out by bright light/glare

**-XM-** ‘BLACK’ Stem 1) something black; 2) something of a dark shade; 3) something obscured by low light or poor viewing conditions

**-CV-** ‘GRAY’ Stem 1) something gray; 2) something light-gray; 3) something dark-gray

#### 4.5.5 Tactile Sense

<b>-FT- ‘TOUCH / FEEL / TEXTURE / TACTILE PERCEPTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a tactile sensation/texture and the act of touching [act of tactilely feeling something + the sensation itself]; an act of touching/feeling something	<b>Stem 2:</b> (to be) one’s tactile organ(s) (i.e., the epidermal layer of the body as tactile sensor)  <b>Stem 3:</b> (to be a) the tactile faculty; sense of touch
<b>CTE</b>	(to be) a tactile sensation, a tactile feeling, a texture; to feel a particular texture	
<b>CSV</b>	(to be) an act of touching; to touch, to feel (tactilely); to engage one’s tactile sense	
<b>OBJ</b>	(to be) the entity/object one touches/feels	

**NOTE:** the meaning of the old FORMAL stems previously associated with this root can be expressed by the following: for Stems 1 and 3, use appropriate Transrelative case marking for the arguments/participants; for Stem 2, utilize the MEC affix.

The 30 texture/tactile sensation roots listed below have the following Specification pattern:

<b>BSC</b>	something having a (particular) texture or tactile sensation; to be something having a (particular) texture or tactile sensation
<b>CTE</b>	the particular texture or tactile sensation (of something); to be/have a particular texture or tactile sensation
<b>CSV</b>	the texture or tactile sensation perceived and being identifiable as a particular texture or tactile sensation (i.e., the texture or tactile sensation of something known); to be the particular texture or tactile sensation perceived
<b>OBJ</b>	an object/entity having a particular texture or tactile sensation (e.g., “the spongy-feeling one”); to be an entity having a particular texture or tactile sensation (e.g., “to be the spongy-feeling one”)



	<b>-GS- ‘CHUNKY/GRITTY TEXTURE’</b>
<b>Stem 1</b>	chunky textured (chunk-like, irregular/coarse pieces one can easily hold between thumb and forefinger)
<b>Stem 2</b>	gravel-like sensation
<b>Stem 3</b>	coarse/gritty sensation like sand

	<b>-DF- ‘BUMPY TEXTURE’</b>
<b>Stem 1</b>	bumpy, i.e., having individually discernible bumps on an otherwise quasi-linear or quasi-planar surface
<b>Stem 2</b>	stucco-like texture, i.e., rough texture of small, irregular bumps individually discernible only through closer inspection
<b>Stem 3</b>	pitted or serrated texture

	<b>-VT- ‘FLAKY / SCALY TEXTURE’</b>
<b>Stem 1</b>	flaky textured
<b>Stem 2</b>	scaly textured
<b>Stem 3</b>	‘confetti’ textured - like small flat pieces of paper

	<b>-ZH- ‘ROUGH / BRISTLY TEXTURE’</b>
<b>Stem 1</b>	rough-textured like sandpaper
<b>Stem 2</b>	bristly textured
<b>Stem 3</b>	prickly textured

	<b>-KD- ‘HARD / RIGID TEXTURE’</b>
<b>Stem 1</b>	hard/rigid (not malleable/pliable when subject to pressure from a blow/hit/sustained pressure point, etc.)
<b>Stem 2</b>	hard/-rigid and naturally smooth/even-surfaced
<b>Stem 3</b>	hard/-rigid and naturally rough/uneven-surfaced

	<b>-VX- ‘SEMI-HARD / SEMI-RIGID TEXTURE’</b>
<b>Stem 1</b>	semi-hard/semi-rigid (slightly malleable/pliable when subject to pressure from a blow/hit/sustained pressure point, etc.)
<b>Stem 2</b>	semi-hard/semi-rigid and naturally smooth/even-surfaced
<b>Stem 3</b>	semi-hard/semi-rigid and naturally rough/uneven-surfaced

	<b>-GC- ‘SOLID BUT MALLEABLE TEXTURE’</b>
<b>Stem 1</b>	solid but malleable/bendable texture (e.g., like a piece of wire or thin piece of copper plating)
<b>Stem 2</b>	plastic-like texture
<b>Stem 3</b>	cartilaginous texture

	<b>-BŠ- ‘SOFT TEXTURE’</b>
<b>Stem 1</b>	soft like a cushion
<b>Stem 2</b>	downy texture
<b>Stem 3</b>	curvaceous/sensual (= soft/smooth/squeezable/rounded) texture/sensation

	<b>-VC- ‘GROOVED / STRIATED TEXTURE’</b>
<b>Stem 1</b>	grooved textural pattern
<b>Stem 2</b>	striated textural pattern
<b>Stem 3</b>	cross-hatched textural pattern

	<b>-BT- ‘WET / MOIST TEXTURE’</b>
<b>Stem 1</b>	wet / liquidy
<b>Stem 2</b>	moist / damp
<b>Stem 3</b>	soggy / waterlogged / liquid-saturated

	<b>-FZ- ‘VISCOUS / GOOEY TEXTURE’</b>
<b>Stem 1</b>	viscous, gooey textured
<b>Stem 2</b>	jelly-like texture
<b>Stem 3</b>	sticky textured

	<b>-XZ- ‘DUSTY/POWDERY TEXTURE’</b>
<b>Stem 1</b>	dusty
<b>Stem 2</b>	powdery
<b>Stem 3</b>	smooth granular (e.g., processed granules)

	<b>-SG - ‘SLICK / SLIPPERY TEXTURE’</b>
<b>Stem 1</b>	slick to the touch
<b>Stem 2</b>	slippery
<b>Stem 3</b>	slimy

	<b>-ZF- ‘GUMMY / RUBBERY TEXTURE’</b>
<b>Stem 1</b>	gummy texture
<b>Stem 2</b>	rubbery texture
<b>Stem 3</b>	clay-like texture

	<b>-ŠD- ‘SLUSHY / MUSHY TEXTURE’</b>
<b>Stem 1</b>	slushy texture
<b>Stem 2</b>	mushy texture
<b>Stem 3</b>	frothy / foamy texture

	<b>-DL- ‘WAXY / OILY TEXTURE’</b>
<b>Stem 1</b>	oily texture
<b>Stem 2</b>	waxy texture
<b>Stem 3</b>	lard-like. greasy texture;

	<b>-FG- ‘HAIRY / FURRY TEXTURE’</b>
<b>Stem 1</b>	hairy texture/sensation
<b>Stem 2</b>	soft furry/feathery/downy texture
<b>Stem 3</b>	woolly texture/sensation

	<b>-TG- ‘PAPERY / FOIL-LIKE TEXTURE’</b>
<b>Stem 1</b>	texture like paper
<b>Stem 2</b>	texture like metallic foil
<b>Stem 3</b>	texture like cellophane

	<b>-JX- ‘GRATED TEXTURE’</b>
<b>Stem 1</b>	grated / honeycomb-like texture (2-D planar)
<b>Stem 2</b>	grated / honeycomb-like texture (3-D volume, e.g., like a pinecone)
<b>Stem 3</b>	grated / honeycomb-like texture (malleable, pliable surface)

	<b>-ŽT- ‘VARIATED TEXTURE’</b>
<b>Stem 1</b>	lumpy texture; having congealed/harder lumps within a surrounding less-congealed or more pliable/malleable medium
<b>Stem 2</b>	multi-textured; quasi-predictable tactile patterns alternating between 2 or more sensations within the same tactile experience
<b>Stem 3</b>	irregularly textured; unpredictable tactile pattern alternating between two or more sensations within the same tactile experience

	<b>-VD- ‘SHARPNESS’</b>
<b>Stem 1</b>	point-like, needle-like sharpness
<b>Stem 2</b>	blade-like sharpness
<b>Stem 3</b>	sharpness of an irregular edge (e.g., broken glass)

	<b>-SD- ‘BOUNCY / ELASTIC TEXTURE’</b>
<b>Stem 1</b>	bouncy texture
<b>Stem 2</b>	elastic / stretchy texture
<b>Stem 3</b>	sponge-like recoiling texture

	<b>-ZX- ‘TINGLY / VIBRATING TEXTURE’</b>
<b>Stem 1</b>	tingly / tingling texture
<b>Stem 2</b>	vibrating/purring texture
<b>Stem 3</b>	pulsating/thumping texture

	<b>-KD - ‘CAUSTIC / BURNING TACTILE SENSATION’</b>
<b>Stem 1</b>	burning tactile sensation
<b>Stem 2</b>	caustic / corrosive tactile sensation
<b>Stem 3</b>	irritating tactile sensation

	<b>-VT- ‘STRINGY, FIBROUS TEXTURE’</b>
<b>Stem 1</b>	stringy texture
<b>Stem 2</b>	fibrous, twine-like texture
<b>Stem 3</b>	rope-like, cord-like texture

	<b>-ŠB- ORAL TEXTURE’</b>
<b>Stem 1</b>	chewy texture (in mouth)
<b>Stem 2</b>	“tough” texture (in mouth, e.g., of meat)
<b>Stem 3</b>	“melt-in-your-mouth” savory texture

	<b>-ŽXW- ‘WARM / HOT TACTILE SENSATION’</b>
<b>Stem 1</b>	warm to the touch
<b>Stem 2</b>	hot to the touch
<b>Stem 3</b>	burning hot to the touch

	<b>-K VW- ‘COOL / COLD TACTILE SENSATION’</b>
<b>Stem 1</b>	cool to the touch
<b>Stem 2</b>	cold to the touch
<b>Stem 3</b>	freezing cold to the touch

	<b>-LV- ‘WISPY / FLUFFY TEXTURE’</b>
<b>Stem 1</b>	wispy/wafting/misty texture
<b>Stem 2</b>	fluffy/puffy/cottony texture
<b>Stem 3</b>	“cobwebby”/like cotton-candy texture

	<b>-SB- ‘SMOOTH / ROUNDED TEXTURE’</b>
<b>Stem 1</b>	smooth (i.e., having no discernible surface changes/irregularities/indentations)
<b>Stem 2</b>	rounded / knobbed (e.g., a doorknob)
<b>Stem 3</b>	dull / blunt

#### 4.5.6 Affective Sensory States (i.e., Proprioceptive, Interoceptive, and Vestibular-Sensory States)

The affective proprioceptive, interoceptive, and vestibular-sensory roots listed below have the following Specification pattern.

<b>BSC</b>	(to be) the particular affective state and the sensing thereof [act of sensing + sensation itself]; to experience the particular affective state [both the sensing and the sensation itself]
<b>CTE</b>	(to be) an affective sensation, an affective feeling/state itself
<b>CSV</b>	(to be) the physical manifestation(s) of an affective sensation; to undergo/experience the physical manifestation(s) of an affective state
<b>OBJ</b>	(to be) an organ/bodily system/process which gives rise to a particular affective state

<b>-DM - ‘SENSATION OF WARMTH’</b>	
<b>Stem 1</b>	feel warm (inside one’s body)
<b>Stem 2</b>	feel hot (inside one’s body)
<b>Stem 3</b>	feel feverish (inside one’s body)

<b>-XN- ‘SENSATION OF COOLNESS’</b>	
<b>Stem 1</b>	feel cool (inside one’s body)
<b>Stem 2</b>	feel cold (inside one’s body)
<b>Stem 3</b>	feel chilled / have the chills (inside one’s body); be shivering, have the shivers

<b>-GD- ‘PHYSICAL SENSE OF WELL-BEING’</b>	
<b>Stem 1</b>	feel good, feel sense of physical well-being
<b>Stem 2</b>	feel relaxed
<b>Stem 3</b>	feel post-orgasmic/post-coital bliss; “afterglow”

<b>-LTN- ‘PHYSICAL “HIGH” / ALTERED STATE OF CONSCIOUSNESS’</b>	
<b>Stem 1</b>	natural “high” / natural state of euphoria (physical/sensory, not emotional in origin)
<b>Stem 2</b>	chemically-induced “high”
<b>Stem 3</b>	trance-like state / altered state of consciousness

<b>-PSW- ‘RESPIRATION’</b>	
<b>Stem 1</b>	breathe
<b>Stem 2</b>	pant (i.e., due to physical/sexual exertion, excitement, fright, pulmonary, illness, etc.); feel/be out of breath, short-of-breath
<b>Stem 3</b>	gasp (i.e., once, as in surprise, shock, pain, etc.)

<b>-MSŘ- ‘RESPIRATORY DIFFICULTY’</b>	
<b>Stem 1</b>	wheeze
<b>Stem 2</b>	have râles
<b>Stem 3</b>	choke / asphyxiate

	<b>-GZŘ- ‘AUTONOMIC RESPIRATORY REACTIONS’</b>
<b>Stem 1</b>	feel need to yawn [CPT = to yawn]
<b>Stem 2</b>	feel need to cough [CPT = to cough]
<b>Stem 3</b>	feel need to sneeze [CPT = to sneeze]

	<b>-KHW- ‘SEMI-CONSCIOUS RESPIRATORY REACTIONS’</b>
<b>Stem 1</b>	sigh
<b>Stem 2</b>	huff (as in indignation, annoyance, or anger)
<b>Stem 3</b>	puff, blow out [held] breath (as when relieved, caught off guard, saying “phew!”)

	<b>-JŘ- ‘GASTRO-INTESTINAL PAROXYSM 1’</b>
<b>Stem 1</b>	feel need to belch/burp [CPT = to belch/burp]
<b>Stem 2</b>	experience a hiccup
<b>Stem 3</b>	experience gagging; to gag

	<b>-ŘXM- ‘GASTRO-INTESTINAL PAROXYSM 2’</b>
<b>Stem 1</b>	feel need to vomit [CPT = to vomit]
<b>Stem 2</b>	feel need to fart [CPT = to fart]
<b>Stem 3</b>	feel stomach or intestinal cramp

	<b>-PSŘ- ‘HAVE AN ITCH; TO ITCH’</b>
<b>Stem 1</b>	have an itch; to itch
<b>Stem 2</b>	feel a tingling sensation (on skin)
<b>Stem 3</b>	feel a burning sensation (on skin)

	<b>-CXW- ‘TACTILE INJURIES TO SKIN’</b>
<b>Stem 1</b>	feel a scrape
<b>Stem 2</b>	feel a bruising/contusion
<b>Stem 3</b>	feel a pinch(ing)

	<b>-FN- ‘HUNGER / THIRST’</b>
<b>Stem 1</b>	feel hungry
<b>Stem 2</b>	feel thirsty
<b>Stem 3</b>	feel undernourished

	<b>-ŁM- ‘FEEL TIREDNESS/FATIGUE’</b>
<b>Stem 1</b>	feel tiredness/fatigue
<b>Stem 2</b>	feel drowsiness/sleepiness
<b>Stem 3</b>	feel unfocused/groggy

	<b>-ČŘ- ‘BODILY WASTE ELIMINATION’</b>
<b>Stem 1</b>	feel need to urinate [CPT = to urinate]
<b>Stem 2</b>	feel need to defecate [CPT = to defecate]
<b>Stem 3</b>	feel need to spit [CPT = to spit]

	<b>-TFŘ- ‘FEEL INTEROCEPTIVE BODILY MOVEMENT’</b>
<b>Stem 1</b>	feel bloated/gassy
<b>Stem 2</b>	feel stomach/intestines “rumbling”
<b>Stem 3</b>	feel stomach contents “shift”

	<b>-LW- ‘ABNORMAL INTEROCEPTIVE SENSATION’</b>
<b>Stem 1</b>	feel light-headed / dizzy
<b>Stem 2</b>	feel faint
<b>Stem 3</b>	feel shock / be in shock

	<b>-FTR- ‘ABNORMAL AFFECTIVE TACTILE SENSATION [ON SKIN]’</b>
<b>Stem 1</b>	feel a tickle
<b>Stem 2</b>	feel a prickly sensation
<b>Stem 3</b>	feel an “ants/spiders crawling” sensation

	<b>-MBŘ- ‘ABNORMAL VESTIBULAR-PROPRIOCEPTIVE SENSATION’</b>
<b>Stem 1</b>	feel vestibular lack of balance; feel off-balance/unbalanced / having impaired balance / off-kilter
<b>Stem 2</b>	feel awkwardness/unfamiliarity with one’s bodily motor coordination (e.g., when drunk, following a stroke, during puberty, etc.)
<b>Stem 3</b>	feel “shaky”, difficulty in controlling one’s vestibular/muscular coordination (e.g., due to emotional shock, illness, fright, etc.)

	<b>-CTW- ‘PENETRATIVE SENSATION THROUGH SKIN’</b>
<b>Stem 1</b>	feel a sting/prick
<b>Stem 2</b>	feel a stab; feel a piercing; sharp penetration through skin
<b>Stem 3</b>	feel a bite (by a toothed entity)

	<b>-ŘX- ‘PHYSICAL PAIN’</b>
<b>Stem 1</b>	feel external tactile pain
<b>Stem 2</b>	feel interoceptive/proprioceptive pain
<b>Stem 3</b>	feel muscular strain

	<b>-VZW- ‘SOCALLY-BASED PLEASURABLE TACTILE SENSATION’</b>
<b>Stem 1</b>	sensation from having body or part of body massaged
<b>Stem 2</b>	sensation from having back scratched
<b>Stem 3</b>	caress / feel of “soft touch” / “social touch” (a.k.a. affective touch, somatosensory touch)

	<b>-JDW- ‘AFFECTIVE TACTILE REACTIONS’</b>
<b>Stem 1</b>	feel “a thrill down one’s spine”
<b>Stem 2</b>	feel one’s “hairs standing on the back of one’s neck”
<b>Stem 3</b>	“have the creeps / have the willies”

	<b>-LGV- ‘CARDIOGENIC SENSATION’</b>
<b>Stem 1</b>	feel one’s heart beating
<b>Stem 2</b>	feel one’s heart racing
<b>Stem 3</b>	feel one’s heart fluttering

	<b>-KŘ- ‘FEEL ILL / SICK’</b>
<b>Stem 1</b>	feel ill/sick/unhealthy; feeling of general malaise, feel “blah”, feel so-so, feel poorly
<b>Stem 2</b>	feel torpor/lethargy
<b>Stem 3</b>	feel weakness

	<b>-KSN- ‘POSITIVE OVERALL PHYSICAL STATE’</b>
<b>Stem 1</b>	feel energized/alert
<b>Stem 2</b>	feel physically in shape
<b>Stem 3</b>	feel physically strong

	<b>-MMH- ‘PHYSICAL/SENSORY PLEASURE’</b>
<b>Stem 1</b>	feel physical/sensory pleasure
<b>Stem 2</b>	feel physical relief (from previous state of pain/strain/fatigue, etc.)
<b>Stem 3</b>	feel physical satisfaction/satiety

	<b>-GH- ‘BRUISE / SWELLING / INFLAMMATION’</b>
<b>Stem 1</b>	have/feel a bruise
<b>Stem 2</b>	feel sore, have/feel inflammation, swelling
<b>Stem 3</b>	have a sensitive/tender feeling on the body (no visible swelling or bruise)

	<b>-ZGR- ‘INTERNAL BURNING/TINGLING/PRICKLY SENSATION’</b>
<b>Stem 1</b>	have/feel an internal “burning” sensation
<b>Stem 2</b>	have/feel an internal tingling sensation
<b>Stem 3</b>	have/feel an internal prickly/stinging sensation

	<b>-ZG- ‘ACHE / SHARP PAIN / RADIATING PAIN’</b>
<b>Stem 1</b>	feel/have an ache (i.e., diffuse, non-sharp pain) [using SUF/EXN affixes, this stem can mean ‘feel throbbing/pounding pain’]
<b>Stem 2</b>	feel sharp/stabbing pain
<b>Stem 3</b>	feel radiating “shooting” pain

	<b>-PFN- ‘TWITCHING / FLUTTERING / TREMBLING’</b>
<b>Stem 1</b>	feel a twitch or twinge
<b>Stem 2</b>	feel a fluttering sensation
<b>Stem 3</b>	feel/experience a tremor or trembling

	<b>-JDV- ‘NUMBNESS / “PINS &amp; NEEDLES” FEELING’</b>
<b>Stem 1</b>	feel that a limb has “fallen asleep”,
<b>Stem 2</b>	“pins & needles” feeling in one’s limb (after it has been “asleep”)
<b>Stem 3</b>	feel internal numbness or “dead” feeling (i.e., a lack of an expected internal sensation)

	<b>-DGR- ‘QUEASINESS / NAUSEA / VOMITING’</b>
<b>Stem 1</b>	have no appetite (even though one has not recently eaten)
<b>Stem 2</b>	feel queasy (mildly nauseous feeling)
<b>Stem 3</b>	feel nauseous; have nausea, feel as if one is going to vomit [CPT version = ‘to vomit’]

	<b>-DČ- ‘BLACK-OUT / SPELL / SEIZURE’</b>
<b>Stem 1</b>	experience a feeling of “blacking out” or “blacking out”
<b>Stem 2</b>	experience an episode or spell of inattention or loss of awareness/focus; to “zone out”/ “space out”
<b>Stem 3</b>	experience a seizure

	<b>-ŇH- ‘EXHAUSTION / FATIGUE / FEEL FLUSHED’</b>
<b>Stem 1</b>	feel exhausted/exhaustion from physical/mental exertion
<b>Stem 2</b>	feel fatigue from illness, overwork, stress, etc.
<b>Stem 3</b>	feel flushed; have flushed feeling

#### 4.5.7 Affective Mental/Psychological States

The 12 roots below designate various affective mental/psychological states which have quasi- or pseudo-informational “content”. They have the following Specification pattern:

<b>BSC</b>	(to be) the particular affective state and the sensing thereof [act of sensing + sensation itself]; to experience the particular affective state [both the sensing and the sensation itself]
<b>CTE</b>	(to be) the semiotic-informational content of the particular affective state
<b>CSV</b>	(to be) the physical manifestation(s) of the affective state; to undergo/experience the physical manifestation(s) of the particular affective state
<b>OBJ</b>	(to be) the circumstance(s)/event/situation/encounter which triggers or gives rise to the particular affective state

	<b>-TW- ‘DREAM’</b>
<b>Stem 1</b>	dream
<b>Stem 2</b>	lucid dream
<b>Stem 3</b>	nightmare

	<b>-LḐŘ- ‘ILLUSION / SYNAESTHESIA / HALLUCINATION’</b>
<b>Stem 1</b>	sensory illusion (i.e., misinterpretation of a real sensory experience)
<b>Stem 2</b>	synaesthetic experience
<b>Stem 3</b>	hallucination; apparition

	<b>-ZKŘ- ‘PARANORMAL EXPERIENCE’</b>
<b>Stem 1</b>	paranormal experience
<b>Stem 2</b>	telepathathic experience
<b>Stem 3</b>	state/act of clairvoyance

	<b>-DGW- ‘PREMONITION / PRESCIENCE’</b>
<b>Stem 1</b>	premonition / a vision
<b>Stem 2</b>	state of prescience / precognition
<b>Stem 3</b>	interpret/read “signs” (e.g., haruspex, fortune-telling, divination, aeromancy, etc.)

	<b>-LŘ- ‘INSTINCT’</b>
<b>Stem 1</b>	instinct; act/behave on instinct [state + content]
<b>Stem 2</b>	involuntary state/act; reflex
<b>Stem 3</b>	autonomic state/reflex

	<b>-MN- ‘MOOD / TEMPERAMENT / NATURE’</b>
<b>Stem 1</b>	mood; behave based on a mood
<b>Stem 2</b>	one’s natural/usual “default” demeanor / temperament
<b>Stem 3</b>	<a href="#">one’s nature / the essence of one’s sense of self</a>



	<b>-FTW- ‘DECEPTION / BEGUILEMENT/ DELUSION’</b>
<b>Stem 1</b>	state of being deceived/fooled; act/behave based on being under a deception
<b>Stem 2</b>	state of being beguiled/ /seduced; act/behave based on having been beguiled/seduced or psychologically manipulated
<b>Stem 3</b>	state of delusion, be deluded

	<b>- ŠFW - ‘DÉJÀ VU / JAMAIS VU’</b>
<b>Stem 1</b>	state of déjà vu
<b>Stem 2</b>	state of jamais vu
<b>Stem 3</b>	state of disbelief in one’s circumstance / sense of unreality regarding the present moment

	<b>-ŽDW- ‘DISSOCIATIVE STATE’</b>
<b>Stem 1</b>	state of daydreaming
<b>Stem 2</b>	state of being mesmerized (inattentive to surroundings)
<b>Stem 3</b>	state of sleepwalking

	<b>-ŽDY- ‘INDUCED DISSOCIATIVE STATES’</b>
<b>Stem 1</b>	meditative state
<b>Stem 2</b>	hypnotic state
<b>Stem 3</b>	out-of-body experience

	<b>-BŘ- ‘IRRATIONALITY / MENTAL ILLNESS’</b>
<b>Stem 1</b>	state of irrationality
<b>Stem 2</b>	state of having a non-violent psychological disorder
<b>Stem 3</b>	state of violent or dangerous madness/insanity

	<b>-VZN- ‘SPONTANEOUS SUSPICION OVER PERSONAL SPACE’</b>
<b>Stem 1</b>	feeling of being watched
<b>Stem 2</b>	feeling that one is not alone; feeling that someone else is present
<b>Stem 3</b>	feeling that something ominous is about to happen

	<b>-ŇC- ‘RELUCTANCE / SQUEAMISHNESS / COWARDICE’</b>
<b>Stem 1</b>	feel reluctance, feel reluctant
<b>Stem 2</b>	feel squeamishness, feel squeamish, have qualms about
<b>Stem 3</b>	feel cowardice, feel cowardly

	<b>-VL- ‘PSYCHOLOGICAL PLEASURE’</b> Associated Affix: <b>PLE</b>
<b>Stem 1</b>	feel psychological/emotional pleasure
<b>Stem 2</b>	feel psychological relief (from previous state of mental stress, grief, worry, etc.)
<b>Stem 3</b>	feel psychological sense of satisfaction/satiety

#### 4.5.8 Affective Unconscious/Semi-Conscious Autonomic States/Acts

These are similar to the interoceptive/proprioceptive/vestibular roots above. They take the following Specification pattern:

<b>BSC</b>	(to be) the particular affective state and the experience thereof [act of experiencing the state + the state itself]; to experience the particular affective state [both the experience and the state itself]
<b>CTE</b>	(to be) the particular affective experience, the affective act/state itself
<b>CSV</b>	(to be) the physical manifestation(s) of the affective experience; to undergo/experience the physical manifestation(s) of the particular affective state
<b>OBJ</b>	(to be) an organ/bodily system/process which gives rise to the particular affective state

	<b>-JW- ‘LAUGHTER’</b>
<b>Stem 1</b>	laugh
<b>Stem 2</b>	snicker
<b>Stem 3</b>	chuckle

	<b>-SŇ- ‘ORAL-NASAL REFLEX’</b>
<b>Stem 1</b>	make oral sound of derisiveness (e.g., “pfft”, “pshhh”, etc.)
<b>Stem 2</b>	drop jaw (i.e., open mouth suddenly in surprise/shock/pain)
<b>Stem 3</b>	snort (e.g., in disgust)

	<b>-BDY- ‘MISC. AUTONOMIC BODILY PROCESS’</b>
<b>Stem 1</b>	blink eyelids
<b>Stem 2</b>	digest stomach contents
<b>Stem 3</b>	sweat

	<b>-ŽBŘ- ‘OSCILLATIVE AFFECTIVE BODILY STATE’</b>
<b>Stem 1</b>	shiver
<b>Stem 2</b>	fidget (unconscious)
<b>Stem 3</b>	shake leg or foot (unconscious)

	<b>-GŽ- ‘FLINCH / JOLT / DUCK’</b>
<b>Stem 1</b>	flinch/jolt
<b>Stem 2</b>	duck/crouch (as self-preservation reflex)
<b>Stem 3</b>	jump/leap out of the way (as self-preservation reflex)

	<b>-ŽN- ‘AFFECTIVE SEXUAL RESPONSE’</b>
<b>Stem 1</b>	sexual arousal response (e.g., erection, lubrication, hardening of nipples, etc.)
<b>Stem 2</b>	approach orgasm [CPT = achieve orgasm]
<b>Stem 3</b>	ejaculation

	<b>-TKŘ- ‘NEURO-MUSCULAR REACTION’</b>
<b>Stem 1</b>	nervous tic
<b>Stem 2</b>	spasm
<b>Stem 3</b>	cramp

	<b>-NGR- ‘SEMI-CONSCIOUS ORAL-NASAL SOUND/ACTION’</b>
<b>Stem 1</b>	grunt
<b>Stem 2</b>	clear throat
<b>Stem 3</b>	sniffle / snort (to clear nasal mucus)

#### 4.5.9 Semi-Conscious Habitual Acts

The following roots for semi-conscious habitual acts follow the same Specification pattern as the affective states immediately above.

	<b>-STN- ‘NERVOUS HABIT’</b>
<b>Stem 1</b>	bite fingernails
<b>Stem 2</b>	pick nose
<b>Stem 3</b>	crack knuckles

	<b>-XPW- ‘HABITUAL ACTION’</b>
<b>Stem 1</b>	scratch oneself (unconsciously)
<b>Stem 2</b>	rub or pinch oneself
<b>Stem 3</b>	suck thumb

	<b>-DMW- ‘EMOTION-BASED PHYSICAL REACTION’</b>
<b>Stem 1</b>	shrug
<b>Stem 2</b>	roll eyes
<b>Stem 3</b>	drop one’s jaw in surprise/shock

	<b>-TPŘ- ‘HABITUAL ORAL ACTION’</b>
<b>Stem 1</b>	purse lips
<b>Stem 2</b>	make smacking or other oral clicking sound
<b>Stem 3</b>	trill lips

	<b>-ÇÇP- ‘NEGATIVE FACIAL EXPRESSION’</b>
<b>Stem 1</b>	frown
<b>Stem 2</b>	scowl
<b>Stem 3</b>	have crestfallen/dejected look

	<b>-ÐBŘ- ‘ATYPICAL FACIAL EXPRESSION’</b>
<b>Stem 1</b>	“scrunch up” one’s face in irritation/puzzlement/concentration
<b>Stem 2</b>	look of distraction / not paying attention / being “far away”
<b>Stem 3</b>	raise eyebrows due to encountering/considering something unexpected

	<b>-MW- ‘SMILE / GRIN / SMIRK’</b>
<b>Stem 1</b>	smile (lips closed)
<b>Stem 2</b>	grin (i.e., smile with teeth visible)
<b>Stem 3</b>	smirk

	<b>-RTN- ‘FIDDLE / PLAY ABSENT-MINDEDLY’</b>
<b>Stem 1</b>	play with hair
<b>Stem 2</b>	play with piece of clothing or jewelry (unconsciousness)
<b>Stem 3</b>	fiddle with object

#### 4.5.10 Emotional States

The following general root for any affective state provides the Stem & Specification pattern used with the over one hundred roots for emotional states listed beginning on the next page.

<b>-ÇM- ‘AFFECTIVE STATE’</b>		<b>Associated Affix: EMO</b>
<b>BSC</b>	<b>STEM 1:</b> (to be in) a non-volitional (affective) state (both internal, psychological manifestations and external, visible manifestations)	<b>STEM 2:</b> [same as Stem 1 except that the affective state is specifically a non-volitional emotional state]  <b>STEM 3:</b> [same as Stem 1 except that the affective state is specifically a non-volitional physical/bodily (i.e., non-psychological state), e.g., being hot/cold, coughing, sneezing, fainting, sleepy/tired, hungry, etc.]
<b>CTE</b>	(to be) the internal psychological, and proprioceptive sensation of being in such a state; to experience such manifestations	
<b>CSV</b>	(to be) the “look” of being in such a state. i.e., the outward (visible or externally discernible) manifestation of being an affective state; to have the “look” of, (i.e., outwardly manifest the signs of) being in an emotional state	
<b>OBJ</b>	(to be) the act/event/situation/circumstance(s) which trigger or give rise to an affective state	

Roots for more than one hundred emotional states are listed below. They all follow the same Stem & Specification pattern as the root **-ÇM-** above:

##### 4.5.10.1 Desirable/Positive Emotions

**green = will also be a bias category**

<b>-ÑV-</b>	1. feel(ing of) jollity/merriment/delight 2. feel(ing of) happiness 3. feel(ing of) jubilation (= short-term sense of joy)	<b>-SMW-</b>	1. feel(ing of) calm and rationality 2. feel(ing of) serenity, feel(ing of being) mentally/emotionally “refreshed” 3. feel(ing of) emotional well-being/peace of mind
<b>-RPL-</b>	1. feel(ing of being) upbeat / in a good mood 2. feel(ing of) being spirited, feeling “alive”, feeling uplifted 3. feel(ing of) mental/spiritual youthfulness and joi-de-vivre	<b>-ZMM-</b>	1. feel(ing of) enjoyment 2. feel(ing of) excitement 3. feel(ing of) a thrill, “whee!”
<b>-TKY-</b>	1. feel(ing of) gleefulness/fun/amusement 2. feel(ing of) free-spiritedness/frivolity 3. feel(ing of) playfulness, gregariousness	<b>-TPL-</b>	1. feel(ing of being) self-satisfied / pleased with one self / gratified 2. feel(ing of) pride in oneself/self-pride 3. feel(ing of) self-confidence, self-esteem
<b>-RTK-</b>	1. feel(ing of) sympathy / commiseration 2. feel(ing of) compassion 3. feel(ing of) empathy	<b>-VTL-</b>	1. feel(ing of) being pleased, feel(ing of) emotional gratification 2. feel(ing of) satisfaction, feel(ing) that all is going well/has gone well 3. feel(ing of) deep satisfaction in one’s good fortune
<b>-NTK-</b>	1. feel(ing of being) hopeful; wishful for beneficial outcome 2. feel(ing of being) encouraged 3. feel(ing of) optimism	<b>-LKP-</b>	1. feel(ing of) relief/reprieve from a burden or from anxiety 2. feel(ing of) personal independence/autonomy/self-determination 3. feel(ing of) freedom

<b>-TMY-</b>	1. feel(ing of being) honored/privileged 2. feel(ing of being) beholden, wanting to give back 3. feel(ing of being) humble, humility
<b>-RKY-</b>	1. feel(ing of being) emotionally open/available/warm/inviting 2. feel(ing of) amiability/welcoming/accommodating/cordial 3. feel(ing of) amicability, friendliness, congeniality
<b>-KTR-</b>	1. feel(ing of being) resolved, resolute, determined against odds 2. feel(ing of) audacity; feel audacious 3. feel(ing of) tenacity/perseverance; feel tenacious/perseverant
<b>-MSW-</b>	1. feel(ing of) tolerance 2. feel(ing of being) accepting 3. feel(ing of being) trusting
<b>-NTR-</b>	1. feel(ing of) joy [= long-term sustained sense of happiness + sense of security in one's happiness + serene introspective appreciation for the situation that brings such a state] 2. feel(ing of) joy centered on what one has accomplished 3. feel(ing of) joy from one's social/familial/romantic connections

<b>-LPW-</b>	1. feeling of peace of mind due to achieving solitude 2. peaceful euphoria of being alone with Nature's beauty 3. serenity through solitude as a character trait
<b>-RTR-</b>	1. kindness, warm-heartedness 2. benevolent, helpful, beneficent 3. kindliness, magnanimity, generosity
<b>-GZZ-</b>	1. feel(ing of) elation, feel(ing of being) on an emotional "high" 2. feel(ing of) euphoria, bliss 3. feel(ing of) ecstasy
<b>-NR-</b>	1. feel(ing of) enthusiasm 2. feel(ing of) enthusiastic anticipation/looking forward to / feel one can't wait for 3. feel(ing of being) lucky/auspicious/propitious
<b>-MCW-</b>	1. feel(ing of) mental clarity; to sense that one's confusion or lack of understanding regarding something has vanished 2. feel(ing of) extreme mental efficacy; feel that one's mind can suddenly tackle any problem and find heretofore hidden solutions 3. feel(ing of) mental prowess; feel that one's mind is sufficiently powerful and intelligent to understand anything

#### 4.5.10.2 Emotions Associated With Personal Relationships/Intimacy

<b>-LTW-</b>	1. feel(ing of) fondness, affection 2. feel(ing of) a bond of fellowship, companionship, comradeship 3. feel(ing of) friendship
<b>-KVV-</b>	1. feel(ing of) aesthetic appreciation for something 2. feel(ing of) personal appreciation, admiration 3. feel(ing of being) impressed by / feel(ing of) pride in another or others
<b>-RKW-</b>	1. feel(ing of) romantic love 2. feel(ing of) filial love 3. feel(ing of) love for an institution, country, place, ideal, or other abstraction
<b>-RPY-</b>	1. feel(ing of being) part of something, feeling of belonging 2. feel(ing of) familiarity, feel(ing of being able to be) one's true self due to sense of familiarity with surroundings and the people present 3. feel(ing of) coziness, "home-sweet-home" feeling, hygge

<b>-LPY-</b>	1. feel(ing of) gladness (= pleasure at other's happiness or good fortune) 2. feel(ing of) cheerfulness (= light-hearted good will toward others) 3. feel(ing of) desire to spread cheer among others
<b>-PKR-</b>	1. feel(ing of) embarrassment at receiving flattery 2. feel(ing of being) indebted to someone (willingly, fairly) 3. feel(ing of being) indebted to someone (unwillingly, resentfully)
<b>-LTY-</b>	1. feel(ing of) tenderness/ protectiveness 2. feel(ing of being) nurturing/caring/nurse-like 3. feel(ing of) maternal- or paternal-love; love based on raising/nurturing/caring for someone
<b>-RPR-</b>	1. feel(ing of) devotion 2. feel(ing of) personal loyalty 3. feel(ing of) allegiance/fealty

<b>-LTL-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) surprise, floating-on-air, and joy when someone you love romantically tells you they love you in return</li> <li>2. feel(ing of) emotional warmth plus relief plus pride plus awe at having reached the point in a relationship with another person where you truly understand and trust each other</li> <li>3. feel(ing of) emotional solidity and depth of the mutual bond felt by persons in a longstanding, successful romantic relationship.</li> </ol>	<b>-MTL-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) poignancy ( = “aaw” reaction to an event characterized by irresistible cuteness)</li> <li>2. feel(ing of) poignancy, feeling touched or moved by witnessing an act/event of compassion/tenderness/love, etc.)</li> <li>3. feel(ing of having) the capacity to be easily moved</li> </ol>
<b>-TKR-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) worthy, deserving</li> <li>2. feel(ing of) appreciated, recognized, honored</li> <li>3. feel(ing of being) loved, adored, worshipped</li> </ol>	<b>-LTR-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) romantic (i.e., preoccupied with idealized, fabulous notions of life, adventure, and love)</li> <li>2. feel(ing of having) a head-in-the-clouds fantasy feeling, “dreaming”</li> <li>3. feel(ing of being) lost in one’s fantasies and daydreams</li> </ol>
<b>-LŠ-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) exaltation, “being on top of the world”</li> <li>2. feel(ing of) ecstatic awareness at the joy and wonder of being alive</li> <li>3. feel(ing of) achieving a moment in which one’s life-state is perfect; an ‘it doesn’t get any better than this’ feeling</li> </ol>	<b>-ŽY-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) being supportive; doing what one can to support another [= no implication of self-sacrifice or altruism, i.e., it is one’s genuine desire to use one’s own talents/resources/efforts to support or help another]</li> <li>2. feel(ing of) wanting to participate or help out; desire to make an effort to accomplish something for others</li> <li>3. feel(ing of being) wanting to make a difference, desire to find personal meaning or spiritual fulfillment for oneself by accomplishing something that helps others</li> </ol>
<b>-CD-</b>	<ol style="list-style-type: none"> <li>1. feeling of love for existence / pantheistic love</li> <li>2. feeling of inherent “connection” to or oneness with the universe through space and time</li> <li>3. feeling of being deeply/personally moved/contemplative/humbled by something extraordinary such as a work of art, a moving speech, an inspiring sight of Nature, etc. Akin to the Spanish-language notion of <i>duende</i>, but applied to contexts beyond art.</li> </ol>	<b>-MML-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) sudden clarity/understanding upon discovery of the solution to a problem/puzzle/mystery — the “a-ha!” moment</li> <li>2. feel(ing of) personal triumph, of conquering a personal challenge</li> <li>3. feel(ing of) victory, that one has vanquished an enemy</li> </ol>

### 4.5.10.3 Ambivalent Emotions

<b>-VÇ-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) pity</li> <li>2. feel(ing of) mercy</li> <li>3. feel(ing of) charitableness, altruism, self-sacrifice</li> </ol>	<b>-KŠŠ-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) judgmental</li> <li>2. feel(ing of) contempt; morally superior feeling + disgust, anger, or resentment</li> <li>3. feel(ing of) vindictiveness, feeling of an “injustice collector”</li> </ol>
<b>-LC-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) curiosity</li> <li>2. feel(ing of) interest</li> <li>3. feel(ing of) being intrigued</li> </ol>	<b>-KSD-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) bittersweetness</li> <li>2. feel(ing of) solace/comfort in the face of sadness or grief</li> <li>3. feel(ing of) forbearance/fortitude/inner strength in the face of sadness</li> </ol>

<b>-ŽČ-</b>	1. feel(ing of) wistfulness/longing/yearning 2. feel(ing of) sentimentality/nostalgia 3. feel(ing of) saudade
<b>-KFF-</b>	1. feel(ing of) nonchalance/indifference /incuriosity/lack of interest 2. feel(ing of) disdain/dismissiveness 3. feel(ing of) apathy
<b>-GŽT-</b>	1. feel(ing of) masochistic pleasure derived from being in pain 2. feel(ing of) masochistic pleasure derived from being humiliated 3. feel(ing of) masochism as a personality trait
<b>-PSB-</b>	1. feel(ing of being) whimsical, care-free 2. feel(ing of being) capricious, feel like playing pranks 3. feel(ing of being) wanton, wayward
<b>-VVR-</b>	1. feel(ing of) passion 2. feel(ing of) infatuation/obsessiveness 3. feel(ing of) worship/adoration
<b>-JKČ-</b>	1. feel(ing of) contemplation; feel contemplative 2. feel(ing of) pensiveness; feel pensive 3. feel(ing of) brooding; feel in brooding mood
<b>-KLL-</b>	1. feel(ing of) surprise 2. feel(ing of) amazement, astonishment 3. feel(ing of) awe, wonder
<b>-JK-</b>	1. feel(ing of) willingness to take a risk, steeling one's nerves against 2. brave, fearless 3. feel(ing of) intrepidity, courageousness
<b>-PSG-</b>	1. feel(ing of) smugness 2. feel(ing of) conceit, feel(ing of being) full of oneself 3. feel(ing of) narcissism, self-aggrandizement
<b>-KŠM-</b>	1. feel(ing of) complacency, a lack of concern 2. feel(ing of) emotional/psychological detachment, 3. feel(ing of) unwillingness to get involved, psychological avoidance

<b>-BZT-</b>	1. feel(ing of) determination/earnestness 2. feel(ing of) eagerness/fervor, feel driven 3. feel(ing of) zeal/zealotry/fanaticism
<b>-GZP-</b>	1. feel(ing of) emotionally reckless, impetuous, feel like taking risks 2. feel(ing of) mischievousness/devilishness/spontaneous non-conformity 3. feel(ing of) exhilaration / feeling of fear plus thrill at taking risk
<b>-VZK-</b>	1. craving (i.e., a greedy hunger for food, adventure, power, money, salacious or forbidden experiences, etc.) 2. sexual lust 3. greed / avarice
<b>-KSG-</b>	1. alert, senses-at-the-ready 2. feeling of wariness/suspicion (that something adverse may happen); be/feel wary, suspicious 3. feeling of watchfulness/vigilance; be/feel watchful/vigilant
<b>-ŽŽJ-</b>	1. feel(ing of) fascination; be/feel fascinated 2. feel(ing of) enthrallment; be/feel enthralled 3. feel(ing of) entrancement/rapture; be/feel entranced/rapturous
<b>-GZT-</b>	1. feel(ing of) impulsiveness; feel impulsive 2. feel(ing of) inspiration; feel inspired 3. feel(ing of) compulsion; feel compelled
<b>-LŁČ-</b>	1. feel(ing of being) startled 2. feel(ing of being) dazzled/astounded/spellbound, "wow!" 3. feel(ing of being) aghast/dumbfounded, feel stupefaction/stupor
<b>-BZK-</b>	1. open to adventure/hungry for (new) experience 2. feeling the itch to travel; feel the call of faraway places (German <i>Fernweh</i> ) 3. bittersweet loneliness of not being able to share the joy of an adventure with others
<b>-ČB-</b>	1. feel(ing of being) daring, feel(ing) like taking a risk 2. (have) the nerve to, (have) the "cheek" to 3. feel(ing of) dauntlessness, "devil-may-care" attitude
<b>-NZF-</b>	1. feel(ing of) relief/triumph at having survived/overcome a danger with simultaneous feeling of foolishness/self-loathing due to the dangerous situation having been one's own fault 2. feel(ing of) guilty relief/triumph that one has gotten away clean with something mischievous/underhanded/sneaky 3. feel(ing of) guilty relief/triumph that one has gotten away clean with a criminal/illegal act

#### 4.5.10.4 Undesirable/Negative Emotions

<b>-KSK-</b>	1. annoyance/irritation (caused by external event/state/situation/person) 2. anger, ire 3. rage, fury; feel furious
<b>-JGR-</b>	1. feel(ing of) disappointment, feel let down 2. feel(ing of) disillusionment 3. feel(ing of being) jaded, cynical
<b>-MRŘ-</b>	1. sadness/grief 2. sorrow/lamentation 3. woefulness/despair/desolation /misery
<b>-PŠŠ-</b>	1. feel(ing of being) misunderstood 2. feel(ing of) indignation/being offended/feel insulted 3. feel(ing of) resentment, bitterness, being treated unfairly
<b>-KÇÇ-</b>	1. feel(ing of) frustration 2. feel(ing of being) disconcerted, defeated 3. feel(ing of) exasperation
<b>-MDR-</b>	1. puzzlement as to why one is uncomfortable in a situation 2. feeling that something is wrong with a situation 3. restlessness/dissatisfaction that something is wrong w/ one's life
<b>-RNG-</b>	1. feel(ing of) self-directed annoyance/irritation 2. feel(ing of) self-directed disappointment/letdown (at failure to meet one's own expectations) 3. feel(ing of) anger at oneself over failure to meet one's own expectations
<b>-KSB-</b>	1. feel(ing of) emotional numbness/ emotional weariness / emotional fatigue/saturation/burn-out 2. feel(ing of being) emotionally unavailable/closed/cold 3. feel(ing of being) stoic/phlegmatic/stolid/repressed
<b>-JDR-</b>	1. feel(ing of) emotional stress/pressure 2. feel(ing of being) at emotional breaking-point, feel(ing) that one "can't take it anymore" 3. feel(ing of being) on the verge of loss of control of one's composure or inhibitions [CPT = loss of emotional control; nervous breakdown]

<b>-ŠŠTL-</b>	1. repugnance/repellant feeling in reaction to sensory input 2. disgust at a situation or someone's behavior, words, etc. 3. shock/disbelief in the face of unexpected repugnance/horror
<b>-GZJ-</b>	1. uncertainty, feel unsure of oneself 2. discomfiture at being out of one's element or one's depth 3. self-doubt, lacking self-confidence, low self-esteem
<b>-BGR-</b>	1. feel(ing of) mental "fogginess", inability to concentrate or focus 2. feel(ing of) mental lassitude, mental laziness, feel uninspired / "stuck in a rut" 3. feel(ing of) anhedonia [inability to feel/experience pleasure]
<b>-JBR-</b>	1. feel(ing of) restlessness/disquietude/tension/being "on edge" 2. feel(ing of) nervousness / agitation 3. feel(ing of) hysteria/loss of emotional control
<b>-ZGL-</b>	1. feel(ing of) regret/remorse/ruefulness over one's acts, behavior or words 2. feel(ing of) regret/remorse/pining over past might-have-beens or inactions 3. feel(ing of being) penitent, feel need to to make amends for past sins
<b>-ZGR-</b>	1. feel(ing of) apprehension, foreboding 2. feel(ing of) anxiety/nervousness/unease 3. feel(ing of) /trepidation /fright
<b>-BZG-</b>	1. feel(ing of) melancholy/emotional malaise 2. feel(ing of being) glum / gloomy / discontented 3. feel(ing of) depression/unhappiness
<b>-ŘŘN-</b>	1. feel(ing of) envy 2. feel(ing of) jealousy 3. feel(ing of) covetousness
<b>-RMZ-</b>	1. feel(ing of being) sullen/moody/morose 2. feel(ing of being) churlish, antisocial, irascible 3. feel(ing of being) rebellious



<b>-FKT-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) flustered at not knowing how to react or what to think/do</li> <li>2. feel(ing of) embarrassment due to social faux pas/misstep</li> <li>3. feel(ing of being) foolish, feel(ing of) shame over playing the fool</li> </ol>
<b>-GVV-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) puzzlement, perplexity</li> <li>2. feel(ing of) confusion, feel one doesn't understand a situation</li> <li>3. feel(ing of) bewilderment</li> </ol>
<b>-KTP-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) spiteful, vindictive</li> <li>2. feel(ing of being) begrudged, feel rancorous. unforgiving, holding a grudge</li> <li>3. feel(ing of being) vengeful / feel a desire for revenge</li> </ol>
<b>-TMW-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) cheated</li> <li>2. feel(ing of being) victimized/used/violated</li> <li>3. feel(ing of being) traumatized</li> </ol>
<b>-JD-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) mean/malicious/malevolent/ill-willed</li> <li>2. feel (a desire to be) cruel or sadistic</li> <li>3. feel(ing of) sadistic pleasure at another's pain or torment</li> </ol>
<b>-BZB-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) bashfulness, timidity</li> <li>2. feel(ing of) shyness</li> <li>3. feel(ing of) stagefright</li> </ol>
<b>-LLČ-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) dismay</li> <li>2. feel(ing of) alarm, surprise (at negative occurrence/experience)</li> <li>3. feel(ing of) shock/reeling (from unexpected bad news/experience)</li> </ol>
<b>-GVR-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) awkwardness</li> <li>2. feel(ing of) embarrassment</li> <li>3. feel(ing of) humiliation</li> </ol>
<b>-JGL-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) world-weariness (German: <i>Lebenskrankheit</i>)</li> <li>2. feel(ing of) Weltschmerz</li> <li>3. feel(ing of) feeling of futility in the face of realizing the transience and seeming meaninglessness of life and the universe</li> </ol>
<b>-KNY-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) stinginess, feel stingy</li> <li>2. feel(ing of) selfishness</li> <li>3. feel(ing of) uncharitableness, uncompassionate, miserliness</li> </ol>

<b>-VVZ-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) worry/ feel(ing of being) preoccupied/fretful/concerned over</li> <li>2. feel(ing of) dread (anticipation of something negative/detrimental)</li> <li>3. feel(ing of) feel(ing of) angst</li> </ol>
<b>-ZDL-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) emotional emptiness/hollowness/shallowness</li> <li>2. feel(ing of being) unemotional / lacking emotion / feel nothing</li> <li>3. feel(ing of) cavalierness/lack of empathy</li> </ol>
<b>-RGZ-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) flustered due to conflicting sensory/emotional input</li> <li>2. feel(ing of) emotional overload/feel need to take an emotional break</li> <li>3. feel(ing of being) emotionally overwhelmed / swooning</li> </ol>
<b>-VXW-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) shame or guilt</li> <li>2. feel(ing of) apprehension and guilt that one is in trouble or has done something wrong</li> <li>3. feel(ing of) self-loathing over one's own failings/wrongdoings</li> </ol>
<b>-RNŽ-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) doubt, dubiousness (= uncertainty as to whether to believe something is true/accurate)</li> <li>2. feel(ing of) skepticism</li> <li>3. feel(ing of) disbelief, incredulity</li> </ol>
<b>-MMF-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) doubt (= feel misgivings, feel one is being fooled or doesn't have all the facts)</li> <li>2. feel(ing of) suspicion (that someone/something is not what it seems)</li> <li>3. feel(ing of) caution (= feeling that one may be in unsafe situation)</li> </ol>
<b>-ŽŽG-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) dejection, downheartedness, crestfallenness</li> <li>2. feel(ing of) rejection</li> <li>3. feel(ing of) heartbreak, heartache</li> </ol>
<b>-KSP-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) pessimism / feeling that things are not okay</li> <li>2. feel(ing of) defeatism, feel defeatist</li> <li>3. feel(ing of) paranoia, feel paranoid</li> </ol>
<b>-VGR-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) full of nervous energy, feel manic</li> <li>2. feel(ing a) need to lash out or to make a scene,</li> <li>3. feel(ing of being) nihilistic, feel like destroying/defacing the sublime</li> </ol>
<b>-PMW-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) stubbornness, obstinacy</li> <li>2. feel(ing of) unyielding, steadfast</li> <li>3. feel(ing of) intransigence/implacability</li> </ol>

<b>-XPL-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) distracted, distraction, feel difficulty in focusing or paying attention, feel unable to get one's mind off something</li> <li>2. feel(ing of being) unaware/ignorant of what's going on in a situation</li> <li>3. feel(ing of being) unaware/ignorant of what's going on in the world or in life</li> </ol>	<b>-ŽŽV-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) impatience</li> <li>2. feel(ing of) irritability/being easily-angered, being on-edge</li> <li>3. feel(ing of) needing to take matters into one's own hands, get things moving; feeling tired of sitting around not doing anything</li> </ol>
<b>-SGR-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) indecisive</li> <li>2. feel(ing of being) fickle, vacillating</li> <li>3. feel(ing of being) irresolute, lacking commitment, half-hearted</li> </ol>	<b>-FFX-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) dislike/distaste/disapproval</li> <li>2. feel(ing of) loathsomeness/abhorrence/repugnance/detesting</li> <li>3. feel(ing of) hate/hatred/enmity</li> </ol>
<b>-FSL-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) mental fatigue/weariness at the state one has let their life become; tired of the same stale dead-end routine...</li> <li>2. feel(ing of) worthlessness, uselessness</li> <li>3. feel(ing of being) suicidal</li> </ol>	<b>-XTL-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) aesthetic fatigue/saturation; exposure to so much beauty that one ceases to appreciate it</li> <li>2. feel(ing of) compassion fatigue</li> <li>3. feel(ing of) futility, feel that all one's efforts are for naught in that they make no difference</li> </ol>
<b>-PXR-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) reluctance/disinclination, feel(ing of) a desire to avoid</li> <li>2. feel(ing of) unwillingness/aversion</li> <li>3. feel(ing of) opposition, feel desire to stand against/oppose</li> </ol>	<b>-LNY-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) lonesome, wanting company/companionship</li> <li>2. feel(ing of) loneliness, feel a lack of love/friendship</li> <li>3. feel(ing of) invisibility (as if no one ever notices you)</li> </ol>
<b>-VKR-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) resignation, no further willingness to fight, giving up</li> <li>2. feel(ing of) helplessness/inefficacy/inability</li> <li>3. feel(ing of) renunciation, desire to turn one's back on the world and become a hermit</li> </ol>	<b>-JVR-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) pettiness, feel(ing of) unwarranted concern for trivial matters</li> <li>2. feel(ing of) fussiness, finickiness ( = spirit of uncooperativeness over trivial matters)</li> <li>3. feel(ing of) a need to meddle/interfere/ "butt in"</li> </ol>
<b>-VZG-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of being) like a stranger in one's own life, like one does not understand oneself</li> <li>2. feel(ing of) alienation from self and others (resigned disgust with oneself and one's inability to understand the world)</li> <li>3. feel(ing of) disconnection or inability to relate to the world, feeling emotionally "adrift" (i.e., a quiet combination of boredom and resignation and bewilderment) in relation to the world</li> </ol>	<b>-VTR-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) sadness or melancholy in the face of happiness due to knowing the happiness is transient/ephemeral</li> <li>2. feel(ing of) sadness or melancholy in the face of happiness due to knowing others are not happy</li> <li>3. feel(ing of) inability to feel/enjoy happiness even upon achieving one's desires due to believing one does not deserve happiness</li> </ol>
<b>-RKR-</b>	<ol style="list-style-type: none"> <li>1. feel(ing of) aloofness</li> <li>2. feel(ing of) emotional superiority/maturity/feeling "above it all"</li> <li>3. feel(ing of) disgust/spite at the inferiority/stupidity of other people</li> </ol>	<b>-PFC-</b>	<ol style="list-style-type: none"> <li>1. light-hearted or innocent amusement at another's behavior or words</li> <li>2. mean-spirited amusement at another's behavior or predicament</li> <li>3. Schadenfreude</li> </ol>

In addition to over 100 emotion roots, the **EMO** Emotion **V<sub>x</sub>C<sub>s</sub>** affix allows for the creation of positive, ambivalent, or negative emotional states associated with any semantically appropriate stem. Several of the more complex or obscure emotion roots from Ithkuil are instead lexicalized in this language using the EMO affix.

## 5.0 MISCELLANEOUS ENTITIES AND OBJECTS

<b>-DK- ‘NON-BALLISTIC WEAPON’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a hand-held or hand-thrown bladed weapon for cutting or stabbing something or someone	<b>Stem 2:</b> (to be) a pointed-tipped handheld or propelled weapon for piercing something or someone
<b>CTE</b>	(to be) an act of using a hand-held or hand-thrown bladed weapon; to wield/brandish/use a weapon	
<b>CSV</b>	(to be) the physical object used as a hand-held or hand-thrown bladed weapon	<b>Stem 3:</b> (to be) a blunt force-driven hand-held or propelled weapon
<b>OBJ</b>	(to be) the target/victim of a non-ballistic weapon	

The following three roots have the same Specification pattern as the above root:

<b>-DKR- ‘BALLISTIC WEAPON’</b>	
<b>STEM 1</b>	(to be) a ballistically launched projectile used as a weapon; to launch a ballistic projectile
<b>STEM 2</b>	(to be) an used as a weapon; to detonate an explosive/incendiary substance/device
<b>STEM 3</b>	(to be) an implement/device used for propelling/launching a ballistic projectile or explosive/incendiary device used as a weapon

<b>-DKW- ‘MICROBIAL, SONIC, CYBER- WEAPON’</b>	
<b>STEM 1</b>	(to be) a microbial agent used as a weapon
<b>STEM 2</b>	(to be) a sonic weapon
<b>STEM 3</b>	(to be) a cyber-weapon

<b>-ŽTW- ‘POISONOUS, VENOMOUS, OR RADIOACTIVE SUBSTANCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a poisonous [i.e., chemical] substance, poison; to poison [with a chemical substance]	<b>Stem 2:</b> (to be) a venom; to poison by means of venom
<b>CTE</b>	(to be) the experience of suffering from poisoning; to be poisoned	
<b>CSV</b>	(to be) the act of poisoning; to poison, to utilize poison	<b>Stem 3:</b> (to be) a radioactive substance; to expose to a radioactive substance
<b>OBJ</b>	(to be) the entity/party which is poisoned	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the above stems with Degree 9 of the new ARO affix.

<b>-SKH- ‘AIMING (A PROJECTILE/WEAPON) / TARGET / GOAL / OBJECTIVE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a act/process of targeting or aiming at a target; to target, to aim (at a target)	<b>STEM 2:</b> (to be) an act/process of targeting one’s (verbal/written) communication/message at a party; to aim for/at a (particular) audience  <b>STEM 3:</b> (to be) a state/process of pursuing, driving at/towards a goal or objective; to drive towards/pursue a goal or objective
<b>CTE</b>	(to be) what one is aiming (e.g., a projectile weapon, a hand-held projectile, a basketball)	
<b>CSV</b>	(to be) an act/process of aiming, training one’s sights upon; to aim at, to target, to train one’s sights upon	
<b>OBJ</b>	(to be) a target, what one aims at	

<b>-DDL- ‘GROUND VEHICLE / CONVEY IN GROUND VEHICLE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/state of traveling/conveying objects or persons in an open-air wheeled vehicle (e.g., cart, wagon, open-bed truck/lorry, open-bed train car, wheelbarrow, wheelchair, wheeled stretcher or gurney, bicycle, skateboard, motorcycle, etc.); to travel/convey (an) object(s)/person(s) in an open-ai red wheeled vehicle [both the travel/conveyance and the vehicle itself]	<b>Stem 2:</b> (to be) an act/instance of traveling/conveying objects or persons in an enclosed wheeled vehicle (e.g., car, carriage, coach, van, bus, train car, etc.)  <b>Stem 3:</b> (to be) an act/instance of traveling/conveying objects or persons in a non-wheeled vehicle (e.g., sled, palanquin, sedan chair, litter, etc.)
<b>CTE</b>	(to be) a wheeled open-air wheeled vehicle	
<b>CSV</b>	(to be) an act/instance of conveying/traveling in a wheeled open-air vehicle; to travel/convey by open-air wheeled vehicle	
<b>OBJ</b>	(to be) the entity/object(s)/party being conveyed by an open-air wheeled vehicle	

<b>-DDR- ‘VESSEL / WATERCRAFT / AIRCRAFT / SPACECRAFT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/state of traveling/conveying objects or persons in a water vessel/watercraft (e.g., boat, ship, canoe, kayak, catamaran, dinghy, etc.); to travel/convey in a watercraft	<b>Stem 2:</b> (to be) an act/state of traveling/conveying objects or persons in an aircraft (e.g., airplane/aeroplane, jet plane, glider, hot-air balloon, etc.)  <b>Stem 3:</b> (to be) an act/state of traveling/conveying objects or persons in a spacecraft
<b>CTE</b>	(to be) a watercraft	
<b>CSV</b>	(to be) an act/instance of conveying/traveling in a watercraft; to travel/convey by watercraft	
<b>OBJ</b>	(to be) the entity/object(s)/party being conveyed by a watercraft	

The above two roots readily lend themselves to be used with Degrees 3 and 5 of the **MEA** and **CVY** affixes to designate motorized versus non-motorized vehicles/vessels.

<b>-TÑ- ‘LEVEL / FLOOR / TIER’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be in) a position at/on a particular planar level of a vertically sequential series of levels; to be positioned on a particular level (of a vertically sequential series of levels)	<b>Stem 2:</b> (to be in) a position on a particular floor/stor(e)y of a building (e.g., be on the fifth floor/stor(e)y of a hotel); be on a particular floor/stor(e)y of a building  <b>Stem 3:</b> (to be in) a position on a particular abstract level/tier of a series of metaphorical/abstract tiers/levels of something (e.g., ‘He plays at grandmaster level/tier when it comes to chess.’)
<b>CTE</b>	(to be) in a state of being on a particular physical level of a vertically sequential series of levels	
<b>CSV</b>	(to be) an act of physically positioning oneself or being positioned on a particular level	
<b>OBJ</b>	(to be) the particular physical level something or someone is positioned on	

## 5.1 CLOTHING

<b>-FB- ‘ARTICLE OF CLOTHING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a piece/article of clothing being worn for the purpose of covering or protecting (a part of) the body; to wear such	<b>Stem 2:</b> (to be) a piece/article of clothing being worn as a fashion statement (i.e., to create a fashionable appearance); to wear such  <b>Stem 3:</b> (to be) a piece/article of clothing being worn as ornament or accessory; to wear such
<b>CTE</b>	(to be) a state of wearing an article of clothing as coverage/protection	
<b>CSV</b>	(to be) a physical act of putting on/donning an article of clothing as coverage/protection	
<b>OBJ</b>	(to be) the particular piece/article of clothing itself (i.e., not necessarily being worn)	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-RFB- ‘CLOTHING AS UNIFORM OR COSTUME OR STATUS-INDICATOR’</b>
<b>Stem 1:</b> a piece/article of clothing being worn as (part of) a uniform (i.e., to indicate one’s job/position/organizational membership, etc.) <b>Stem 2:</b> a piece/article of clothing being worn as (part of) a costume <b>Stem 3:</b> an ornament or accessory being worn as an indicator of a particular rank, award, status, etc. (e.g., medal, sash, epaulets, medallion, special stripe, etc.)

<b>-MTR- ‘HEAD COVERING / HAT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a hat or head covering being worn as protection; to wear a hat or head covering	<b>Stem 2:</b> (to be) a hat or head covering worn for fashion; to wear a fashionable hat  <b>Stem 3:</b> (to be) a hat or head covering worn as indicator of one’s status, job, organizational membership, etc.
<b>CTE</b>	(to be) a state of wearing a hat or head covering for protection/coverage	
<b>CSV</b>	(to be) a physical act of donning a hat or head covering as protection/coverage	
<b>OBJ</b>	(to be) a hat or head covering itself (i.e., not necessarily being worn)	

The following roots follow the same Stem and Specification pattern as the above root **-MTR-** :

<b>-LTL-</b>	‘jacket / coat’	<b>-PTR-</b>	‘tights / leggings’	<b>-VDL-</b>	‘scarf’
<b>-RTL-</b>	‘robe(s)’ [i.e., dress robes]	<b>-KTR-</b>	‘stocking / hose’	<b>-VDR-</b>	‘belt’
<b>-CTL-</b>	‘shirt / blouse’	<b>-ŽTR-</b>	‘shoe / mocassin’	<b>-VDŘ-</b>	‘tie / cravat’
<b>-TTL-</b>	‘dress’	<b>-NTL-</b>	‘sandal’	<b>-VZW-</b>	‘over-the-shoulder sash’
<b>-PTL-</b>	‘skirt / kilt’	<b>-ŽTL-</b>	‘boot’	<b>-VZD-</b>	‘ornamental/costume mask’
<b>-XTR-</b>	‘pants / trousers’	<b>-ÇTL-</b>	‘slipper’	<b>-VJW-</b>	‘waist sash / cummerbund’
<b>-CTR-</b>	‘tunic’	<b>-NŁT-</b>	‘undergarment (for the groin area)’	<b>-ŠTR-</b>	‘necklace / neck-chain’
<b>-ZTL-</b>	‘sari / sari-like article of clothing’	<b>-NŁP-</b>	‘undergarment (for the torso)’	<b>-ŠTL-</b>	‘brooch / pendant’
<b>-ŇTR-</b>	‘vest’	<b>-NŁM-</b>	‘brassiere’	<b>-ŠTW-</b>	‘earring’
<b>-ŇTL-</b>	‘overcoat / long coat’	<b>-VDW-</b>	‘apron’	<b>-ŠTY-</b>	‘medallion’
<b>-ŁTR-</b>	‘parka / heavy winter coat’	<b>-VDY-</b>	‘collar’	<b>-ŠTF-</b>	‘cuff links’
<b>-JTR-</b>	‘sock’	<b>-VDV-</b>	‘bandana / handkerchief’	<b>-ŠTV-</b>	‘tie pin / tie clip’
<b>-ZTR-</b>	‘glove’	<b>-VDN-</b>	‘sleeve’	<b>-ŠTŘ-</b>	‘button / stud’
				<b>-PTŘ-</b>	‘helmet’

## 6.0 NATURE AND NATURAL PHENOMENA (Non-Biological)

### 6.1 THE QUALITY OR PROPERTY OF MATTER

<b>-TKL- 'PHYSICAL STATE OF MATTER'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a solid, something solid; to be/make solid, solidify	<b>Stem 2:</b> (to be) a liquid, something liquid; to be/make liquid, to liquify  <b>Stem 3:</b> (to be) a gas, something gaseous; to be/make into a gas, to render into a gaseous state
<b>CTE</b>	(to be) a state of being solid	
<b>CSV</b>	(to be) the physical process(es) by which one solidifies something (e.g., freezing, dehydration, oxidation, etc.)	
<b>OBJ</b>	(to be) that which is solid	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-RTKL- 'LESS TYPICAL PHYSICAL STATES OF MATTER'</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) something in a semi-solid, semi-liquid, viscous, state (e.g., mud, something gelatinous, slime, etc.)	<b>STEM 2:</b> (to be) a plasma; to be/make into a plasma  <b>STEM 3:</b> (to be) a Bose-Einstein condensate; to be/make into a Bose-Einstein condensate
<b>CTE</b>	(to be) a state of being semi-solid	
<b>CSV</b>	(to be) the physical process(es) by which one makes something semi-solid	
<b>OBJ</b>	(to be) that which is semi-solid	

<b>-CN- 'SUBSTANCE'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a fundamental manifestation (e.g., chunk, drop, flume, bit, piece, etc.) of a material substance + substance itself	<b>Stem 2:</b> (to be) an instance/act of utilizing, manipulating, handling, or working with a substance; to handle, manipulate, work with, utilizing a substance  <b>Stem 3:</b> (to be) the source of a material substance / compound
<b>CTE</b>	(to be) the material substance being manifested	
<b>CSV</b>	(to be) the form of a fundamental manifestation of a material substance (i.e., chunk, drop, flume, bit, piece, etc.)	
<b>OBJ</b>	(to be) the party/entity in contact with, confronted with, observing, handling, etc. a material substance	

<b>-ŘB- ‘QUALITY, ATTRIBUTE OR PROPERTY OF MATTER’</b> (use with the SUF, EXD, FLC, PTW, ITY, etc. affixes)		
	<b>STEM 1</b>	<b>STEM2:</b> (to be) a decrease in the degree of a particular quality/attribute/property of matter  <b>STEM 3:</b> (to be) an increase in the degree of a particular quality/attribute/property of matter
<b>BSC</b>	(to be) a degree of a particular quality ( = intrinsic/inherent behavioral property) of matter	
<b>CTE</b>	(to be) the intrinsic nature/essence of a particular quality of matter (i.e., the existence of the quality within or as part of an entity regardless of its physical manifestation)	
<b>CSV</b>	(to be) the physical manifestation of a particular quality of matter; <b>to manifest a particular quality of matter</b>	
<b>OBJ</b>	(to be) the object/entity having the particular quality of matter	

The Stems and Specifications of the following roots are modeled on the ‘QUALITY OR PROPERTY OF MATTER’ root above:

<b>-BG-</b> ‘FULLNESS/EMPTINESS’	<b>-MB-</b> ‘ABSORPTIVITY’
<b>-DB-</b> ‘SOLIDITY/HOLLOWNESS’	<b>-MD-</b> ‘REFLECTIVITY’
<b>-DG-</b> ‘WEIGHT/MASS’	<b>-MG-</b> ‘TRANSPARENCY/OPACITY’
<b>-XB-</b> ‘TENSION (= STRAIN / MECHANICAL STRESS)’	<b>-BD-</b> ‘CONCAVITY / DEPRESSED’
<b>-XD-</b> ‘TIGHTNESS/SLACK’ (= TAUTNESS)	<b>-GD-</b> ‘CONVEXITY / ROTUNDITY’
<b>-ĽG-</b> ‘PERMEABILITY / POROUSNESS’	<b>-GB-</b> ‘COMPRESSED / SQUEEZED’
<b>-ÑB-</b> ‘RESILIENCE/DELICATENESS’ (= CAPACITY FOR	
<b>-ÑD-</b> ‘DURABILITY/FRAGILITY’ (= CAPACITY FOR BEING DAMAGED)RECOVERY)	
<b>-NG-</b> ‘PRESSURE’	
<b>-LB-</b> ‘STABILITY/INSTABILITY’	
<b>-LD-</b> ‘VOLATILITY/INERTNESS’	
<b>-LG-</b> ‘DURATION/TEMPORARINESS’ [i.e., the amount of elapsed time over which an event or state occurs]	
<b>-BB-</b> ‘EVEN/LEVEL’ (i.e., parallel in comparison to an external linear or planar reference standard)	
<b>-DD-</b> ‘PERPENDICULAR / UPRIGHT’ (relative to gravity)	
<b>-GG-</b> ‘STRAIGHTNESS/LINEARITY RELATIVE TO OBJECT ITSELF’	



<b>-TH- 'PLUME / CLOUD OF GAS / SMOKE / STEAM / GASEOUS PHENOMENON'</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a plume/cloud of smoke from an act/process of combustion (e.g., smoke from a fireplace, from an explosion, from a volcano, from a forest fire, etc.)	<b>STEM 2:</b> (to be) a plume/cloud of steam/water vapor [ <b>NOTE:</b> for a cloud in the sky, see the root <b>-FTH-</b> ]  <b>STEM 3:</b> (to be) a plume/coud of gas other than steam or smoke from combustion (e.g., a gas leak)
<b>CTE</b>	(to be) a state of smokiness; for the air to be filled with smoke	
<b>CSV</b>	(to be) an act/process of combustion which gives rise to a plume of smoke; for there to be smoke due to an act/process of combustion	
<b>OBJ</b>	(to be) the plume of smoke itself	

<b>-TPR- 'CONSISTENCY/MALLEABILITY/FLEXIBILITY/PLASTICITY/RHEOLOGICAL PHENOMENON'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a particular <b>degree</b> of malleability, flexibility, plasticity; to have a certain degree of malleability, flexibility, plasticity	<b>Stem 2:</b> (to be) a particular degree of squeezability, compressibility  <b>Stem 3:</b> (to be) a particular degree of elasticity
<b>CTE</b>	(to be) a state of malleability, flexibility, plasticity; to be malleable, flexible	
<b>CSV</b>	(to be) an act of determining the degree of malleability, flexibility, plasticity of something; to determine the degree of malleability, flexibility, plasticity of something	
<b>OBJ</b>	(to be) that which has a particular consistency in terms of malleability, flexibility, plasticity	

<b>-TPW- 'SPRINGINESS / BUOYANCY / RECOIL'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a particular degree of springiness; to have/manifest a particular degree of springiness	<b>Stem 2:</b> (to be) a particular degree of buoyancy; to have/display a particular degree of buoyancy  <b>Stem 3:</b> (to be) a particular degree of recoil; to have/display a particular degree of recoil
<b>CTE</b>	(to be) a state of springiness; to be springy	
<b>CSV</b>	(to be) an act of determining the degree of springiness	
<b>OBJ</b>	(to be) that which has a particular degree of springiness	

<b>-ZDV- ‘FRAGILITY / BRITTLINESS / CRUMBLINESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a particular degree of fragility; to have/manifest a particular degree of flimsiness	<b>Stem 2:</b> (to be) a particular degree of brittleness <b>Stem 3:</b> (to be) a particular degree of crumbliness
<b>CTE</b>	(to be) a state of fragility; to be fragile	
<b>CSV</b>	(to be) an act of determining the degree of fragility; to determine the degree of fragility of something	
<b>OBJ</b>	(to be) that which has a particular degree of fragility	

<b>-BGW- ‘LIMPNESS / FLACCIDITY / JIGGLINESS / FLABBINESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a particular degree of limpness/flaccidity; to have/manifest a particular degree of limpness/flaccidity	<b>Stem 2:</b> (to be) a particular degree of jiggliness  <b>Stem 3:</b> (to be) a particular degree of flabbiness
<b>CTE</b>	(to be) a state of limpness/flaccidity; to be limp/flaccid	
<b>CSV</b>	(to be) an act of determining the degree of limpness/flaccidity; to determine the degree of limpness/flaccidity of something	
<b>OBJ</b>	(to be) that which has a particular degree of limpness/flaccidity	

<b>-LPW- ‘PLIANCY / DUCTILITY / SUPPLENESS / DEFORMABILITY / SPREADABILITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a particular degree of pliancy/ductility/suppleness; to have/manifest a particular degree of pliancy/ductility/suppleness	<b>Stem 2:</b> (to be) a particular degree of deformability or “dentability” (i.e., how easily deformed or dented a material is)  <b>Stem 3:</b> (to be) a particular degree of spreadability
<b>CTE</b>	(to be) a state of pliancy/ductility/suppleness; to be pliant/ductile/supple	
<b>CSV</b>	(to be) an act of determining the degree of limpness/flaccidity; to determine the degree of pliancy/ductility/suppleness of something	
<b>OBJ</b>	(to be) that which has a particular degree of pliancy/ductility/suppleness	

<b>-CKW- ‘FLIMSINESS / COHESIVENESS / STRUCTURAL INTEGRITY / STABILITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a particular degree of flimsiness; to have/manifest a particular degree of flimsiness	<b>Stem 2:</b> (to be) a particular degree of cohesiveness (tendency to not break apart)
<b>CTE</b>	(to be) a state of flimsiness; to be flimsy	
<b>CSV</b>	(to be) an act of determining the degree of flimsiness; to determine the degree of flimsiness of something	
<b>OBJ</b>	(to be) that which has a particular degree of flimsiness	<b>Stem 3:</b> (to be) a particular degree of structural integrity/stability

<b>-LLW- ‘LIGHT / ILLUMINATION / BRIGHTNESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being bright/luminous; to be bright/luminous (i.e., either emanating or reflecting a relatively large amount of light from either external or internal illumination)	<b>Stem 2:</b> (to be) a state of being bright/luminous due to internal illumination (i.e., entity is, or carries within, its own source of illumination)
<b>CTE</b>	(to be) the state of being bright/luminous	<b>Stem 3:</b> (to be) a state/act of being bright/luminous due to high surface reflectivity
<b>CSV</b>	(to be) a physical act of brightening/illuminating; to brighten, to illuminate	
<b>OBJ</b>	(to be) something that is bright, highly reflective, or lit up, (to be) a (source of) light	

<b>-ŘM- ‘DIMNESS / PALENESS / SHADOW’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being dim or act of dimming; to be/make dim, to dim (i.e., difficult to see, not very visible due to insufficient external or internal illumination)	<b>Stem 2:</b> (to be) a state of being pale/blanched/pallid/wan; to be/make pale/pallid/wan/blanched
<b>CTE</b>	(to be) the state of being dim	<b>Stem 3:</b> (to be) a state/act of being/placing in the shade or in shadow; to be/place in the shade or in shadow
<b>CSV</b>	(to be) a physical act of dimming; do something to make an entity dim	
<b>OBJ</b>	(to be) something that is dim	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-ŘMW- ‘DULLNESS / FADEDNESS / MURKINESS / GLOOMINESS’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of being/making something dull/lackluster in appearance; be/make dull/lackluster in appearance (i.e., decreased reflectivity)	<b>STEM 2:</b> (to be) a state/act of being something faded; to be faded, to fade (i.e., loss of former degree of brightness/visibility due to age, wear, decay)
<b>CTE</b>	(to be) the state of being dull/lackluster	
<b>CSV</b>	(to be) a physical act of making dull/lackluster; do something to make an entity dull/lackluster	<b>STEM 3:</b> (to be) a state/act of being something murky/gloomy; be/make murky/gloomy
<b>OBJ</b>	(to be) something that is dull/lackluster	

<b>-ŽX- ‘FIRE / BURNING / MELTING / CALEFACTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of burning with/by fire; to burn by fire	<b>Stem 2:</b> (to be) a state of a substance being/becoming heated by an external source of heat; to heat (up), to warm (up)
<b>CTE</b>	(to be) a state of being burned, being on fire; to be on fire, to be in flames	
<b>CSV</b>	(to be) an act of igniting or combustion; to ignite, to combust, to catch fire	<b>Stem 3:</b> (to be) a state of melting/liquefaction; to melt, to liquefy via heat
<b>OBJ</b>	(to be) a flame [Derivatives: a fire, a blaze, a conflagration, etc.]	

<b>-KV- ‘COLDNESS / COOLING / FREEZING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being/becoming cold/frigid; to be(come) cold/frigid	<b>Stem 2:</b> (to be) a state of a substance being/becoming cool/cold by an external source of cold; to cool (down), to get cold
<b>CTE</b>	(to be) a state of coldness, a state of being cold	
<b>CSV</b>	(to be) an act of chilling; to chill something	<b>Stem 3:</b> (to be) a state of being frozen; to freeze
<b>OBJ</b>	(to be) a tangible sign/indicator of coldness (e.g., ice, snow, frost, etc.)	

<b>-DGL- ‘PLANAR ORIENTATIONAL INVERSION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being/placing sideways; to (be) position(ed)/orient(ed) sideways (relative to an observer)	<b>Stem 2:</b> (to be) a state/act of being/placing upside-down; (be) position(ed)/orient(ed) upside-down
<b>CTE</b>	(to be) the state of being in a sideways position	
<b>CSV</b>	(to be) an act of physically orienting/placing something sideways (relative to an observer)	<b>Stem 3:</b> (to be) a (to be) a state/act of being/placing backwards [i.e., only in sense of facing the opposite direction than expected]; (be) position(ed)/orient(ed) backward [i.e., facing the opposite direction]
<b>OBJ</b>	(to be) the entity which is positioned sideways	

<b>-BGL- ‘TOPOLOGICAL INVERSION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being a mirror-image; to invert in a mirror-image fashion	<b>Stem 2:</b> (to be) a state/act of being/placing inside-out; to (be) position(ed)/orient(ed) inside-out
<b>CTE</b>	(to be) the state of being a mirror-image	
<b>CSV</b>	(to be) an act of physically causing/making a mirror-image	<b>Stem 3:</b> (to be) a state/act of being a mirror-image both laterally and vertically (i.e., mirror-image plus upside-down)
<b>OBJ</b>	(to be) the entity which is mirror-imaged	

<b>-KSW- ‘BIFURCATION / MULTIFURCATION / BRANCHING’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of forking into two, bifurcation; to bifurcate	<b>Stem 2:</b> (to be) a state of forking into three or more branches/paths, etc.
<b>CTE</b>	(to be) a state of being bifurcate(d)	
<b>CSV</b>	(to be) a physical act/process of bifurcation	<b>Stem 3:</b> (to be) a state of continuous (bi-)furcation/branching, so that the number of branches/paths multiplies over time or space (e.g., tree branches, a phylogenetic taxonomic chart, etc.)
<b>OBJ</b>	(to be) that which forks into two, that which is forked in two	

<b>-LR- ‘BALANCE / EQUILIBRIUM / PROPORTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being in balance / act of balancing; to balance / to be/make balanced (i.e., so that a state/entity/construction is stable)	<b>Stem 2:</b> (to be) a state/act of equilibrium
<b>CTE</b>	(to be) a state of balance	
<b>CSV</b>	(to be) an act of balancing; adjust the position/state of something so that it is in balance	<b>Stem 3:</b> (to be) a state/act of a set of entities being in proper proportion to one another; to be in proper proportion to one other (i.e., in terms of optimal functionality or well-being)
<b>OBJ</b>	(to be) that which is balanced or in balance	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-TLR- ‘SYMMETRY / PARITY / HOMEOSTASIS’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of being symmetrical, or having/displaying symmetry; to be/make symmetrical, to have/display symmetry	<b>STEM 2:</b> (to be) a state/act of being in parity; to be/place in parity
<b>CTE</b>	(to be) a state of symmetry	
<b>CSV</b>	(to be) an act of making something symmetrical; to make symmetrical	<b>STEM 3:</b> (to be) a state/act of homeostasis; to be/make homeostatic, have/display homeostasis
<b>OBJ</b>	(to be) that which is symmetrical	

<b>-ÇŃ-</b> ‘ <b>CURL / COIL / LOOP</b> ’		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of curling; to curl, to (be)form(ed) into a curl (both the shape/form and the entity so shaped/formed)	<b>Stem 2:</b> (to be) a state/act of looping, being in a loop; to (be) form(ed) into a loop  <b>Stem 3:</b> (to be) a state/act of coiling, being coiled; to coil, be formed into a coil
<b>CTE</b>	(to be) in (the form of) a curl, be curled, be curly	
<b>CSV</b>	(to be) an act of forming into a curl; to (form into a) curl	
<b>OBJ</b>	(to be) that which is curled	

**NOTE:** The old FORMAL and INORMAL stems previously associated with this root have now been distributed between this root and the following new root:

<b>-RÇŃ-</b> ‘ <b>TWIST / TANGLE / KNOT</b> ’		
<b>BSC</b>	<b>STEM 1:</b> (to be) a state/act of twisting; to twist, be twosted. form into a twist [i.e., curled in more than one planar dimension]	<b>STEM 2:</b> (to be) an act/state of being knotted, tied in a knot; to knot, tie in a knot  <b>STEM 3:</b> (to be) a state/act of tangling; to tangle, be tangled, form into a tangle
<b>CTE</b>	(to be) in (the form of) a twist; to be twisted	
<b>CSV</b>	(to be) an act of twisting; to (form into a) twist	
<b>OBJ</b>	(to be) that which is twisted or in a twist	

## 6.2 MEASUREMENT OF NATURAL PHENOMENA

<b>-JGW-</b> ‘ <b>MEASUREMENT OF A LINEAR DIMENSIONAL PROPERTY</b> ’		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being/having/making something of a certain measure of a linear dimensional property (i.e., length, height, width, circumference, etc.)	<b>Stem 2:</b> (to be) a state/act of measuring a linear dimensional property of something; to measure the length or width or height or circumference, etc. of something  <b>Stem 3:</b> (to be) a particular system of linear dimensional measurement; to utilize a particular system of linear dimensional measurement
<b>CTE</b>	(to be) the state of having/being a certain measure of a linear dimensional property	
<b>CSV</b>	(to be) a physical act of making something have/be a certain measure of a linear dimensional property; to make something a certain number of measurement units [long or wide or high or around, etc.]	
<b>OBJ</b>	(to be) the actual length/height/width/circumference, etc. of something	

The following new affixes are available for use with the above root.

<b>-rtn</b>	<b>LDA Linear Dimensional Measurement A *</b>
1	(in) Planck lengths
2	(in) angstroms
3	(in) microns
4	(in) millimeters
5	(in) meters
6	(in) kilometers
7	(in) astronomical units (AUs)
8	(in) light-years
9	(in) parsecs

<b>-rtm</b>	<b>LDB Linear Dimensional Measurement B *</b>
1	(in) inches
2	(in) feet
3	(in) yards
4	(in) fathoms
5	(in) rods
6	(in) furlongs
7	(in) miles
8	(in) nautical miles
9	(in) leagues

<b>-rtk</b>	<b>ARM Areal Measurement</b>
1	(in) barns
2	(in) squares
3	(in) acres
4	(in) roods
5	(in) hectares
6	(in) square perches or sq. rods or poles
7	(in) tetrads
8	(in) townships
9	(in) myriads

\* The Type-2 form of these affixes refers to the measurement unit squared, e.g., square meters, sq. parsecs, sq. yards, sq. miles, degrees squared, arc-seconds<sup>2</sup>, steradians, etc.

The following roots use the same Specification pattern as the above root:

**-JGY-** ‘MEASUREMENT OF PLANAR AREA’ as measured via the Type-2 forms of the **LDA/LDB** or **ARM** affixes shown above

**-JGV-** ‘MEASUREMENT OF A 3-DIMENSIONAL VOLUME’ (as measured via the new affixes shown below)

<b>-řw</b>	<b>VMA Volumetric Measurement A</b>
1	(in) cubic Planck lengths
2	(in) cubic angstroms
3	(in) cubic microns
4	(in) cubic millimeters
5	(in) cubic meters
6	(in) cubic kilometers
7	(in) cubic astronomical units (AUs)
8	(in) cubic light-years
9	(in) cubic parsecs

<b>-řy</b>	<b>VMB Volumetric Measurement B</b>
1	(in) cubic inches
2	(in) cubic feet
3	(in) cubic yards
4	(in) cubic fathoms
5	(in) cubic rods
6	(in) cubic furlongs
7	(in) cubic miles
8	(in) cubic nautical miles
9	(in) cubic leagues

<b>-řl</b>	<b>VMC Volumetric Measurement C</b>
1	(in) minims
2	(in) fluid drams
3	(in) teaspoons
4	(in) tablespoons
5	(in) milliliters
6	(in) liters
7	(in) fluid ounces
8	(in) gallons
9	(in) barrels

The following roots use the same Specification pattern as the above root:

**-ÇPH-** ‘MEASUREMENT OF A PLANAR ANGLE’ as measured via the ANG affix shown below

**-ÇTH-** ‘MEASUREMENT OF A SOLID ANGLE’ as measured via the Type-2 forms of the ANG affix shown below

<b>-dg</b>	<b>ANG Angular Measurement *</b>
1	(in) points
2	(in) hour angles
3	(in) grads
4	(in) mils
5	(in) radians
6	(in) sextants
7	(in) seconds of arc / (in) arc-seconds
8	(in) minutes of arc / (in) arc-minutes
9	(in) degrees

\* The Type-2 form of these affixes refers to the measurement unit squared, e.g., degrees squared, arc-seconds<sup>2</sup>, radians<sup>2</sup> (i.e., steradians), etc.

<b>-STR- ‘TEMPORAL MEASUREMENT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being/lasting/enduring making something last a certain amount of time; to be a certain amount of time in duration, to last for a certain amount of time	<b>Stem 2:</b> (to be) a state/act of measuring a certain amount of time  <b>Stem 3:</b> (to be) a particular system of timekeeping (i.e., what units of temporal measurement are employed)
<b>CTE</b>	(to be) the state of lasting/being a certain amount of time, a state of temporal duration	
<b>CSV</b>	(to be) a physical act of making something last/be/endure a certain amount of time; to make something last a certain amount of time	
<b>OBJ</b>	(to be) the actual amount/length of time something lasts/endures/takes, a duration	

The following roots use the same Specification pattern as the above root:

**-LSTR-** ‘MEASUREMENT OF CYCLIC/PERIODIC FREQUENCY’ as measured in the number of cycles per unit of time

**-RSTR-** ‘MEASUREMENT OF RECURRING BUT NON-CYCLIC/NON-PERIODIC EVENTS’ as measured in number of events per unit of time

The following new affixes are available for use with the above temporal measurement roots.



<b>-řfs</b>	<b>USM Ultra-Short Temporal Measurement *</b>
1	in/per yocto-second(s) ( $10^{-24}$ seconds)
2	in/per zepto-second(s) ( $10^{-21}$ seconds)
3	in/per atto-second(s) ( $10^{-18}$ seconds)
4	in/per femto-second(s) ( $10^{-15}$ seconds)
5	in/per pico-second(s) ( $10^{-12}$ seconds)
6	in/per nano-second(s) ( $10^{-9}$ seconds)
7	in/per micro-second(s) ( $10^{-6}$ seconds)
8	in/per millisecond(s) ( $10^{-3}$ seconds)
9	in/per second(s) (e.g., with root -- above = Hertz)

<b>-rns</b>	<b>TPM Temporal Measurement</b>
1	in/per minute(s)
2	in/per hour(s)
3	in/per day(s) (24-hour periods)
4	in/per week(s)
5	in/per month(s)
6	in/per calendar year(s)
7	in/per decade(s)
8	in/per (human) generation(s)
9	in/per (human) lifetime(s)

<b>-rñs</b>	<b>LTM Long-TermTemp. Meas.</b>
1	in centuries/per century
2	in millenia /per millenium
3	in/per 10,000-year period(s)
4	in/per 100,000-year period(s)
5	in/per age(s) (i.e., 1 million years)
6	in/per epoch(s) (i.e., 10 million years)
7	in/per era(s) (i.e., 100 million years)
8	in/per eon(s) (i.e. 500 million years)
9	in billions of years /per billion years

\* this affix is the measurement counterpart to the **UST** affix

The following roots follow the same Specification pattern as the previous root and utilize the above affixes as well:

- LKK**- ‘ANGULAR VELOCITY OR ANGULAR FREQUENCY’ as measured in units of planar angle measurement per unit of time
- LKKW**- ‘SNAP OR JOUNCE’ as measured in distance per unit of time to the fourth power
- LKKY**- ‘JERK, JOLT, SURGE OR LURCH’ as measured in distance per unit of time cubed
- LKKL**- ‘YANK’ as measured by mass times distance/time<sup>3</sup>
- LKKR**- ‘KINEMATIC VISCOSITY OR DIFFUSIVITY COEFFICIENT’ as measured in distance squared per unit of time
- LKKŘ**- ‘VOLUMETRIC FLOW’ as measured in distance cubed per unit of time
- RKK**- ‘SPREAD RATE BY VOLUME’ as measured in distance cubed per distance squared
- RKKW**- ‘ENERGY DENSITY’ as measured by energy per cubic distance
- RKKY**- ‘SURFACE TENSION’ as measured by force per distance
- RKKL**- ‘STIFFNESS’ as measured by force per distance
- RKKR**- ‘RATE OF ABSORBED DOSE OF IONIZING RADIATION’ as measured by energy per mass/time
- NKKW**- ‘SPECIFIC ENERGY’ as measured by energy per unit mass
- NKKY**- ‘RADIANT EXPOSURE OF A SURFACE / ENERGY DISTRIBUTION OVER A SURFACE / INSOLATION / SOLAR RADIATION’ as measured by energy per square distance

- NKF**- ‘SPECTRAL FLUX BY FREQUENCY’ as measured by power per cycle/time
- NKFW**- ‘SPECTRAL FLUX BY WAVELENGTH’ as measured by power/distance
- NKFY**- ‘HEAT FLUX DENSITY / IRRADIANCE / RADIANT EXITANCE / RADIOSITY’ as measured by power/distance<sup>2</sup>
- NKFL**- ‘SPECTRAL EXITANCE / RADIOSITY / IRRADIANCE BY FREQUENCY / STRENGTH OF RADIO WAVE EMISSION’ as measured by power/distance<sup>2</sup> per cycle/time
- NKFR**- ‘SPECTRAL EXITANCE / RADIOSITY / IRRADIANCE BY WAVELENGTH’ as measured by power/distance<sup>2</sup> per distance
- NKFR**- ‘RADIANT INTENSITY’ as measured by power/distance<sup>2</sup> per steradian
- NKFM**- ‘SPECTRAL INTENSITY’ as measured by power/distance<sup>2</sup> per steradian per cycle/time
- NKFN**- ‘RADIANCE’ as measured by power/distance<sup>2</sup> per steradian per distance<sup>2</sup>
- NKFF**- ‘SPECTRAL RADIANCE BY FREQUENCY’ as measured by power/distance<sup>2</sup> per steradian per distance<sup>2</sup> per cycle/time
- ŘKK**- ‘DYNAMIC VISCOSITY’ as measured by pressure multiplied by time
- ŘKKW**- ‘ACOUSTIC IMPEDANCE’ as measured by pressure multiplied by time per distance

The above roots utilize the following affixes:

-lp	EMU Energy Measurement Units
1	(in) Planck energy units
2	(in) electronvolts
3	(in) ergs
4	(in) hartrees
5	(in) joules
6	(in) therms
7	(in) calories
8	(in) thermies
9	(in) quads

-lt	FMU Force Measurement Units
1	(in) Planck force units
2	(in) dynes
3	(in) poundals
4	(in) pound-force
5	(in) newtons
6	(in) kiliponds
7	(in) sthènes
8	(in) kips
9	(in) ton-forces

-lk	PMU Pressure Measurement Units
1	(in) bars
2	(in) baryes
3	(in) pounds per square. inch
4	(in) torrs
5	(in) pascals
6	(in) pièzes
7	(in) millimeters of mercury
8	(in) inches of mercury
9	(in) standard atmospheres

-lv	OEM Other Energy Measurement Units
1	(in) watts
2	(in) horsepower
3	(in) sieverts
4	(in) grays
5	(in) rads
6	(in) poises
7	(in) poiseuilles
8	(in) rayls
9	(in) janskys

For ‘VELOCITY’ and ‘ACCELERATION’ use the following root:

<b>-FM- ‘DEGREE OF VELOCITY’</b> Affix: <b>VEL</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of speed/velocity ( = ratio of distance over time]	<b>STEM 2:</b> (to be/manifest a) degree of acceleration (i.e., increasing rate of speed/velocity)  <b>STEM 3:</b> (to be/manifest a) degree of deceleration (i.e., decreasing rate of speed/velocity)
<b>CTE</b>	(to be) something with a degree of speed/velocity	
<b>CSV</b>	(to be) a degree of speed/velocity	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of speed/velocity	

In addition to the **VEL** affix associated with the above root, the following new affix provides for exact measurement of velocity and acceleration:

<b>-ng</b>	<b>VAM Velocity and Acceleration Measurement</b> [NOTE: Use Type-2 affix to indicate time unit squared for measurement of acceleration]
1	kilometers per hour
2	kilometers per second
3	meters per second
4	millimeters per second
5	microns per second
6	miles per second
7	feet per second
8	inches per second
9	miles per hour

<b>-LPS- ‘PHYSICAL MASS’</b> Associated Affix: <b>MSS</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of having a certain mass	<b>Stem 2:</b> (to be) a state/act of measuring (or observing a measurement of) the mass of something; to measure or view a measurement of the mass of something  <b>Stem 3:</b> (to be) a particular system of measuring mass; to utilize a particular system of measuring masst
<b>CTE</b>	(to be) the state of having a certain mass	
<b>CSV</b>	(to be) a physical act of making something have a certain mass	
<b>OBJ</b>	(to be) the actual mass of something	

The following new affix is available for use with the above root.

<b>-lps</b>	<b>MSS Measurement of Mass</b>
1	(in) Planck masses
2	(in) daltons
3	(in) grains
4	(in) grams
5	(in) kilograms
6	(in) metric tonnes
7	(in) pounds
8	(in) (short) ton (= 2000 lbs.)
9	(in) solar masses

The following roots have the same Specification pattern as the root **-LPS-** above:

- LPSW-** ‘ENERGY/WORK’ (as measured in mass times distance squared divided by unit of time squared)
- LPSM-** ‘FORCE’ (as measured by mass times distance divided by unit of time squared)
- LPSN-** ‘PRESSURE’ (as measured by (mass x (distance/time<sup>2</sup>)) / distance<sup>2</sup>)
- LPSF-** ‘POWER’ (as measured by mass x distance<sup>2</sup> / time<sup>3</sup>)
- RPS-** ‘MOMENTUM’ (as measured by mass times distance/time)
- RPSW-** ‘ANGULAR MOMENTUM’ (as measured by mass times distance<sup>2</sup> /time)
- RPSL-** ‘THRUST’ (as measured by mass times distance/time<sup>2</sup>)
- RPSR-** ‘TORQUE OR MOMENT’ (as measured by mass times distance<sup>2</sup> /time<sup>2</sup>)
- RPSM-** ‘LINE DENSITY’ (as measured by mass per distance)
- RPSN-** ‘VOLUMETRIC DENSITY’ (as measured by mass per volume)
- ŘPS-** ‘SPECIFIC VOLUME’ (as measured by volume per mass)
- ŘPSW-** ‘SPREAD RATE’ (as measured by mass per area)
- ŘPSL-** ‘AREA DENSITY’ (as measured by mass per area)

**-PṬK- ‘TEMPERATURE’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of having/being at or causing to have a certain/particular temperature; to be/have/make a certain temperature	<b>Stem 2:</b> (to be) a state/act of measuring (or observing a measurement of) the temperature of something; to measure or view a measurement of the temperature of something  <b>Stem 3:</b> (to be) a particular system of temperature measurement; to utilize (for measurement or calibration/cooling/heating) a particular system of temperature measurement
<b>CTE</b>	(to be) the state of having/being at a certain/particular temperature	
<b>CSV</b>	(to be) a physical act of cooling/heating something to a certain temperature	
<b>OBJ</b>	(to be) the actual temperature of something	

The following new affix is available for use with the above root.

<b>-šj</b>	<b>TMS Temperature Measurement System</b>
1	(in) Planck temperature / (in) $T_p$
2	(in) degrees Newton / (in) °N
3	(in) degrees Celsius / (in) °C
4	(in) degrees Rankine / (in) °R
5	(in) kelvins
6	(in) degrees Delisle / (in) °D
7	(in) degrees Fahrenheit / (in) °F
8	(in) degrees Rømer / (in) °Rø
9	(in) degrees Réaumur / (in) °Ré

The following roots have the same Specification pattern as the root **-PṬK-** above:

- PṬKW-** ‘HEAT CAPACITY OR ENTROPY’ (as measured in energy per unit temperature)
- PṬKY-** ‘ENTHALPY’ (as measured in units of energy)
- PṬKL-** ‘SPECIFIC HEAT CAPACITY OR SPECIFIC ENTROPY’ (as measured in energy per mass times temperature)
- PṬKR-** ‘THERMAL RESISTANCE’ (as measured in temperature per unit of power)
- PṬKŘ-** ‘THERMAL CONDUCTIVITY’ (as measured in power per distance times temperature)

<b>-ŇŠP- ‘ELECTRO-MAGNETIC PHENOMENON’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of there being an active electric current	<b>Stem 2:</b> (to be) a state/act of measuring (or observing a measurement of) an electric current  <b>Stem 3:</b> (to be) a particular system of measuring an electric current; to utilize a particular system of electric current measurement
<b>CTE</b>	(to be) the state of there being an active electric current	
<b>CSV</b>	(to be) a physical act of generating/maintaining/manipulating an electric current; to generate/maintain/manipulate an electric current	
<b>OBJ</b>	(to be) the actual electric current itself	

The following roots have the same Specification pattern as the root **-ŇŠP-** above:

- ŇŠPW-** ‘ELECTRICAL CHARGE’ as measured by electric current times unit of time
- ŇŠPY-** ‘ELECTRICAL POTENTIAL DIFFERENCE AND ELECTROMOTIVE FORCE’ as measured in mass times distance<sup>2</sup> divided by unit of current multiplied by time<sup>3</sup>
- ŇŠPL-** ‘ELECTRICAL CAPACITANCE’ as measured by time<sup>4</sup> times current<sup>2</sup> per mass times distance<sup>2</sup>
- ŇŠPR-** ‘ELECTRICAL INDUCTANCE’ as measured by mass times distance<sup>2</sup> divided by time<sup>2</sup> times current<sup>2</sup>
- ŇŠPŘ-** ‘ELECTRICAL RESISTANCE OF CIRCUITS’ as measured by mass times distance<sup>2</sup> divided by the quantity of time<sup>3</sup> times current<sup>2</sup>
- ŇŠPF-** ‘ELECTRICAL CONDUCTANCE’ as measured by time<sup>3</sup> times current<sup>2</sup> divided by the quantity of mass times distance<sup>2</sup>
- ŇŠPT-** ‘ELECTRIC FIELD’ as measured by force per unit charge or electrical potential difference per distance
- ŇŠPÇ-** ‘ELECTRIC DISPLACEMENT FIELD, POLARIZATION VECTOR’ as measured by charge per distance squared
- MŠPW-** ‘ELECTRIC CHARGE DENSITY’ as measured by charge per distance cubed
- MŠPY-** ‘ELECTRIC CURRENT DENSITY’ as measured by current per distance squared
- MŠPL-** ‘ELECTRICAL RESISTIVITY’ as measured by electrical resistance times distance
- MŠPR-** ‘ELECTRICAL CONDUCTIVITY’ as measured by electrical conductance per distance
- MŠPŘ-** ‘ELECTROMAGNETIC EMITIVITY’ as measured by electrical capacitance per distance
- MŠPF-** ‘ELECTROMAGNETIC PERMEABILITY’ as measured by electrical inductance per distance
- MŠPT-** ‘ELECTRIC ELASTANCE’ as measured by the reciprocal of electrical capacitance
- LŠP-** ‘MAGNETIC FLUX’ as measured by energy per unit current = mass times distance<sup>2</sup> divided by time<sup>2</sup> times current
- LŠPW-** ‘MAGNETOMOTIVE FORCE’ as measured by a unit of current flowing in a single-turn loop in a vacuum
- LŠPY-** ‘MAGNETIC FLUX DENSITY or B-MAGNETIC FIELD STRENGTH’ as measured by force per electric current per distance
- LŠPL-** ‘H-MAGNETIC FIELD STRENGTH’ as measured by current per distance

- LŠPR-** ‘EXPOSURE TO IONIZING RADIATION’ as measured by charge per mass
- LŠPŘ-** ‘RELATIVE DIFFERENCE’ (i.e., ratio between two values of a physical quantity, e.g. power, intensity, current, voltage, loss or gain of an electronic signal, etc.)
- LŠPF-** ‘RECIPROCAL INDUCTANCE, RELUCTANCE’ as measured by the reciprocal of mass times distance<sup>2</sup> divided by time<sup>2</sup> times current<sup>2</sup>

The above roots utilize the following affixes:

<b>-gc</b>	<b>EMA Electro-Magnetic Measurement A</b>
1	(in) amperes
2	(in) franklins
3	(in) volts
4	(in) farads
5	(in) coulombs
6	(in) unit poles
7	(in) webers
8	(in) maxwells (or lines)
9	(in) henrys

<b>-gč</b>	<b>EMB Electro-Magnetic Measurement B</b>
1	(in) ohms
2	(in) ampere-turns
3	(in) siemens (or mhos)
4	(in) gilberts
5	(in) teslas
6	(in) nepers
7	(in) darafs (i.e., reciprocal of farad)
8	(in) oersteds (i.e., amperes per meter)
9	(in) ohm meters

<b>-gz</b>	<b>EMC Electro-Magnetic Measurement C</b>
1	(in) volts per meter
2	(in) newtons per coulomb
3	(in) coulombs per sq. meter
4	(in) coulombs per cu. meter
5	(in) amperes per sq. meter
6	(in) siemens per meter
7	(in) farads per meter
8	(in) henrys per meter
9	(in) coulombs per kilogram

Additional roots with the above Specification pattern:

- RŠP-** ‘LUMINOUS INTENSITY’ i.e., power emitted by a light source in a particular direction per unit solid angle as measured in candelas
- RŠPW-** ‘LUMINANCE’ as measured by luminous intensity per distance squared
- RŠPY-** ‘LUMINOUS FLUX’ i.e. “amount” of visible light emitted by a source, as measured by luminous intensity per solid angle
- RŠPL-** ‘ILLUMINANCE, LUMINOUS EXITANCE OR EMITTANCE’ as measured by luminous intensity per solid angle per distance squared
- RŠPR-** ‘PHOTON FLUX, AIRGLOW’ as measured in photons per distance squared per unit of time per solid angle
- RŠPŘ-** ‘LUMINOUS ENERGY’ i.e., the perceived energy of light, as measured by luminous intensity times unit of time per solid angle (e.g., talbots)
- RŠPF-** ‘LUMINOUS ENERGY DENSITY’ as measured by luminous intensity times unit of time per solid angle per cubic distance
- RŠPT-** ‘LUMINOUS EXPOSURE’ as measured by luminous intensity times unit of time per distance squared (e.g., lux second)
- RŠPČ-** ‘LUMINOUS EFFICACY’ as measured by luminous intensity per solid angle per unit power (e.g., lumen per watt)

Associated affixes for the above group of roots:

<b>-fz</b>	<b>LOA Luminance &amp; Optics A</b>
1	(in) candelas
2	(in) candle-powers
3	(in) lumens ( = candela steradians)
4	(in) foot-candles
5	(in) lux
6	(in) nits ( = candelas per square meter)
7	(in) talbots
8	(in) rayleighs
9	(in) lux seconds

<b>-fj</b>	<b>LOB Luminance &amp; Optics B</b>
1	(in) lumens per square meter
2	(in) lumen seconds per cubic meter
3	(in) lumens per watt
4	(in) lamberts
5	(in) foot-lamberts
6	(in) stilbs
7	(in) diopters
8	(in) skots
9	(in) brils

Additional roots with the above Specification pattern:

- GZK-** ‘DENSITY’ as measured by mass per volume
- GZKW-** ‘CATALYTIC ACTIVITY’ as measured by amount of substance per unit time
- GZKY-** ‘SUBSTANCE CONCENTRATION’ as measured by amount of substance per cubic distance
- GZKL-** ‘ENERGY PER AMOUNT OF SUBSTANCE’
- GZKR-** ‘VOLUME OCCUPIED BY AN AMOUNT OF A SUBSTANCE AT A GIVEN TEMPERATURE AND PRESSURE’ as measured in cubic distance per amount of substance
- GZKŘ-** ‘MOLAR HEAT CAPACITY, MOLAR ENTROPY’ i.e., ratio of the heat added to (or subtracted from) an object to the resulting temperature change, as measured in energy per unit temperature times amount of substance
- GZKF-** ‘MOLAR CONDUCTIVITY’ i.e., efficiency of electrical conductivity of a substance, as measured by electrical conductance times square distance per amount of substance
- GZKŤ-** ‘CHEMICAL CONCENTRATION’ as measured by amount of substance per unit mass

Associated affix with the above group of roots:



<b>-fč</b>	<b>DMU Density-Related Measurement Units</b>
1	(in) moles
2	(in) International Units (IU)
3	(in) katal ( = moles per second)
4	(in) moles per cubic meter
5	(in) joules per mole
6	(in) molar volumes ( = cubic meter per mole)
7	(in) molals ( = mole per kilogram)
8	(in) joules per kelvin mole
9	(in) siemens times sq. meter per mole

<b>-X- ‘SIZE / MEASURE / MEASURED DURATION’</b>		(use SUF/EXN/EXD, etc. affixes to specify degree)
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of spatio-temporal size ( = the amount/volume of space or time taken up by an entity)	<b>STEM 2:</b> (to be/manifest a) degree of spatial size, i.e., volume of space (whether uni-dimensional, 2-D, or 3-D)
<b>CTE</b>	(to be) something with a size [focus on the entity itself]	
<b>CSV</b>	(to be) a size ( = the volume of space or time taken up)	<b>STEM 3:</b> (to be/manifest a) degree of temporal “size” ( = an “amount” of time)
<b>OBJ</b>	(to be) the particular size of an entity; to measure the size of an entity	

Morphological derivations: enlarge, swell, expand (in volume), grow (in size); shrink, make smaller

<b>-RF- PORTION / AMOUNT / RATION / ALLOTMENT</b>		Associated Affix: <b>PTW</b>
<b>BSC</b>	<b>Stem 1:</b> (to be) an amount/quantity of a non-countable substance/entity [both the entity/substance and its amount]; to determine/fix/distribute an amount/quantity of something	<b>Stem 2:</b> (to be) a share, a portion (to be) distributed  <b>Stem 3:</b> (to be) an allotment/allocation, set distribution
<b>CTE</b>	(to be) the entity/substance contained in or comprising an amount/quantity	
<b>CSV</b>	(to be) an (ostensibly or theoretically measurable) amount/quantity; to determine/fix/distribute/disperse a particular amount/quantity	
<b>OBJ</b>	(to be) the object/entity made of/consisting of an amount/quantity of something	

**Derivations:** to share, distribute, allocate, allot

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specificatio pattern:

**-RFW-    ‘DOSE / PRESCRIBED AMOUNT / RATION / APPORTIONMENT / QUOTA’**

**Stem 1:** (to be a) measure of, dose of, a formally pre-determined amount of a substance/entity

**Stem 2:** (to be) an official/authorized share/ration, doled-out amount

**Stem 3:** (to be) an official/authorized allotment/allocation/quota

### 6.3 PHYSICS AND COSMOLOGICAL/ASTRONOMICAL/GEOPHYSICAL PHENOMENA

**-RSW-    ‘PLANETARY BODY’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a planet/planetary body; to travel one’s orbit in space as a planet	<b>Stem 2:</b> (to be) a moon of planetary body [i.e., sufficiently large to be spherical in shape]; to travel one’s orbit in space as a moon/satellite of a planet  <b>Stem 3:</b> (to be) a large (spherical) asteroid or micro-planet
<b>CTE</b>	(to be) a world [i.e., the planetary home of a holistic eco-system/biosphere, etc.]	
<b>CSV</b>	(to be) a physical planetary body	
<b>OBJ</b>	(to be) the orbit(al path) of a planetary body; to orbit	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

**-SW-    ‘EARTH / MOON / NAMED MICRO-PLANET’**

<b>BSC</b>	<b>STEM 1:</b> (to be) the Earth/Terra (as both a planetary body and a “world” encompassing a particular biosphere/ecosystem and civilization)	<b>STEM 2:</b> (to be) the Moon/Luna
<b>CTE</b>	(to be) “the world” [i.e., the Terran-based biosphere, ecosystem, environment and civilization which Terran life inhabits]	<b>STEM 3:</b> (to be) one of the named asteroids or micro-planets of the solar system (e.g., Pluto, Ceres, Juno, Sedna, etc.)
<b>CSV</b>	(to be) the physical planetary body itself that constitutes the planet Earth/Terra	
<b>OBJ</b>	(to be) the orbit(al path) of the planet Earth/Terra	

<b>-LXW- ‘NON-PLANETARY ASTRAL BODY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a stellar body / star	<b>Stem 2:</b> (to be) a comet  <b>Stem 3:</b> (to be) a small [non-spherical] asteroid)
<b>CTE</b>	(to be) a state of a star shining	
<b>CSV</b>	(to be) the physical body/mass of a star	
<b>OBJ</b>	(to be) the location in space of a star (relative to other astral bodies)	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>-LX- ‘THE SUN (SOL) / NAMED COMET / NAMED PLANETESIMAL or ASTEROID’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) the Sun / Sol	<b>STEM 2:</b> (to be) a named comet  <b>STEM 3:</b> (to be) a named small asteroid/planetesimal (e.g., Eros)
<b>CTE</b>	(to be) the functional (shining) state of the Sun/Sol; for there to be sunshine, (for the Sun) to shine	
<b>CSV</b>	(to be) they physical body/mass of the Sun/Sol	
<b>OBJ</b>	(to be) the locaton in space of the Sun/Sol relative to other astral bodies	

<b>-MTR- ‘NEBULA’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a gas-based emission-type nebula or volume of nebulosity in interstellar space (i.e. cloud in space of of high-temperature and/or ionized gas, e.g., an H II region or Herbig-Haro object)	<b>Stem 2:</b> (to be) a reflection nebula or dark nebulae (i.e., cloud of dust in space, whether reflecting or blocking light from another source)  <b>Stem 3:</b> (to be) a planetary nebula (i.e., gaseous cloud thrown out by a star at the end of its life) CPT = supernova remnant nebula
<b>CTE</b>	(to be) a state of a gaseousness/nebulosity in a gas-based nebula	
<b>CSV</b>	(to be) the physical body/mass constituting a gas-based nebula	
<b>OBJ</b>	(to be) the location in space of a (relative to other celestial bodies) of a gas-based nebula	

<b>-MTW- ‘CELESTIAL SPACE / CELESTIAL MEDIUM’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a volume of celestial (i.e., interplanetary, interstellar/intergalactic) space; to be (situated) in space	<b>Stem 2:</b> (to be) a naturally occurring physical material filling or contained within a volume of celestial space (e.g., cosmic dust, plasma or ionized clouds of hydrogen or helium, etc.  <b>Stem 3:</b> (to be) a magnetic or energy-based field occurring in or contained within a volume of celestial space
<b>CTE</b>	(to be) the state/quality of three-dimensional “spaciousness” or “room” within a volume of celestial space	
<b>CSV</b>	(to be) the physical body/structure/medium of celestial space; to occur or be situated in celestial space	
<b>OBJ</b>	(to be) a location in space (relative to celestial bodies within that space)	

<b>-LXT- ‘ATYPICAL COMPACT STAR’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a black hole	<b>Stem 2:</b> (to be) a neutron star (including pulsar and magnetar)  <b>Stem 3:</b> (to be) a white dwarf star
<b>CTE</b>	(to be) a state/quality associated with the unusual physics of a black hole	
<b>CSV</b>	(to be) the physical body/mass of a black hole	
<b>OBJ</b>	(to be) the location in space of a black hole (relative to other celestial bodies)	

<b>-KKW- ‘ATOM’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an atom	<b>Stem 2:</b> (to be) the electron cloud of an atom (i.e., set of electron shells with “orbiting” electrons) of an atom  <b>Stem 3:</b> (to be) an orbital state (i.e., state and behavior of an electron based on its orbital probability distribution)
<b>CTE</b>	(to be) the state of an atom in terms of its interaction (or lack thereof) with other atoms; for an atom to interact (via atomic bonding) with other atoms	
<b>CSV</b>	(to be) the tangible/physical “embodiment”/manifestation of an atom	
<b>OBJ</b>	(to be) a component/attribute/aspect of an atom (i.e., a particle, a charge, a force, etc.)	

a molecule (of a chemical element)

<b>-KKY- ‘ATOMIC NUCLEUS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) the nucleus of an atom	<b>Stem 2:</b> (to be) a nuclide (i.e., specific configuration of Z-value, N-value, and energy state for a particular atomic nucleus)  <b>Stem 3:</b> (to be) an atom of pure neutronium (i.e., consisting of a nuclei only with their electron clouds/shells stripped away)
<b>CTE</b>	(to be) the state of an atomic nucleus in terms of its interaction (or lack thereof) with other atoms; for an atom to interact (via atomic bonding) with other atoms	
<b>CSV</b>	(to be) the tangible/physical “embodiment”/manifestation of an atomic nucleus	
<b>OBJ</b>	(to be) a component/attribute/aspect of an atomic nucleus (i.e., a particle, a charge, a force, etc.)	

<b>-LTK- ‘SUB-ATOMIC PARTICLE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a sub-atomic particle	<b>Stem 2:</b> (to be) an elementary particle (i.e., fermion or boson)
<b>CTE</b>	(to be) the sub-atomic state or “force” (i.e., interaction) mediated or maintained by a sub-atomic particle	<b>Stem 3:</b> (to be) a composite particle (i.e., a hadron, whether baryon or meson)
<b>CSV</b>	(to be) the tangible/physical “embodiment”/manifestation/“stuff” of a sub-atomic particle	
<b>OBJ</b>	(to be) an attribute of sub-atomic particle (e.g., mass, charge, spin, angular momentum, etc.)	

The following roots follow the Specification pattern of the above root:

<b>-LTKW-</b>	‘PHOTON / GLUON / GRAVITON’ (Electromagnetism, Strong Nuclear Force, Gravity)	1. photon	2. gluon	3. graviton
<b>-LTKY-</b>	‘ELECTRON / PROTON / NEUTRON’	1. electron	2. proton	3. neutron
<b>-LTKL-</b>	‘NEUTRINO’	1. electron neutrino	2. muon neutrino	3. tau neutrino
<b>-LTKR-</b>	‘FERMION’	1. fermion	2. quark	3. lepton
<b>-LTKŘ-</b>	‘BOSON’	1. boson	2. “string” (from string theory) [CTE Specification = vibration of “string”]	3. acceleron (i.e., hypothetical particle associated with dark energy theory)
<b>-LTKF-</b>	‘ANTI-FERMION’	1. anti-fermion	2. anti-quark	3. anti-lepton
<b>-LTKT-</b>	‘HIGGS BOSON / MUON / TAUON’	1. Higgs boson	2. muon	3. tauon (i.e., tau lepton)
<b>-LTKÇ-</b>	‘WEAK GAUGE BOSON (Weak Nuclear Force)’	1. W+ boson	2. W- boson	3. Z-zero boson
<b>-LTKM-</b>	‘BARYON’	1. nucleon	2. hyperon	3. charmed particle
<b>-LTKN-</b>	‘MESON’	1. vector meson	2. pseudoscalar meson	3. light-unflavored meson

New affixes available for some of the above stems:

<b>-xj</b>	<b>ASP Attributes of Sub-Atomic Particles</b>
1	having opposite charge, antimatter version of X
2	super-symmetrical partner of X, “sparticle” counterpart of X , e.g., photino, gluino, gravitino, slepton, squark, sneutrino, etc.
3	spin value (intrinsic angular momentum) of particle X
4	orbital angular momentum of particle X
5	mass of particle X
6	isospin of particle X
7	parity of particle X
8	G-parity of particle X
9	C-parity of particle X

<b>-bj</b>	<b>CFQ “Colors” and “Flavors” of Quarks</b>
1	up
2	charm
3	top
4	red
5	green
6	blue
7	bottom
8	strange
9	down

<b>-VPR- ‘ELECTRICITY / MAGNETISM / IONIZATION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/instance/occurrence of electricity flowing	<b>Stem 2:</b> (to be) an act/instance/occurrence of magnetism, magnetic alignment, magnetic force
<b>CTE</b>	(to be) the state of electrical current flow	
<b>CSV</b>	(to be) an act/instance/occurrence of an electrical current or discharge; for electricity to flow or discharge	<b>Stem 3:</b> (to be) a act/instance/occurrence of ionization; to ionize
<b>OBJ</b>	(to be) an object/entity acted upon by electricity	

<b>-SH- ‘AIR’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) the state/act/process of there being air in a particular spatio-temporal location (i.e., the standard combination of nitrogen/oxygen/argon/CO <sub>2</sub> , etc. that constitutes the breathable atmosphere of Earth	<b>Stem 2:</b> (to be) the state/act/process of there being “fresh” air (i.e., air let in from an external source/outside to replenish the recycled or “stale” air in a location)
<b>CTE</b>	(to be) air as the primary/relevant component of Earth’s (or a planet’s) atmosphere	
<b>CSV</b>	(to be) an act of obtaining/providing/disseminating air (into a volume of space); to get air, give air, let air in	<b>Stem 3:</b> (to be) the state/act/process of there being “stale” air (i.e., air with a lowered oxygen content and/or higher CO <sub>2</sub> concentration and/or pollutants due to breathing in an enclosed space, air pollution, etc.)
<b>OBJ</b>	(to be) the air one breathes	

<b>-KTL- ‘AREA / AREAL FOOTPRINT / PLOT OF GROUND / PLOT OF LAND’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) the quantitative area of a bounded quasi-planar surface, i.e., the amount of square surface space contained within a bounded area (including area expanded by non-level variations in surface gradients); to measure the area of a bounded quasi-planar surface	<b>Stem 2:</b> (to be) the quantiatative surface-footprint or areal footprint taken up by a quasi-planar surface regardless of non-level variations in surface gradients
<b>CTE</b>	(to be) the physical ground/surface of a bounded area	
<b>CSV</b>	(to be) the act of measuring/determining the quantitative area of a bounded quasi-planar surface	<b>Stem 3:</b> (to be) a formal/bounded plot of ground/land based on natural or authorized delineations
<b>OBJ</b>	(to be) the actual measured amount of area (i.e., how much acreage/square meters, etc.)	

<b>-ÇB- ‘TERRESTRIAL TOPOGRAPHY / LAND FEATURE / ARABILITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a terrestrial land feature	<b>Stem 2:</b> (to be) an area of arable land  <b>Stem 3:</b> (to be) an area of non-arable land
<b>CTE</b>	(to be) the state of being a terrestrial land feature	
<b>CSV</b>	(to be) the particular aspects/characteristics of a particular type of terrestrial land feature (e.g., the aridness/starkness of a desert, the packed ice/snow of a glacier, the vastness/flatness of a the plains/pampas, etc.)	
<b>OBJ</b>	(to be) a particular (i.e., bearing a formal name) land feature (e.g., the Gobi Desert, Mt. Everest, etc.)	

<b>-JL- ‘MOUNTAINOUS TOPOGRAPHY’</b> [use appropriate affixes to indicate degree of relative elevation]		
<b>BSC</b>	<b>Stem 1:</b> (to be) a terrestrial land feature of raised elevation in relation to sea level or surrounding flatlands; a hill or mountain	<b>Stem 2:</b> (to be) a peak, a single elevated terrestrial upwelling higher than the surrounding the terrain  <b>Stem 3:</b> (to be) a plateau/butte/mesa (i.e., a high/elevated flatland)
<b>CTE</b>	(to be) the state of being a hill/mountain	
<b>CSV</b>	(to be) a state of dealing with mountainous/elevated terrain; to deal with (e.g., traveling through, living in, etc.) mountainous/elevated terrain	
<b>OBJ</b>	(to be) a particular (i.e., named) hill/mountain	

<b>-ZH- ‘DESERT / STEPPE / TUNDRA’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a desert	<b>Stem 2:</b> (to be) an area of steppe, steppe-like terrain  <b>Stem 3:</b> (to be) an area of tundra, tundra-like terrain
<b>CTE</b>	(to be) the state of being a desert	
<b>CSV</b>	(to be) a state of dealing with desert terrain; to deal with (e.g., traveling through, living in, etc.) desert terrain	
<b>OBJ</b>	(to be) a particular (i.e., named) desert	

<b>-VÑ- ‘VALLEY / CANYON / GORGE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a valley	<b>Stem 2:</b> (to be) a canyon  <b>Stem 3:</b> (to be) a gorge
<b>CTE</b>	(to be) the state of being a valley	
<b>CSV</b>	(to be) a state of dealing with a valley as a type of terrain; to deal with (e.g., traveling through, living in, etc.) a valley	
<b>OBJ</b>	(to be) a particular (i.e., named) desert	



<b>-ṬR- ‘WATER / SOURCE OF WATER’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an amount of water; to water, pour/draw/procure some water	<b>Stem 2:</b> (to be) a natural source of fresh water (e.g., a natural well, river, spring, etc.)  <b>Stem 3:</b> (to be) a human-made source of fresh water, i.e., a cistern, a reservoir, etc.
<b>CTE</b>	(to be) some water (as a substance)	
<b>CSV</b>	(to be) a state/act of drawing/pouring/filling/serving an amount of water; to draw/pour/fill/serve some water	
<b>OBJ</b>	(to be) the container, vessel, conveying implement which holds an amount of water	

**NOTE:** the old INFORMAL and FORMAL stems previously associated with this root have been newly distributed between this and the following new root:

<b>-RṬR- ‘WATER IN MOTION OR USE: FLOW / IRRIGATION / CASCADE / WATERFALL’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of water running or flowing; to run/flow [in reference to water or, by analogy, any liquid/fluid with water-like consistency]	<b>Stem 2:</b> (to be) state/act of utilizing water, irrigation, watering; to water / irrigate  <b>Stem 3:</b> a waterfall, a cascade
<b>CTE</b>	(to be) a state of flowing; to be flowing	
<b>CSV</b>	(to be) an act of letting/making flow; to make/let flow	
<b>OBJ</b>	(to be) a flow of water [i.e., a particular amount of flowing water]	

<b>-MṬR- ‘WATER-BASED WEATHER PHENOMENON’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an amount of rainfall; to rain	<b>Stem 2:</b> (to be) an amount of snow; to snow  <b>Stem 3:</b> (to be) an amount of fog; to be foggy
<b>CTE</b>	(to be) a state of rainfall, for rain to be falling	
<b>CSV</b>	(to be) a state/act of rain falling	
<b>OBJ</b>	(to be) an amount of rainwater (e.g., in a puddle, in a container, in one’s hand, etc.)	

<b>-BW- ‘BODY OF SALT WATER’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an ocean/sea	<b>Stem 2:</b> (to be) a lagoon  <b>Stem 3:</b> (to be) a saltwater pond/lake
<b>CTE</b>	(to be) the state of being an ocean/sea	
<b>CSV</b>	(to be) a state of utilizing/living by the ocean/sea; to deal with, live by, utilize the ocean/sea	
<b>OBJ</b>	(to be) a particular (i.e., named) ocean/sea	

<b>-LZ-      ‘BODY OF FRESH WATER’</b> [use appropriate affixes to specify size/volume]		
<b>BSC</b>	<b>Stem 1:</b> (to be) a pond/lake	<b>Stem 2:</b> (to be) a stream/river  <b>Stem 3:</b> (to be) a freshwater inland sea
<b>CTE</b>	(to be) the state of being a pond/lake	
<b>CSV</b>	(to be) a state of utilizing/living by a pond/lake; to deal with, live by, utilize a pond/lake	
<b>OBJ</b>	(to be) a particular (i.e., named) pond/lake	

<b>-LZW-      ‘ESTUARY / RIVER DELTA / FRESHWATER-SALTWATER TRANSITION ZONE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an estuary	<b>Stem 2:</b> (to be) a river delta  <b>Stem 3:</b> (to be) a freshwater-saltwater transition zone (e.g., the mouth of the Amazon or Mississippi Rivers)
<b>CTE</b>	(to be) the state of being an estuary	
<b>CSV</b>	(to be) a state of utilizing/living by an estuary; to deal with, live by, utilize an estuary	
<b>OBJ</b>	(to be) a particular (i.e., named) estuary	

<b>-LZR-      ‘SWAMP / MARSH / BOG / FEN / BAYOU / WETLANDS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a swamp/marsh	<b>Stem 2:</b> (to be) a bog/fen  <b>Stem 3:</b> (to be) a bayou/wetland(s)
<b>CTE</b>	(to be) the state of being a swamp/marsh	
<b>CSV</b>	(to be) a state of utilizing/living by a swamp/marsh; to deal with, live by, utilize a swamp/marsh	
<b>OBJ</b>	(to be) a particular (i.e., named) swamp	

<b>-ÇTY-      ‘NORTH / SOUTH / LONGITUDE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of north-south directional orientation	<b>Stem 2:</b> (to be) a state/act of being northern or in/of/toward the northern part/area of something in terms of (relative) location/place/origin, etc.  <b>Stem 3:</b> (to be) a state/act of being southern or in/of the southern part/area of something in terms of (relative) location/place/origin, etc.
<b>CTE</b>	(to be) a north-south (i.e., longitudinal) line/path/orientation	
<b>CSV</b>	(to be) a state/act of lying upon, traveling upon, or being directed along a north-south, i.e., longitudinal axis	
<b>OBJ</b>	(to be) what lies upon or is moving or being directed upon a longitudinal line/axis/path, etc.	

<b>-DNY- 'EAST / WEST / LATITUDE'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of east-west directional orientation	<b>Stem 2:</b> (to be) a state/act of being eastern or in/of/toward the eastern part/area of something in terms of (relative) location/place/origin, etc.  <b>Stem 3:</b> (to be) a state/act of being western or in/of the western part/area of something in terms of (relative) location/place/origin, etc.
<b>CTE</b>	(to be) an east-west (i.e., latitudinal) line/path/orientation	
<b>CSV</b>	(to be) a state/act of lying upon, traveling upon, or being directed along a east-west, i.e., latitudinal axis	
<b>OBJ</b>	(to be) what lies upon or is moving or being directed upon a latitudinal line/axis/path, etc.	

<b>-NTŇ- 'LATITUDINAL BASES [LATITUDINAL POLE / EQUATOR]'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of being situated or occurring on/at the equatorial line of latitude; be/occur on/at/along the equator	<b>Stem 2:</b> (to be) a state/act of being situated or occurring on/at the [geographic, not magnetic] north pole  <b>Stem 3:</b> (to be) a state/act of being situated or occurring on/at the [geographic, not magnetic] south pole
<b>CTE</b>	(to be) the equator	
<b>CSV</b>	(to be) an act of situating something or being situated at/on/along the equator; to happen or make happen at/on/along the equator	
<b>OBJ</b>	(to be) what is situated or takes place on/at the equator	

<b>-VS - 'SEASON'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a particular season (i.e., spring, summer, autumn, winter)	<b>Stem 2:</b> (to be) the natural condition or state of growth/dormancy of Nature's flora, as associated with a particular season  <b>Stem 3:</b> (to be) the solstice or equinox associated with a particular season; to be the first day of a season as determined by it being a solstice or equinox
<b>CTE</b>	(to be) the state of it being a certain season; be seasonal	
<b>CSV</b>	(to be) a phenomenon occurring during a particular season	
<b>OBJ</b>	(to be) a seasonal activity/event/state, i.e., something that happens during a particular season; be something seasonal	

<b>-ZY- ‘SPRING (SEASON) / SPRING-RELATED NATURAL PHENOMENON’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) Spring, springtime	<b>Stem 2:</b> (to be) the blooming/flowering/growing phenomenon of Nature’s flora occurring/due to it being springtime  <b>Stem 3:</b> (to be) the Spring equinox
<b>CTE</b>	(to be) the state of it being springtime	
<b>CSV</b>	(to be) a phenomenon/event/state/act occurring during (or because it is) springtime; to occur during (or because it is) springtime	
<b>OBJ</b>	(to be) an activity one does/performs during/because it is springtime	

<b>-MR- ‘SUMMER (SEASON) / SUMMER-RELATED NATURAL PHENOMENON’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) Summer, summertime	<b>Stem 2:</b> (to be) the peak state/condition of growth/vibrancy/life of Nature’s flora occurring/due to it being summertime  <b>Stem 3:</b> (to be) the Summer solstice
<b>CTE</b>	(to be) the state of it being summertime	
<b>CSV</b>	(to be) a phenomenon/event/state/act occurring during (or because it is) summertime; to occur during (or because it is) summertime	
<b>OBJ</b>	(to be) an activity one does/performs during/because it is summertime	

<b>-ŇŠ- ‘AUTUMN (SEASON) / AUTUMN-RELATED NATURAL PHENOMENON’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) Autumn, fall	<b>Stem 2:</b> (to be) the withering/dying phenomenon of Nature’s flora occurring/due to it being autumn  <b>Stem 3:</b> (to be) the Autumn equinox
<b>CTE</b>	(to be) the state of it being autumn	
<b>CSV</b>	(to be) a phenomenon/event/state/act occurring during (or because it is) autumn; to occur during (or because it is) autumn	
<b>OBJ</b>	(to be) an activity one does/performs during/because it is autumn	

<b>-ÇČ - ‘WINTER (SEASON) / WINTER-RELATED NATURAL PHENOMENON’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) Winter, wintertime	<b>Stem 2:</b> (to be) the state/condition of dormancy/lifelessness of Nature’s flora occurring/due to it being wintertime  <b>Stem 3:</b> (to be) the Winter solstice
<b>CTE</b>	(to be) the state of it being wintertime	
<b>CSV</b>	(to be) a phenomenon/event/state/act occurring during (or because it is) wintertime; to occur during (or because it is) wintertime	
<b>OBJ</b>	(to be) an activity one does/performs during/because it is wintertime	

<b>-VSL- ‘SEASONALLY-DETERMINED SOLAR EXPOSURE OR TEMPERATURE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of the ambient outdoor temperature being in a certain range due to the season of the year; to be in a seasonal temperature range	<b>Stem 2:</b> (to be) the duration of daylight during a 24-hour period in a location due to the time (i.e., season) of the year  <b>Stem 3:</b> (to be) the angle of the sun (i.e., height of the arc of the sun’s passage) due to the time (i.e., season) of the year
<b>CTE</b>	(to be) a state of it being a certain seasonally-determined temperature	
<b>CSV</b>	(to be) an act of determining the ambient temperature range; to see/feel how hot/cold it is outside (based on the expected temperature range of the season)	
<b>OBJ</b>	(to be) the ambient temperature (as expected for the season)	

<b>-FŠL- ‘WEATHER’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a weather condition; to be the weather (conditions)	<b>Stem 2:</b> (to be) a state of good weather conditions  <b>Stem 3:</b> (to be) a state of adverse weather condition
<b>CTE</b>	(to be) the actual extant weather condition at a particular time	
<b>CSV</b>	(to be) the physical manifestation(s) of a particular weather condition (e.g., the rain itself, the fog itself, the sunniness itself, the heat itself, the wind itself, etc.)	
<b>OBJ</b>	(to be) a party effected/impacted by the weather conditions	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

<b>-FŠR- ‘CLIME / CLIMATE’</b>
<b>Stem 1:</b> (to be) the climate, clime <b>Stem 2:</b> (to be) a cold climate <b>Stem 3:</b> (to be) a warm climate

<b>-FTH- ‘SKY / ATMOSPHERE / ATMOSPHERIC PHENOMENON / ATMOSPHERIC PRESSURE / CLOUD’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of there being a gaseous atmosphere enveloping a planetary body; to be a planetary atmosphere	<b>Stem 2:</b> (to be) the state/act/process of there being a particular amount of air pressure in the atmosphere; to be a certain atmospheric pressure [i.e., at any given altitude]  <b>Stem 3:</b> (to be) the state/act/process of there being a cloud (in the sky); to be a cloud (in the sky, for a cloud (in the sky) to be present
<b>CTE</b>	(to be) the collection of gaseous elements which comprise an atmosphere	
<b>CSV</b>	(to be) a process/phenomenon of the atmosphere; to manifest an atmospheric phenomenon	
<b>OBJ</b>	(to be) the enveloping gaseous, visible (via reflected sunlight) medium of the atmosphere itself, i.e., the sky; to be the sky	

<b>-FKH- ‘WIND / STORM’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of there being a momentary air-pressure-based atmospheric phenomenon, to be a gust of wind, for a gust of wind to blow, for an air current to blow	<b>Stem 2:</b> (to be) a storm  <b>Stem 3:</b> (to be) a spirally-oriented storm driven by massive air-pressure variances and coriolis forces [use appropriate affixes to indicate severity as a tropical depression, hurricane/cyclone/typhoon, tornado, etc.)
<b>CTE</b>	(to be) the collection of air (or other gas) reacting to pressure variance which comprise a gust wind	
<b>CSV</b>	(to be) a process/phenomenon of a gust of wind blowing; for a gust of wind to blow	
<b>OBJ</b>	(to be) the wave-front of a gust of wind (i.e., the concentration of gaseous molecules) which constitutes a (potentially destructive) energetic force which can be felt or which can physically impact objects contacted by the wave front.	

<b>-VPL- ‘LIGHTNING / ELECTRICAL STORM’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of there being a lightening strike something;	<b>Stem 2:</b> (to be) an electrical storm  <b>Stem 3:</b> (to be) the ionized atmospheric conditions necessary to produce lightning
<b>CTE</b>	(to be) the electrical charge/voltage/ampereage/power of a lightning strike	
<b>CSV</b>	(to be) a process/phenomenon of a bolt of lightening striking; for a bolt of lightning to strike	
<b>OBJ</b>	(to be)a bolt of lightning	

## 6.4 MATHEMATICAL CONCEPTS

### 6.4.1 The Basic Number Roots

0	1	2	3	4	5	6	7	8	9	10	100	100 <sup>2</sup>	100 <sup>4</sup>	100 <sup>8</sup>
-VR-	-LL-	-KS-	-Z-	-PŠ-	-ST-	-CP-	-NS-	-ČK-	-LZ-	-ŠŠ-	-GZ-	-PC-	-KZ-	-ČG-

The following six number roots are used when needed to designate numbers beyond ten when needed for counting and mathematical operations involving non-decimal number bases up to base-16. They may also be used as “short-cut” substitutes for the standard decimal/centesimal forms using the TNX affix.

11	12	13	14	15
-CG-	-JD-	-LJ-	-BC-	-TŽ-

Whole numbers are full formatives signifying a set containing the particular number of members. The “simple” everyday counting system is base-100 (the mathematical sub-language will utilize base-12). Beginning with ‘two’, the Stem & Specification pattern is illustrated by the root **-Z-** ‘three’ below:

<b>-Z- ‘THREE / TRINARY’ Associated Affix: 3XX</b>			
	<b>STEM 1</b>	<b>STEM 2</b>	<b>STEM 3</b>
<b>BSC</b>	(to be a) set or group of three entities; (to be) a trio	(to be) something manifesting three aspects / facets; to manifest trinariness; be trinary	(to be) the third entity/party in a group or sequence
<b>CTE</b>	(to be) a party/entity of whom/which there are three	(to be) the state of having three aspects/facets; to be trinary; to be tri-fold or tri-faceted	(to be) the state of being third in a sequence/group/pattern
<b>CSV</b>	(to be) a process which determines/identifies a set as being three in number; to count out to three; to determine that there are three of something	(to be) a process which determines/identifies an entity as having three aspects/facets; identify/determine that something is trinary/tri-fold/tri-faceted	(to be) a process which determines/identifies an entity’s sequential place in a sequence or group/pattern to be third
<b>OBJ</b>	(to be) one in a group or sequence of 3; to be one of 3	(to be) one of the aspects/facets of a trinary, tri-fold, tri-faceted entity	(to be) the entity/party whose numerical place in a sequence/group/pattern is third

Numbers from 11 through 99 are formed utilizing the TNX affix. Beginning with the number 101, numbers are formed as in Ithkuil-2011 using the COMITATIVE case and the COO affix. Having no multiples, the roots for ‘ZERO’ and ‘ONE’ have a different Stem & Specification pattern:

**-VR- ‘ZERO / NULL’**

	<b>STEM 1</b>	<b>STEM 2</b>	<b>STEM 3</b>
<b>BSC</b>	(to be) zero as the empty-set / a set having no members; to have no quantity or amount	(to be) the zero-dimension; to have geometrically no length, area or volume	(to be) the baseline “zero”-state or null-state in a sequence, hierarchy, gradient, pattern, etc.
<b>CTE</b>	(to be) a party/entity of whom/which there are no members	(to be) the state of having no substance/tangibility due to being zero-dimensional	(to be) the state of being the baseline “zero”-state or null-state
<b>CSV</b>	(to be) a set having no members; to have no (i.e., zero) members in a set	(to be) the process/act of determining/identifying zero-dimensionality	(to be) a process which determines/identifies an entity’s being the baseline “zero”-state or null-state
<b>OBJ</b>	(to be) a null value / a value for a parameter that is undefined and/or for which the expected or standard value(s) is/are inapplicable	(to be) an entity having zero-dimensionality; (to be) a Euclidean point; to have geometrically no length, area or volume, i.e., to be a Euclidean point	(to be) the entity/party in the baseline “zero”-state or null-state in a sequence, hierarchy, gradient, pattern, etc.

**-LL- ‘ONE / UNITY’**

	<b>STEM 1</b>	<b>STEM 2</b>	<b>STEM 3</b>
<b>BSC</b>	(to be) a set or group of one; to have one member	(to be) something (quasi-)indivisible, (quasi-)inseparable, unified, unitary, united, a union, a unit	(to be) the first entity/party in a group or sequence
<b>CTE</b>	(to be) a party/entity of whom/which there is only one	(to be) the state of having only one functional aspect/facet; to function/manifest as a unified whole or unit	(to be) the state of being first in a sequence/group/pattern
<b>CSV</b>	(to be) a process which determines/identifies a set as being one in number; to count out to one; to determine that there is only one of something	(to be) a process which determines/identifies an entity as having only one functional aspect/facet; to determine that an entity is a (quasi-)indivisible whole/unit	(to be) a process which determines/identifies an entity’s sequential place in a sequence or group/pattern to be first
<b>OBJ</b>	[same as CTE]	(to be) the party/entity having only one functional aspect/facet; to be an entity which functions/manifests as single unit	(to be) the entity/party whose numerical place in a sequence/group/pattern is first

**-TF- ‘ADDITION / SUBTRACTION’**

	<b>STEM 1</b>	<b>STEM 2</b>	<b>STEM 3</b>
<b>BSC</b>	(to be) an act/instance of changing the number of something via addition or subtraction	(to be) an act/instance of adding the number of something; to add something	(to be) an act/instance of subtracting the number of something; to subtract something
<b>CTE</b>	(to be) the party/entity that performs/initiates an act of adding or subtracting	(to be) the party/entity that performs/initiates an act of addition	(to be) the party/entity that performs/initiates an act of subtraction
<b>CSV</b>	(to be) a process of adding or subtracting	(to be) a process of addition	(to be) a process of subtraction
<b>OBJ</b>	(to be) the party/entity whose number is changed via addition or subtraction	(to be) the party/entity whose number is added to	(to be) the party/entity whose number is subtracted



<b>-ZV- ‘MULTIPLICATION / DIVISION’</b>			
	<b>STEM 1</b>	<b>STEM 2</b>	<b>STEM 3</b>
<b>BSC</b>	(to be) an act/instance of changing the number of something via multiplication or division; to multiply either by iteration or by division	(to be) an act/instance of multiplying the number of something; to multiply something	(to be) an act/instance of dividing the number of something; to divide something
<b>CTE</b>	(to be) the party/entity that performs/initiates an act of multiplying or dividing something	(to be) the party/entity that performs/initiates an act of multiplying something	(to be) the party/entity that performs/initiates an act of dividing something
<b>CSV</b>	(to be) a process of increasing via multiplication or division	(to be) a process of multiplication	(to be) a process of division
<b>OBJ</b>	(to be) the party/entity whose number is multiplied or divided	(to be) the party/entity whose number is multiplied	(to be) the party/entity whose number is divided

<b>-NT- ‘SEQUENTIAL ENUMERATION’</b>		Associated Affix: <b>SEQ</b>
<b>BSC</b>	<b>STEM 1:</b> (to be) a sequential numerical count(ing) of entities by positive integer to determine the numerical quantity thereof; to count a set of entities, to tally the number of entities	<b>STEM 2:</b> (to be) a sequential numerical labeling [of entities by positive integer] for purpose of identification, individuation, arrangement, etc.  <b>STEM 3:</b> (to be) a numerical(ly-based) pattern/arrangement; to enumerate
<b>CTE</b>	(to be) the [integer] number of entities counted; the count; to count (up)/tally [= focusing on the accrual/addition of numbers in anticipation of the total/tally]	
<b>CSV</b>	(to be) the process of counting/tallying; to count (up)/tally [= focusing on the counting process itself irrespective of the eventual total]	
<b>OBJ</b>	(to be) the entity/entities so counted	

## 6.4.2 Shapes and Forms

<b>-FR- ‘SHAPE / FORM / FIGURE’</b>		Associated Affix: <b>SHP</b>
<b>BSC</b>	<b>Stem 1:</b> (to be/manifest) a two-dimensional shape or outline form — [both the shape and the entity manifesting that shape]	<b>Stem 2:</b> (to be/manifest a) three-dimensional shape/form  <b>Stem 3:</b> (to be a) figure (reminiscent of something) based on shape/form
<b>CTE</b>	(to be) the entity manifesting a particular 2-D shape or outline form	
<b>CSV</b>	(to be/manifest) a two-dimensional shape or outline form	
<b>OBJ</b>	(to be) the background or “negative space” behind a 2-dimensional shape or outline form	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root with the same Specification pattern:

**-ŘŘ- ‘CONTOUR / OUTLINE / MOLD / CAST’**

- Stem 1:** (to be/manifest a) two-dimensional contour, pattern, or outline as a representation/model for something  
**Stem 2:** (to be/manifest a) three-dimensional contour, pattern, or outline as a representation/model for something  
**Stem 3:** (to be a) mold/pattern/cast (of/for something)

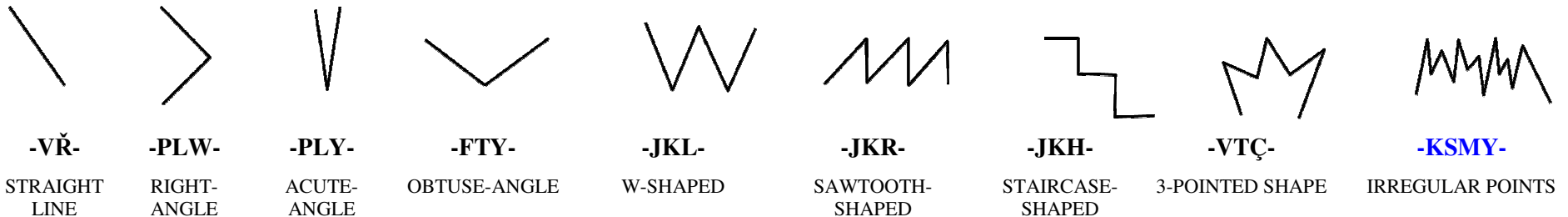
**-JB- ‘TWO-DIMENSIONAL DECORATIVE PATTERN/TEXTURE’** Affix: **PAT**








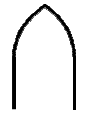








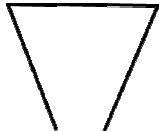











<b>BSC</b>	<b>STEM 1:</b> (to be/manifest) a two-dimensional (quasi-)overlying simple visual surface design/pattern (= repetitive visual design)— [both the design/pattern and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) two-dimensional (quasi-) overlying complex/multi-faced visual surface pattern (= complex repetitive visual design)  <b>STEM 3:</b> (to be/manifest a) two-dimensional (quasi-) overlying visual surface texture (= repetitive visual-tactile design)
<b>CTE</b>	(to be) something manifesting a 2-D overlying simple visual surface pattern	
<b>CSV</b>	(to be) a 2-D (quasi-)overlying simple visual surface pattern	
<b>OBJ</b>	(to be) the background upon or over which a 2-dimensional overlying design/pattern appears	

**-CKL- OPEN-ENDED LINEAR OUTLINE SHAPE**

<b>BSC</b>	<b>Stem 1:</b> (be) an open-ended (quasi-)linear outline shape (i.e. for describing the outline shape of any visual or tactile object/entity), e.g., an arc, a straight line, an S-shape, a V-shape, a squiggly line, etc.	<b>Stem 2:</b> (be) the (quasi-)planar extension (in 3-dimensional space) of the Stem 1 linear shape, e.g., a hemisphere shape based on the Stem-1 linear shape of an arc, or a notch- or wedge-shaped indentation based on the Stem-1 linear shape of a V-shape.  <b>Stem 3:</b> (be) the “negative” space delineated by a (quasi-)linear outline shape, e.g., the pointed area of one’s plane of vision created as the negative space set off by something in the foreground having a V-shaped outline.
<b>CTE</b>	(be) the state of having a particular (quasi-)linear outline shape	
<b>CSV</b>	(be) the act of discerning/observing/perceiving a (quasi-)linear outline shape	
<b>OBJ</b>	(be) an object/entity which manifests the particular (quasi-)linear outline shape	

The following roots all have a Stem & Specification pattern based on the root **-CKL-** above. The English names given each shape are, in many cases, rather stilted given the absence of concise nomenclature being available. Note also that the directional orientation of the shape as shown is arbitrary and irrelevant:



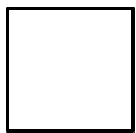
						
<b>-DGL-</b> ARC	<b>-MKŘ-</b> SEMI-CIRCLE	<b>-NZŘ-</b> CIRCULAR	<b>-GBL-</b> HUMPED-SHAPE	<b>-ČBŘ-</b> U-SHAPED	<b>-GBR-</b> DOUBLE-HUMPED	<b>-GZB-</b> S-SHAPED
						
<b>-KṬM-</b> BULLET-SHAPED	<b>-KṬK-</b> ARISTATE*	<b>-KṬṬL-</b> MUCRONATE*	<b>-KṬN-</b> FLATTENED ARISTATE *	<b>-JBL-</b> FLATTENED BULLET-SHAPED	<b>-ḐDL-</b> SCALLOP-SHELL-SHAPED	<b>-ḐDW-</b> TRUNCATE*
						
<b>-VGL-</b> SPADE-SHAPED	<b>-ŽTY-</b> POINTED SPADE-SHAPED	<b>-XPY-</b> WEDGE-SHAPED	<b>-XPR-</b> CONCAVE WEDGE	<b>-ZGL-</b> Y-SHAPED	<b>-MNY-</b> TRIPLE-LOBE	<b>-SSKY-</b> IRREGULAR LINEAR
						
<b>-PFW-</b> TOOTH-SHAPED	<b>-PFY-</b> AURICULATE*	<b>-PFČ-</b> OBCORDATE *	<b>-PFR-</b> PAIRED LOBES	<b>-ŘFL-</b> ROUNDED Y-SHAPED	<b>-ŘFY-</b> HASTATE *	<b>-ŘTR-</b> MIXED ROUNDED & POINTED

\* Term borrowed from biology/botany for a particular leaf shape.

<b>-CKR-      ‘CLOSED LINEAR OUTLINE SHAPE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (be) a closed (quasi-)linear outline shape (i.e. for describing the outline shape of any visual or tactile object/entity)	<b>Stem 2:</b> (be) a (quasi-)planar object/entity whose edge(s) constitute the Stem 1 closed linear shape, e.g., a cookie in the shape of a circle, or a stop-sign in the shape of an octagon.  <b>Stem 3:</b> (be) the background “negative” space delineated by a closed (quasi-)linear outline shape, e.g., the area of one’s plane of vision with a “hole” in it, created as the negative space set off by something in the foreground having a closed-linear outline.
<b>CTE</b>	(be) the state of having a particular closed (quasi-)linear outline shape	
<b>CSV</b>	(be) the act of discerning/observing/perceiving a closed (quasi-)linear outline shape	
<b>OBJ</b>	(be) an object/entity which manifests the particular closed (quasi-)linear outline shape	

The following roots all have a Stem & Specification pattern based on the above root.

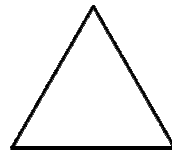
In general, the pattern of roots for planar and three-dimensional shapes is as follows: The basic closed planar shape (e.g., a circle, a square, an equilateral triangle, etc.) has a tri-consonantal root ending in **-L**. The three-dimensional extension of such a root with a rectilinear base changes this **-L** to **-R**. The three-dimensional extension of such a root with a radial or circular base changes it to **-W**. If the shape has an associated open-ended linear outline form, this is expressed by changing the last consonant of the root to **-Ř** or **-Y**.



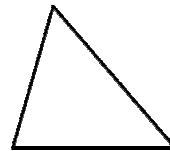
**-PŠL-**  
SQUARE



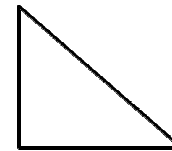
**-KŠL-**  
RECTANGLE



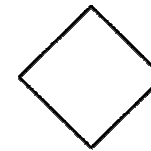
**-ZL-**  
ISOSCELES TRIANGLE



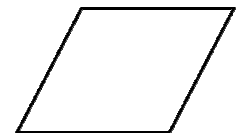
**-ŘZL-**  
TRIANGLE



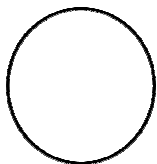
**-RZL-**  
RIGHT TRIANGLE



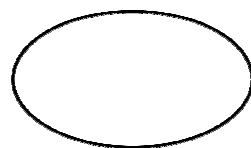
**-RPŠL-**  
DIAMOND  
SHAPED



**-ŘPŠL-**  
RHOMBOID



**-NZL-**  
CIRCLE



**-MZL-**  
ELLIPSE



**-KKL-**  
SLIVER-MOON SHAPED



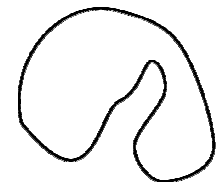
**-MKL-**  
HALF-MOON  
SHAPED



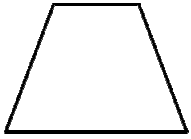
**-KKR-**  
GIBBOUS-MOON  
SHAPED



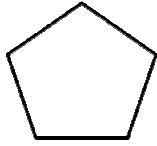
**-SBL-**  
TEARDROP-  
SHAPED



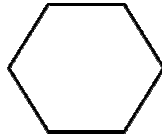
**-SSKL-**  
IRREGULAR  
ROUNDED SHAPE



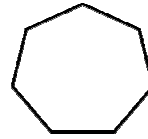
**-LPŠL-**  
TRAPEZOID



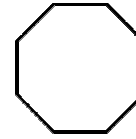
**-STL-**  
PENTAGON



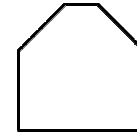
**-CPL-**  
HEXAGON



**-NSL-**  
HEPTAGON



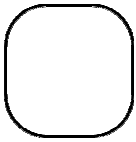
**-ČKL-**  
OCTOGON



**-KŠŘ-**  
DOUBLY-  
TRUNCATED  
SQUARE



**-KSML-**  
IRREGULAR  
POLYGONOID



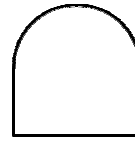
**-NZM-**  
ROUNDED  
SQUARE



**-LKŠL-**  
ROUNDED RECTANGLE



**-NZVL-**  
OVAL



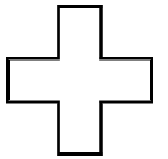
**-ČBL-**  
HALF-  
ROUNDED  
SQUARE



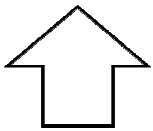
**-TBL-**  
THICK ARCH SHAPED



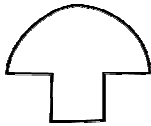
**-ZBL-**  
VALENTINE  
SHAPED



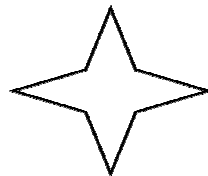
**-FPŠ-**  
CROSS- or X=  
SHAPED



**-VKL-**  
ARROW-SHAPED



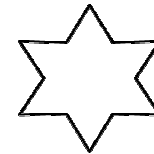
**-BŽV-**  
MUSHROOM-SHAPED



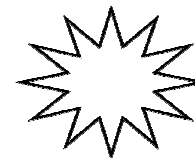
**-PŠŘ-**  
4-POINTED STAR



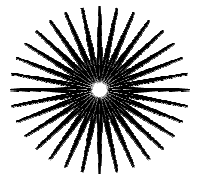
**-STR-**  
5-POINTED STAR



**-CPR-**  
SIX-POINTED STAR



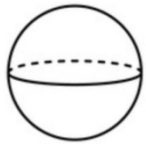
**-SKL-**  
MULTI-POINTED  
STAR



**-FBL-**  
SPIKED CIRCLE

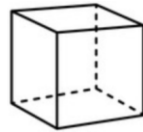
<b>-TŁK-      ‘THREE-DIMENSIONAL FORM/LATTICE’</b>	
<b>BSC</b>	<b>Stem 1:</b> (be) a solid three-dimensional outline form/shape, as determined by the holistic structure of its planar surfaces (e.g., a cube, a sphere, a pyramidal shape, etc.)
<b>CTE</b>	(be) the state of having a particular three-dimensional outline form/shape
<b>CSV</b>	(be) the act of discerning/observing/perceiving a three-dimensional outline form/shape
<b>OBJ</b>	(be) an object/entity which manifests the particular three-dimensional outline form/shape
<b>Stem 2:</b> [same as stem 1 except that the 3-dimensional form is hollow, consisting only of the collection of surface planes or geodesic/curved plane]  <b>Stem 3:</b> (be) a a three-dimensional lattice form/shape, as determined by the collective structure/lattice formed by its linear edges (e.g., a cube-shaped lattice formed from eight linear elements of equal length whose end-points are connected to two others at right angles, a lattice in the form of a sphere, a pyramid-shaped lattice, etc.)	

The following roots have the same Stem/Specification structure as the root above:



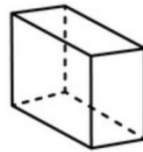
**-NZW-**

SPHERE



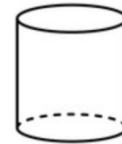
**-PŠR-**

CUBE



**-KŠR-**

RECTANGULAR CUBOID



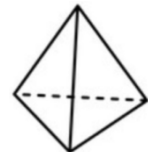
**-NZN-**

CYLINDER



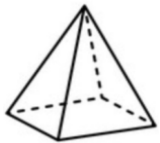
**-NZY-**

CONE



**-PŠN-**

TETRAHEDRON



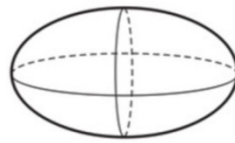
**-ZR-**

PYRAMID



**-MKW-**

HEMISPHERE



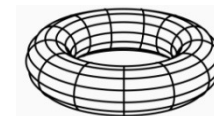
**-MZW-**

ELLIPSOID



**-RČKW-**

TRIANGULAR  
OCTAHEDRON



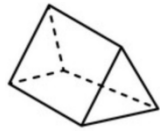
**-TGW-**

TORUS



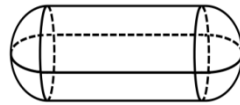
**-TBW-**

HALF-TORUS



**-RZR-**

EQUILATERAL TRIANGULAR  
PRISM SHAPE



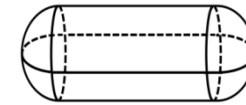
**-NZVW-**

OVOID



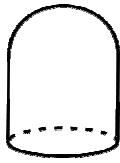
**-NZR-**

DISC



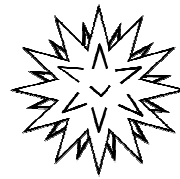
**-MZR-**

LOZENGE SHAPE [i.e., same as ovoid except that width-wise cross-section is an oval or ellipse rather than a circle]



**-ÇBW-**

ROUND-TOPPED CYLINDER



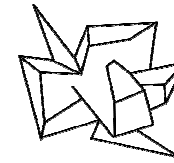
**-SKR-**

3-DIMENSIONAL MULTI-  
POINTED STAR



**-FBR-**

3-DIMENSIONAL SPIKED  
SPHEROID



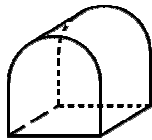
**-KSMR-**

3-DIMENSIONAL IRREGULAR  
POLYHEDRON



**-SSKR-**

3-DIMENSIONAL IRREGULAR  
"AMOEBOID" SHAPE



**-ÇBR-**

ROUND-TOPPED CUBOID



**-LPŠR-**

TRUNCATED PYRAMID

#### Additional 3-D Forms:

**-ÑBL-** polygon [for a polygon with a specific number of sides more than eight, incorporate a number stem with either COMPOSITIVE format or UTILITATIVE format into this root]

**-RNZM-** concave disc (i.e., shaped like a Life-Saver piece of candy)

**-RNZN-** half-concave disc (i.e., concave lens-shaped)

**-RNZW-** convex disc (i.e., convex lens-shaped)

The following new affix is available to modify the above stems for 3-dimensional forms:

<b>-jk</b>	<b>VPF Variance From Prototypical 3-D Form</b>
1	long axis obliquely angled/inclined away from the vertical/right-angled/rectilinear/perpendicular
2	elongated lengthwise/heightwise
3	elongated widthwise/girthwise
4	curved away from right-angled/rectilinear orientation
5	truncated at small/pointed/shorter/smaller end at angle parallel to base
6	truncated at small/pointed/shorter/smaller end at oblique angle to base
7	a quasi-planar longitudinal (i.e., perpendicular to base) slice through 3-D form X
8	a quasi-planar oblique slice through 3-D form/shape X
9	a quasi-planar latitudinal (i.e., parallel to base) slice through 3-D form X

<b>-ļŗ</b>	<b>TDP Three-Dimensional Polyhedral Forms</b>
1	symmetrical 3-dimensional polyhedron having X-number of triangular faces
2	symmetrical 3-dimensional polyhedron having X-number of quadrilateral faces
3	symmetrical 3-dimensional polyhedron having X-number of mixed triangular and quadrilateral faces
4	symmetrical 3-dimensional polyhedron having X-number of mixed polygonal faces
5	a 3-dimensional form/object whose 2-dimensional/planar outline shape (i.e., against a background) is X
6	assymmetrical 3-dimensional polyhedron having X-number of mixed polygonal faces
7	assymmetrical 3-dimensional polyhedron having X-number of mixed triangular and quadrilateral faces
8	assymmetrical polygon having X-number of quadrilateral faces
9	assymmetrical polygon having X-number of triangular faces

**NOTE:** For the roots **-ZR-**, **-RZR-**, and **-LPŠR-** above, incorporate a number-root with either COMPOSITIVE format or UTILITATIVE format to create words for X-sided pyramidal forms or X-sided prism forms.



### 6.4.3 Chemical Elements, Compounds and Substances

<b>-RZ- ‘CHEMICAL ELEMENT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a chemical element	<b>Stem 2:</b> (to be) a positive ion of a chemical element  <b>Stem 3:</b> (to be) a negative ion of a chemical element
<b>CTE</b>	(to be) an elemental state; at a level involving individual chemical elements	
<b>CSV</b>	(to be) a state/act of manipulating/combining chemical elements; to perform chemistry	
<b>OBJ</b>	(to be) a chemical element in its naturally occurring (homonuclear) state, e.g., O <sub>2</sub>	

The roots for the elements below follow the same Specification and Stem pattern as the root **-RZ-** ‘CHEMICAL ELEMENT’ above:

<b>-PČK-</b>	Hydrogen	<b>-RTŇ-</b>	Vanadium	<b>-ZTW-</b>	Cobalt	<b>-ŠPW-</b>	Boron	<b>-ŇN-</b>	Oxygen
<b>-PČKW-</b>	Lithium	<b>-RTŇW-</b>	Niobium	<b>-ZTY-</b>	Rhodium	<b>-ŠPY-</b>	Aluminum	<b>-ŇZD-</b>	Sulfur
<b>-PČKY-</b>	Sodium	<b>-RSŇ-</b>	Tantalum	<b>-ZTF-</b>	Iridium	<b>-ŠPL-</b>	Gallium	<b>-ŇZDW-</b>	Selenium
<b>-PČKL-</b>	Potassium	<b>-RSŇW-</b>	Dubnium	<b>-ZTV-</b>	Meitnerium	<b>-ŠPR-</b>	Indium	<b>-ŇZDY-</b>	Tellurium
<b>-PČKR-</b>	Rubidium	<b>-ŠKR-</b>	Chromium	<b>-XDW-</b>	Nickel	<b>-ŠPŘ-</b>	Thallium	<b>-ŇZDL-</b>	Polonium
<b>-PČKŘ-</b>	Caesium	<b>-ŠKW-</b>	Molybdenum	<b>-XDY-</b>	Palladium	<b>-ŠPŠ-</b>	Nihonium	<b>-ŇZDR-</b>	Livermorium
<b>-PČKF-</b>	Francium	<b>-ŠKY-</b>	Tungsten	<b>-XDL-</b>	Platinum	<b>-ŽPL-</b>	Carbon	<b>-BZTW-</b>	Fluorine
<b>-LVG-</b>	Beryllium	<b>-ŠKŘ-</b>	Seaborgium	<b>-XDR-</b>	Darmstadtium	<b>-ŽPW-</b>	Silicon	<b>-BZTY-</b>	Chlorine
<b>-LVGW-</b>	Magnesium	<b>-TĽN-</b>	Manganese	<b>-MZ-</b>	Copper	<b>-ŽPY-</b>	Geranium	<b>-BZTL-</b>	Bromine
<b>-LVGY-</b>	Calcium	<b>-TĽNW-</b>	Technetium	<b>-RĽ-</b>	Silver	<b>-ŽPR-</b>	Tin	<b>-BZTR-</b>	Iodine
<b>-LVGL-</b>	Strontium	<b>-TĽŇ-</b>	Rhenium	<b>-RĽ-</b>	Silver	<b>-ŽPŘ-</b>	Lead	<b>-BZTRŘ-</b>	Astatine
<b>-LVGR-</b>	Barium	<b>-TĽŇW-</b>	Bohrium	<b>-LJ-</b>	Gold	<b>-ŽPF-</b>	Flerovium	<b>-BZTĽ-</b>	Tennessine
<b>-LVGŘ-</b>	Radium	<b>-SGL-</b>	Iron	<b>-LJŇW-</b>	Roentgenium	<b>-LXT-</b>	Nitrogen	<b>-GZPW-</b>	Helium
<b>-LVGV-</b>	Scandium	<b>-SGW-</b>	Ruthenium	<b>-ĐBW-</b>	Zinc	<b>-LXTW-</b>	Phosphorus	<b>-GZPY-</b>	Neon
<b>-LVGZ-</b>	Yttrium	<b>-SGY-</b>	Osmium	<b>-ĐBY-</b>	Cadmium	<b>-LXTY-</b>	Arsenic	<b>-GZPL-</b>	Argon
<b>-PLW-</b>	Titanium	<b>-SGV-</b>	Hassium	<b>-ĐBL-</b>	Mercury	<b>-LXTL-</b>	Antimony	<b>-GZPR-</b>	Krypton
<b>-PLM-</b>	Zirconium	<b>-ĐBR-</b>	Copernicium	<b>-LXTR-</b>	Bismuth	<b>-LXTR-</b>	Bismuth	<b>-GZPŘ-</b>	Xenon
<b>-PLN-</b>	Hafnium	<b>-LXTRŘ-</b>	Moscovium	<b>-GZPF-</b>	Radon	<b>-GZPL-</b>	Oganesson		
<b>-PLŇ-</b>	Rutherfordium								

<b>-ŘCP-</b>	Lanthanum	<b>-ŘPST-</b>	Actinium
<b>-ŘCPW-</b>	Cerium	<b>-ŘPSTW-</b>	Thorium
<b>-ŘCPY-</b>	Praseodymium	<b>-ŘPSTY-</b>	Protactinium
<b>-ŘCPÇ-</b>	Neodymium	<b>-ŘPSTL-</b>	Uranium
<b>-ŘCPL-</b>	Promethium	<b>-ŘPSTR-</b>	Neptunium
<b>-ŘCPF-</b>	Samarium	<b>-ŘPSTR-</b>	Plutonium
<b>-ŘCPL-</b>	Europium	<b>-ŘPSTF-</b>	Americium
<b>-ŘCPŘ-</b>	Gadolinium	<b>-ŘPSTL-</b>	Curium
<b>-ŘCPR-</b>	Terbium	<b>-ŘPSC-</b>	Berkelium
<b>-ŘCPS-</b>	Dysprosium	<b>-ŘPSC-</b>	Californium
<b>-ŘCPŠ-</b>	Holmium	<b>-ŘPSCW-</b>	Einsteinium
<b>-ŘCC-</b>	Erbium	<b>-ŘPSCW-</b>	Fermium
<b>-ŘCCW-</b>	Thulium	<b>-ŘPSS-</b>	Mendelevium
<b>-ŘCČ-</b>	Ytterbium	<b>-ŘPSSW-</b>	Nobelium
<b>-ŘCCW-</b>	Lutetium	<b>-ŘPSSY-</b>	Lawrencium

A series of  $V_xC_s$  affixes and stem-incorporation rules are under development by which one will be able to use these elemental roots/stems to form transparent names (i.e., chemical formulas) for chemical compounds.

<b>-RZB- ‘CHEMICAL COMPOUND / CHEMICAL REACTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a chemical compound; to consist of a chemical compound	<b>Stem 2:</b> (to be) a chemical reaction; to chemically react, undergo a chemical reaction
<b>CTE</b>	(to be) an instance (i.e.g, piece, drop, granule, flume, glob) of the substance comprising a chemical compound	
<b>CSV</b>	(to be) a chemical reaction resulting in the formation of a chemical compound; to chemically react, make/undergo a chemical reaction	<b>Stem 3:</b> (to be) an amount of energy released as a result of a chemical reaction; to release energy as a result of a chemical reaction
<b>OBJ</b>	(to be) a chemical compound in its naturally occurring state	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the following new root:

<b>- RZBW- 'CHEMICAL COMPOUND BY TYPE OF MOLECULAR BOND'</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a chemical compound held together by covalent molecular bonds	<b>Stem 2:</b> (to be) a chemical compound held together by ionic bonds  <b>Stem 3:</b> (to be) an intermetallic chemical compound or complex held together by metallic or coordinate covalent bonds
<b>CTE</b>	(to be) an instance (i.e.g, piece, drop, granule, flume, glob) of the substance comprising a chemical compound held together by covalent molecular bonds	
<b>CSV</b>	(to be) a chemical reaction resulting in the formation of a chemical compound held together by covalent molecular bonds; the chemically react, make/undergo a chemical reaction involving covalent molecular bonds	
<b>OBJ</b>	(to be) a chemical compound held together by covalent molecular bonds in its naturally occurring state	

The following roots for common chemical compounds follow the same Specification pattern as the INFORMAL stems of the above root - **RZ** - :

<b>-FD-</b>	table salt / rock salt (sodium chloride)	<b>-ZTC-</b>	dynamite / TNT
<b>-ÇPF-</b>	baking soda	<b>-XBW-</b>	aspirin / ASA
<b>-TPF-</b>	plaster of Paris (calcium sulfate hemi-hydrate)	<b>-JNY-</b>	calomel (mercurous chloride)
<b>-PPF-</b>	talc / talcum	<b>-KSPR-</b>	gasoline
<b>-DPF-</b>	sodium bicarbonate (i.e., baking soda) $\text{NaHCO}_3$	<b>-KSPL-</b>	kerosene
<b>-ŇPF-</b>	washing soda (sodium carbonate decahydrate)	<b>-KSPW-</b>	benzene
<b>-RPF-</b>	magnesia (magnesium hydroxide)	<b>-KSPY-</b>	butane
<b>-ŘPF-</b>	lye / soda lye / caustic soda (sodium hydroxide)	<b>-KSPŘ-</b>	propane
<b>-XPF-</b>	lime / quicklime (calcium oxide)	<b>-VML-</b>	methanol / methyl alcohol / wood alcohol
<b>-ĽPF-</b>	slaked lime / caustic lime (calcium hydroxide)	<b>-VMY-</b>	grain alcohol (ethyl alcohol)
<b>-ŠPF-</b>	potash (potassium carbonate)	<b>-TLMW-</b>	graphite
<b>-GPF-</b>	saltpeter (potassium nitrate)	<b>-TĽMY-</b>	graphene
<b>-VPF-</b>	bleaching powder (calcium hypochlorite)		
<b>-CPF-</b>	borax (sodium tetraborate)	<b>-LCM-</b>	table sugar (sucrose)
<b>-ČPF-</b>	emery / corundite	<b>-LCN-</b>	glucose
<b>-DPF-</b>	epsom salt (magnesium sulfate heptahydrate)	<b>-LCMW-</b>	fructose
<b>-KÇPF-</b>	calcium oxychloride (i.e., bleaching powder)	<b>-LCMY-</b>	dextrose
<b>-NĽPF-</b>	caustic potash (potassium hydroxide)		
<b>-KTPF-</b>	silica	<b>-ZDŘ-</b>	asbestos
<b>-DMY-</b>	bleach (sodium hypochlorite)	<b>-XBŘ-</b>	milk of magnesia
<b>-PMY-</b>	zinc white / zinc oxide		
<b>-ZDW-</b>	fluorspar / fluorite	<b>-KFTW-</b>	acetone

<b>-DNW-</b>	carbolic acid (phenol)	<b>-KFTY-</b>	ammonia
<b>-ZDY-</b>	copper sulphate (i.e., blue vitriol)	<b>-KFTL-</b>	rubbing alcohol / isopropyl alcohol
<b>-CBL-</b>	carbon dioxide	<b>-KFTR-</b>	vinegar (acetic acid)
<b>-GVBL-</b>	laughing gas (nitrous oxide)	<b>-KFTR̈-</b>	glycerin (trihydroxy propanol)
<b>-GVBR-</b>	methane	<b>-KFTÇ-</b>	oil of vitriol (sulfuric acid)
		<b>-KFTH-</b>	formalin / aqueous formaldehyde solution
		<b>-KFTHW-</b>	muriatic acid (hydrochloric acid)

<b>-SY- ‘SUBSTANCE / MATERIAL / WHAT SOMETHING CONSISTS OF OR IS COMPOSED/MADE OF’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be a) an instance/amount of a material substance; (to be a) manifestation of matter/material/ “stuff” / something material — [both the substance itself and the form/entity consisting thereof]	<b>STEM 2:</b> (to be) a state of consisting of or being composed/made of a particular material substance; to consist of/be composed of/made (out) of a particular material/substance  <b>STEM 3:</b> (to be/manifest a) material consistency, i.e., a discernible (quasi-)tactile or (quasi-)visual or other (quasi-)sensory attribute/quality/characteristic
<b>CTE</b>	(to be) the material substance of which something consists or is made; something material	
<b>CSV</b>	(to be) a form taken by something material, the shape/form of something material	
<b>OBJ</b>	(to be) an object/entity made from or consisting of a particular material	

The following roots for common substances/materials follow the same Specification pattern as the stems of the above root **-SY-** :

<b>-NDW-</b>	dirt/earth/soil	<b>-TL̈M-</b>	plastic	<b>-ÑŽK-</b>	polystyrene
<b>-NDM-</b>	clay	<b>-KSY-</b>	metal	<b>-ÑŽKW-</b>	polystyrene foam (“styrofoam”)
<b>-NTF-</b>	sand	<b>-TPY-</b>	rubber	<b>-ÑŽKY-</b>	polyethylene
<b>-NTÇ-</b>	tar/pitch	<b>-XTW-</b>	ceramic	<b>-ÑŽKL-</b>	polypropylene
<b>-NTW-</b>	oil (plant-derived)	<b>-XTY-</b>	porcelain	<b>-ÑŽKR-</b>	polycarbonate
<b>-NTY-</b>	petroleum	<b>-XMW-</b>	plaster	<b>-ÑŽKŘ-</b>	fiberglas
<b>-NTR̈-</b>	latex (natural)	<b>-XMY-</b>	mortar	<b>-ÑŽKF-</b>	linoleum
<b>-NDR-</b>	wood	<b>-XNW-</b>	adobe	<b>-ÑŽKT̈-</b>	polyurethane
<b>-MNW-</b>	honey	<b>-XNY-</b>	cement/concrete	<b>-ÑŽKÇ-</b>	plexiglass (polymethyl methacrylate)
<b>-MTÇ-</b>	wax	<b>-BXW-</b>	brick	<b>-ÑŽKH-</b>	epoxy (i.e., polyepoxide)
<b>-LTV-</b>	silk	<b>-TTW-</b>	glass	<b>-NTV-</b>	latex (synthetic)
<b>-LTH-</b>	ivory	<b>-TTY-</b>	enamel	<b>-NZX-</b>	polymer
<b>-PNW-</b>	starch (amylose/amylopectin)	<b>-TTR̈-</b>	tile	<b>-NZXW-</b>	cyanoacrylate
<b>-PNY-</b>	cork	<b>-ŽTÇ-</b>	asphalt	<b>-NZXL-</b>	polyfluoroalkyl substance (PFAS)
<b>-NDG-</b>	resin	<b>-SNW-</b>	vinyl (i.e., polyvinyl chloride)		

<b>-NZD-</b>	brine	<b>-SNY-</b>	nylon	<b>-LTN-</b>	ink
<b>-NZB-</b>	shellac	<b>-ḊGW-</b>	paper	<b>-LTNW-</b>	artist's paint/pigment
<b>-BGV-</b>	grease (synthetic lubricant)	<b>-ḊGY-</b>	cardboard	<b>-LTNY-</b>	housepaint / industrial paint
<b>-BGṘ-</b>	non-greasy lubricant	<b>-VNW-</b>	leather		
		<b>-VNY-</b>	cloth/fabric/textile		

Roots relating to common rocks, minerals, rock-forms, gemstones, and non-mineral materials treated as gemstones:

<b>-GGṘ-</b>	mineral	<b>-GVY-</b>	diamond
<b>-GGW-</b>	stone (material substance)	<b>-GVM-</b>	sapphire
<b>-GGY-</b>	marble	<b>-GVN-</b>	ruby
<b>-GGL-</b>	limestone	<b>-GVW-</b>	emerald
<b>-GGR-</b>	chalk	<b>-GVL-</b>	opal
<b>-GDṘ-</b>	granite	<b>-STL̇-</b>	jade
<b>-GBṘ-</b>	basalt	<b>-ṘTL̇-</b>	topaz
<b>-GBW-</b>	serpentine	<b>-ṄTL̇-</b>	aquamarine
<b>-GBY-</b>	syenite	<b>-FTL̇-</b>	amethyst
<b>-GDL̇-</b>	quartz	<b>-ḊTL̇-</b>	alexandrite
<b>-GḊR-</b>	quartzite	<b>-LTL̇-</b>	turquoise
<b>-GNW-</b>	slate	<b>-MTL̇-</b>	spinel
<b>-GNY-</b>	coal	<b>-RTL̇-</b>	malachite
<b>-GFL-</b>	gneiss	<b>-PTL̇-</b>	garnet
<b>-GFR-</b>	calcite	<b>-KTL̇-</b>	zircon
<b>-GFṘ-</b>	gypsum (calcium sulfate dihydrate)	<b>-JTL̇-</b>	lapis lazuli
<b>-GV̇R-</b>	obsidian	<b>-GTL̇-</b>	ammolite
<b>-GZF-</b>	feldspar	<b>-NTL̇-</b>	agate
<b>-GŽG-</b>	pyroxene	<b>-CTL̇-</b>	alabaster
<b>-GFW-</b>	mica		
<b>-GFY-</b>	amphibole	<b>-TDW-</b>	amber
<b>-GZL-</b>	schist	<b>-TDY-</b>	jet
<b>-GZR-</b>	shale	<b>-TDL̇-</b>	pearl
<b>-GZM-</b>	tuff / volcanic tuff	<b>-TḊṘ-</b>	petrified wood
<b>-GZN-</b>	pumice		

## 7.0 NATURAL PHENOMENA (BIOLOGICAL/ZOOLOGICAL)

### 7.1 FOOD/EATING/INGESTION

-TX- 'EAT / DRINK / NUTRITIONAL CONSUMPTION'		
<b>BSC</b>	<b>STEM 1:</b> (to be) food and drink; to eat and drink	<b>STEM 2:</b> (to be) food, i.e., (semi-/quasi-)solid consumable/digestible material; to eat (semi-/quasi-)solid food  <b>STEM 3:</b> (to be) a drink, i.e., a consumable/digestible liquid; to drink
<b>CTE</b>	(to be) the biological process of consuming food and drink; eat/drink as a biological process	
<b>CSV</b>	(to be) the physical process of food/drink consumption, the physical process of eating/drinking (i.e., placement of consumable in mouth/chewing/swallowing/digestion).	
<b>OBJ</b>	(to be) the food and drink one consumes; the actual food/drink items one consumes	

**NOTE:** for the meaning of the old FORMAL stems previously associated with this root, use the above stems with either the **TRF** affix or one of the two affixes below:

-xč	CK1 Cooking Methods 1
1	uncooked, raw; serve X raw/uncooked
2	smoked; cook by smoking
3	sautéed; cook by sautéing
4	stir-fried; cook by stir-frying
5	pan-fry; cook by pan-frying
6	deep-fried; cook by deep-frying X
7	grilled; cook by grilling
8	barbecued; cook by barbecuing
9	roasted; cook by roasting X

-xc	CK2 Cooking Methods 2
1	steamed; cook by steaming X
2	blanched; heated/cooked by blanching
3	poaching; cook by poaching X
4	boiled; cook by boiling X
5	braised; cook by braising X
6	stewed; cook by stewing X
7	pressure-cooked / pressure-steamed; cook by pressure-cooking X
8	slow-cooked; cook by slow-cooking (e.g., underground or in crockpot)
9	baking; cook by baking X

**NOTE:** To express parboiling, parbaking, or parcooking, use the **PTT<sub>3</sub>/4** affix with one of the **CK1** or **CK2** affixes above.

<b>-LKS- ‘FOODSTUFF OR BEVERAGE’</b> Associated affix: DFB			
	Stem 1	Stem 2	Stem 3
<b>BSC</b>	(to be) a state their being a particular food or beverage available for consumption	(to be) a state/act of making/preparing/cooking or fermenting a particular food or beverage	(to be) a state/act of sourcing or raising or farming/growing/cultivating the animal/plant/mineral that will become a foodstuff
<b>CTE</b>	(to be) an amount/portion of a particular food/beverage (the entity/substance or liquid itself)	(to be) a state of a food or beverage in preparation/being cooked/being fermented	(to be) the state of an animal/plant/mineral being raised, grown, cultivated, or being a source for food
<b>CSV</b>	(to be) an act of eating/drinking a particular food or beverage; to eat/drink a particular food or beverage	(to be) the physical act of making/preparing/cooking or fermenting a particular food or beverage	(to be) a physical act of sourcing, raising, growing, cultivating an animal/plant/mineral for food
<b>OBJ</b>	(to be) a serving/dish/plate/glass/cup of a particular food or beverage; to serve (a dish/plate/glass/cup) of a particular food or beverage	(to be) the prepared/cooked/fermented food or beverage itself to be served	(to be) the plant/animal/mineral that will be (consumed as) food

The following roots follow the same Stem and Specification pattern as the root ‘FOODSTUFF OR BEVERAGE’ above:

**-LKSW-** ‘DISH/RECIPE MADE FROM/WITH FISH/SEAFOOD’

**-LKSL-** ‘DISH/RECIPE MADE FROM/WITH MAMMALIAN FLESH’

**-LKSM-** ‘DISH/RECIPE MADE FROM/WITH EGGS’

**-LKSR-** ‘DISH/RECIPE MADE FROM/WITH CEREAL GRAINS’

**-LKT-** ‘DISH/RECIPE MADE FROM/WITH A MIXTURE OF ANIMAL/PLANT PRODUCTS/PARTS’

**-LKTW-** ‘DISH/RECIPE MADE FROM/WITH FRUIT’

**-LKTR-** ‘DISH/RECIPE MADE FROM/WITH SEEDS/NUTS’

**-LKTL-** ‘DISH/RECIPE MADE FROM/WITH BEANS/LEGUMES’

**-LKTY-** ‘DISH/RECIPE MADE FROM/WITH VEGETABLES’

**-LKTRĤ-** ‘DISH/RECIPE MADE FROM/WITH PLANT LEAVES/SHOOTS’

**-TMW-** ‘WINE’ (i.e., an alcoholic beverage made by the fermentation of a fruit, whether grapes, apples, berries, etc. - thus this stem includes the meaning of the English terms (alcoholic) *cider* and *perry*)

**-TDR-** ‘BEER’

**-TGL-** ‘FERMENTED ALCOHOLIC BEVERAGE’ (other than fruit-based wine or beer, e.g., mead, vegetable-based liquor, nut-based liqueurs, etc.)

**-TGR-** ‘FERMENTED FOODSTUFF’

-**ČKW**- ‘CEREAL GRAIN’  
 -**ČKY**- ‘BAKED GOOD’  
 -**ČPW**- ‘BREAD’  
 -**ČPY**- ‘FLATBREAD’  
 -**ČPL**- ‘CAKE’  
 -**ČPR**- ‘PASTRY’  
 -**ČPŘ**- ‘PIE’

-**BVL**- ‘BROTH-BASED SOUP’  
 -**BVR**- ‘PUREE-BASED SOUP’  
 -**BVW**- ‘STEW’  
 -**BVY**- ‘GRUEL/PORRIDGE’  
 -**BVŘ**- ‘SAUCE’

-**ḐNY**- ‘MILK FROM MAMMAL’  
 -**ḐNW**- ‘(LAIN) EGG FROM ANIMAL’  
 -**ḐMW**- ‘ICE CREAM / SHERBET/GELATO’  
 -**ḐMY**- ‘SORBET’  
 -**ḐŇ**- ‘CHEESE’  
 -**ḐŇW**- ‘BUTTER’

-**ḐTY**- ‘FRUIT PUNCH’  
 -**ḐTW**- ‘PROCESSED COMMERCIAL CARBONATED BEVERAGE / SODA’

### 7.1.1 Common Food Plants

The stems listed beginning on the next page are excerpted from the listings of lexical roots for plants in **Sec. 17.2** of this document. Each stem refers to the plant itself (i.e., the tree, shrub-tree, shrub, bush, liana, vine, grass stalk, herb, etc.). To create words for the edible portion of the plant, use an **EPP** affix or the **DFB** affix, both shown here for convenience.

<b>-kc</b>	<b>EPP Edible or Autonomous Plant Parts/Components</b>
1	seed/nut of X
2	(seed) pod of X
3	fruit of X
4	leaf of X
5	flower/bloom of X
6	juice of X
7	sap of X
8	rhizome/rootstalk/shoot/stolon of X
9	tuber/bulb/cormis of X

<b>-lks</b>	<b>DFB Derived Foodstuff/Beverage</b>
1	non-sweet (dry) fermented alcoholic beverage made from X
2	sweet alcoholic beverage made from X
3	non-alcoholic beverage made from X
4	fermented X as foodstuff
5	recipe/dish made from/with X
6	dessert made from X
7	puree of X
8	processed/derived food product made from X (e.g., flour)
9	flavoring/seasoning made from/with X



Fruit plants (including squashes):

- BÐ- **Stem 1:** European cantaloupe plant **Stem 2:** North American cantaloupe plant **Stem 3:** muskmelon plant
- BÐN- **Stem 1:** watermelon **Stem 2:** winter melon / wax gourd / ash gourd **Stem 3:** tinda / Indian squash / round melon
- BÐW- **Stem 1:** honeydew melon plant **Stem 2:** Crenshaw melon plant **Stem 3:** casaba melon plant
- BÐY- **Stem 1:** cucumber vine **Stem 2:** cackrey / West Indian gherkin vine **Stem 3:** aardvark cucumber / aardvark pumpkin
- CVR- **Stem 1:** avocado, coyo
- ÐKW- **Stem 1:** pineapple
- FMW- **Stem 2:** elderberry
- GÐM- **Stem 1:** zucchini squash vine **Stem 2:** scallop summer squash **Stem 3:** crookneck squash vine
- GÐN- **Stem 1:** pumpkin vine **Stem 2:** acorn squash vine **Stem 3:** spaghetti squash vine
- LČKL- **Stem 1:** durian
- LMSKW- **Stem 2:** (genus *Averrhoa*) starfruit tree / carambola / five-corner tree, bilimbi
- LŠM- **Stem 1:** redcurrant **Stem 2:** white currant **Stem 3:** blackcurrant
- LŠN- **Stem 1:** gooseberry **Stem 2:** jostaberry **Stem 3:** golden currant / clove currant / pruterberry / buffalo currant
- MSFW- **Stem 3:** santol tree / sentul tree / cotton fruit tree
- NČP- **Stem 1:** banana, plantain **Stem 2:** enset **Stem 3:** Chinese dwarf banana / golden lotus banana
- ŇÐ- **Stem 1:** blueberry **Stem 2:** cranberry **Stem 3:** huckleberry, whortleberry
- NDK - **Stem 1:** guava / yellow guava / lemon guava, Costa Rican guava / cas, Jamaican guava, Cattley guava / strawberry guava / cherry guava, mountain guava, Galápagos guava, little guava, purple guava, araçá **Stem 3:** finger cherry / Cooktown loquat, native guava, rose myrtle
- NDKW- **Stem 1:** feijoa / pineapple guava / guavasteen **Stem 2:** ubajay
- ŇÐL- **Stem 1:** eastern teaberry [source of wintergreen flavoring] **Stem 2:** salal / shallon
- ŇÐR- **Stem 1:** lingonberry / partridge berry / cowberry / foxberry / redberry **Stem 2:** deerberry
- ŇÐW- **Stem 1:** kiwi **Stem 2:** kiwi berry / grape kiwi / dessert kiwi / cocktail kiwi / golden kiwi
- ŇÐY- **Stem 1:** Japanese persimmon **Stem 2:** date-plum **Stem 3:** American persimmon
- NL- **Stem 1:** sweet orange **Stem 2:** bitter orange **Stem 3:** key lime
- NLK- **Stem 3:** mango tree
- NLML- **Stem 1:** bael / Bengal quince / golden apple / Japanese bitter orange / stone apple / wood apple **Stem 2:** curd fruit / wood-apple / elephant-apple **Stem 3:** feroniella / ka sang / cra san / kawista-krikil / krasang / mak sang / canthan
- NLMW- **Stem 1:** African cherry orange
- NLN- **Stem 1:** lemon **Stem 2:** Meyer lemon **Stem 3:** grapefruit
- NLŇ- **Stem 1:** lime **Stem 2:** mandarin orange **Stem 3:** citron
- NLŇW- **Stem 1:** kumquat **Stem 2:** pomelo/shaddock **Stem 3:** other citrus fruit
- NLNY- **Stem 1:** clementine **Stem 2:** tangelo **Stem 3:** other citrus hybrid

- ŇŇP**- **Stem 1:** pomegranate
- NŽ**- **Stem 1:** apple tree **Stem 2:** crabapple **Stem 3:** pear
- ŇZKR**- **Stem 1:** chicle, ausubo / massaranduba / balatá, sapotilla, apota / sapodilla / naseberry **Stem 2:** eggfruit, abiu, lúcuma, mamey sapote, green sapote, black plum **Stem 3:** shea
- ŇZKŘ**- **Stem 1:** miracle berry / sweet berry **Stem 2:** tar apple / star apple / milk fruit / cainito / Damson plum / wild star-apple / caimitillo
- NŽT**- **Stem 1:** almond tree **Stem 2:** peach tree **Stem 3:** peach tree bearing nectarine fruit / “nectarine tree”
- NŽTW**- **Stem 1:** plum tree **Stem 2:** apricot tree **Stem 3:** plum-apricot hybrid (pluot, plumcot, apriplum)
- NŽTY**- **Stem 1:** cherry tree
- NŽW**- **Stem 1:** quince **Stem 2:** Chinese quince **Stem 3:** Japanese quince
- ŘÇ**- **Stem 1:** fig tree **Stem 2:** mulberry tree **Stem 3:** African breadfruit tree
- ŘÇW**- **Stem 1:** breadfruit **Stem 2:** jackfruit **Stem 3:** monkey fruit / lakoocha
- RMV**- **Stem 1:** red beet / beetroot **Stem 2:** sugar beet
- ŘT**- **Stem 1:** raspberry plant **Stem 2:** blackberry plant **Stem 3:** dewberry plant
- ŘTL**- **Stem 1:** marionberry plant **Stem 2:** youngberry plant **Stem 3:** olallieberry plant
- ŘTW**- **Stem 1:** cloudberry plant **Stem 2:** salmonberry plant **Stem 3:** thimbleberry plant
- ŘTY**- **Stem 1:** loganberry plant **Stem 2:** boysenberry plant **Stem 3:** tayberry plant
- ŘŽ**- **Stem 2:** strawberry cultivar
- RZXM**- **Stem 1:** tamarind
- ŤN**- **Stem 1:** (European *Vitis vinifera*) grape **Stem 2:** culinary/cultivated gape (other than *Vitis vinifera*)
- VSTW**- **Stem 1:** lychee tree **Stem 2:** longan, alupag **Stem 3:** rambutan, korlan, pulasan
- VSTY**- **Stem 1:** ackee fruit tree **Stem 2:** titberry, bastard taaibos, dune false crowberry / dune false currant **Stem 3:** native tamarind, small-leaved tamarind
- ZP**- **Stem 2:** tomato **Stem 3:** eggplant / aubergine
- ZPÇ**- **Stem 1:** tomatillo **Stem 2:** winter-cherry, Chinese/Japanese lantern **Stem 3:** groundcherry, Inca berry, golden strawberry, strawberry-tomato
- ZPH**- **Stem 1:** habanero pepper **Stem 2:** aji chili pepper **Stem 3:** tabasco pepper / piri piri / Hawaiian pepper / xiaomila pepper, manzano pepper / rocoto pepper / locoto pepper
- ZPL**- **Stem 1:** wild tomato, currant tomato **Stem 2:** Ethiopian eggplant **Stem 3:** naranjilla / lulo
- ZPR**- **Stem 1:** Turkey berry / wild eggplant / pea eggplant / susumber **Stem 2:** pepino melon / melon pear **Stem 3:** tamarillo / tree tomato / blood fruit
- ZPŘ**- **Stem 1:** wolf apple **Stem 2:** cocona **Stem 3:** kangaroo apple, desert raisin / bush raisin / bush saltana, bush tomato, potato bush, Australian wild tomato
- ZPW**- **Stem 1:** bell pepper **Stem 2:** sweet Italian pepper, pepperoncino **Stem 3:** paprika
- ZPY**- **Stem 1:** serrano pepper **Stem 2:** cayenne pepper **Stem 3:** jalapeño pepper
- ŽŽPŤ**- **Stem 1:** papaya / pawpaw

Tuberous plants:

- BVK- **Stem 2:** ulluco
- DKY- **Stem 1:** chufa flatsedge [tuber used as food]
- PŠMY- **Stem 2:** duck potato / swamp potato / tule potato / wapato / arrowhead / watato / wapati
- PSVL- **Stem 1:** sweet potato
- TXW- **Stem 1:** yam **Stem 2:** batflower, Polynesian arrowroot / pia
- ZP- **Stem 1:** potato

Spice/condiment plants:

- CVW- **Stem 1:** laurel / bay laurel / sweet bay
- CVY- **Stem 1:** cinnamon tree **Stem 2:** sassafras
- KBW- **Stem 2:** cumin
- KPW- **Stem 2:** fennel **Stem 3:** parsley
- KPY- **Stem 1:** dill
- KŠPW- **Stem 1:** anise, short-fruit pimpinella **Stem 2:** caraway, meridian fennel, Persian cumin **Stem 3:** coriander, cilantro / Chinese parsley
- LMZ- **Stem 1:** common mint / spearmint **Stem 2:** corsican mint
- LMZB- **Stem 1:** common thyme **Stem 2:** lemon thyme **Stem 3:** citrus thyme
- LMZBL- **Stem 1:** oregano **Stem 2:** marjoram
- LMZBŘ- **Stem 1:** sage **Stem 2:** rosemary
- LMZBR- **Stem 1:** summer savory **Stem 2:** winter savory / mountain savory
- LMZBW- **Stem 1:** caraway thyme
- LMZL- **Stem 1:** peppermint **Stem 2:** gingermint / redmint / Scotch spearmint **Stem 3:** Cuban mint / mojito mint / large apple mint
- MŽDY- **Stem 1:** stevia
- NČPW- **Stem 1:** ginger **Stem 2:** turmeric **Stem 3:** cardamon
- NČPY- **Stem 1:** galangal **Stem 2:** Ethiopian cardamom plant, melegueta pepper / alligator pepper / grains of paradise **Stem 3:** torch ginger
- NDK - **Stem 2:** allspice / myrtle pepper / pimenta / pimento, West Indian bay tree / bay rum tree / ciliment
- NDKŤ- **Stem 2:** clove tree
- RDL- **Stem 2:** sugarcane
- RSPY- **Stem 1:** vanilla bean
- SSW- **Stem 1:** pepper, pepper vine, pepperleaf, peppercorn, root bear plant, yerba santa, betel leaf vine, long pepper, ant plant / ant piper, kawakawa, cubeb, kava, pariparoba

## Palms:

- LBL-** **Stem 1:** areca nut palm [i.e., betel nut palm]
- LBV-** **Stem 2:** forest coconut palm
- LBW-** **Stem 1:** coconut palm **Stem 2:** date palm **Stem 3:** açaí palm
- LBY-** **Stem 1:** jelly palm, yatay palm, pindo palm **Stem 2:** oil palm, macaw-fat **Stem 3:** peach palm
- LBZ-** **Stem 2:** bertam / wild Bornean sago palm **Stem 3:** raffia palm

## Grains/cereals/pseudo-cereals:

- BK-** **Stem 1:** Asian rice **Stem 2:** African rice **Stem 3:** red rice / brownbeard rice
- BKL-** **Stem 1:** teff
- BKR-** **Stem 1:** finger millet
- BKW-** **Stem 1:** wild rice / Canada rice / Indian rice / water oats
- BT-** **Stem 1:** common wheat / bread wheat **Stem 2:** durum wheat / pasta wheat **Stem 3:** spelt / dinkel wheat
- BTH-** **Stem 1:** oat **Stem 2:** naked oat / hulless oat **Stem 3:** Ethiopian oat
- BTW-** **Stem 1:** barley **Stem 2:** rye **Stem 3:** triticale
- BTY-** **Stem 1:** einkorn wheat **Stem 2:** emmer wheat **Stem 3:** khorasan wheat / kamut wheat
- RDL-** **Stem 1:** corn / maize **Stem 3:** sorghum
- RMD-** **Stem 2:** quinoa
- RNTM-** **Stem 1:** amaranth
- RNTW-** **Stem 2:** buckwheat
- RZPŠ-** **Stem 3:** alfalfa plant
- TXL-** **Stem 1:** common millet **Stem 2:** pearl millet **Stem 3:** foxtail millet / Italian millet
- TXR-** **Stem 1:** fonio / hungry rice **Stem 2:** raishan

## Leafy vegetables:

- BVK-** **Stem 1:** Malabar spinach / vine spinach / Ceylon spinach
- RBZ-** **Stem 1:** (loose)leaf lettuce **Stem 2:** romaine/cos lettuce **Stem 3:** iceberg/cripshead lettuce
- RBZL-** **Stem 1:** endive / escarole **Stem 2:** common chicory, radicchio, Belgian endive
- RBZW-** **Stem 1:** butter(head) lettuce **Stem 2:** red leaf lettuce **Stem 3:** summercrisp lettuce
- RMD-** **Stem 1:** spinach
- RMDW-** **Stem 1:** saltbush / orache
- RMDY-** **Stem 1:** Good-King-Henry / poor-man's asparagus / Lincolnshire spinach / markery **Stem 2:** salt-green / sowbane / Australian-spinach

- RMFR**- **Stem 1**: sea beans / sea asparagus / samphire greens
- RMV**- **Stem 3**: (Swiss) chard
- RMVW**- **Stem 1**: Caucasian spinach
- RNTM**- **Stem 2**: Lagos spinach
- RNTW**- **Stem 1**: rhubarb **Stem 3**: sorrel, dock
- RNX**- **Stem 1**: New Zealand spinach, dune spinach
- RZH**- **Stem 1**: salsify / oyster plant

Vegetables (including vegetable-like fruits, e.g., olive, okra):

- ÇX**- **Stem 1**: arabica coffee **Stem 2**: robusta coffee
- FSPÇ**- **Stem 1**: safflower
- DKL**- **Stem 2**: Chinese water chestnut
- FSPR**- **Stem 1**: burdock
- FSPW**- **Stem 1**: globe artichoke / French artichoke / green artichoke **Stem 2**: cardoon **Stem 3**: white artichoke
- FSPY**- **Stem 1**: lesser wild artichoke
- KBL**- **Stem 2**: shepherd's-needle / Stork's needle / Venus' comb
- KBW**- **Stem 1**: carrot **Stem 3**: chervil
- KPŘ**- **Stem 1**: arracacha / racacha
- KPW**- **Stem 1**: celery
- KŠP**- **Stem 1**: parsnip **Stem 2**: lovage **Stem 3**: licorice
- LCKL**- **Stem 1**: okra
- LZM**- **Stem 1**: olive
- ŇZKÇ**- **Stem 1**: tea
- ŇZKH**- **Stem 1**: brazil nut **Stem 2**: paradise nut
- ŘŽBL**- **Stem 1**: sesame
- SFW**- **Stem 1**: asparagus **Stem 3**: agave
- ŠTL**- **Stem 1**: garlic **Stem 2**: chive **Stem 3**: scallion
- ŠTR**- **Stem 1**: onion **Stem 2**: shallot **Stem 3**: leek
- ŽGŘ**- **Stem 1**: winter cress / yellow rocket, land cress / American cress / bank cress / Burmuda cress / herb barbara / rocketcress / winter rocket  
**Stem 2**: horseradish
- ŽK**- **Stem 1**: broccoli **Stem 2**: cauliflower, romanesco, broccoflower **Stem 3**: Chinese broccoli / gai lan, broccolini
- ŽKÇ**- **Stem 1**: Siberian kale **Stem 2**: tatsoi
- ŽKF**- **Stem 1**: radish, daikon **Stem 2**: watercress **Stem 3**: arugula / rocket

- ŽKH-** **Stem 1:** brown mustard, wrapped heart mustard cabbage **Stem 2:** white mustard **Stem 3:** black mustard
- ŽKL-** **Stem 1:** savoy cabbage **Stem 2:** rutabaga
- ŽKR-** **Stem 1:** turnip **Stem 2:** Napa cabbage **Stem 3:** bok choy
- ŽKŘ-** **Stem 1:** (field) mustard **Stem 2:** rapini / broccoli rabe **Stem 3:** komatsuna / Japanese mustard spinach
- ŽKŤ-** **Stem 1:** mizuna **Stem 2:** choy sum / flowering cabbage **Stem 3:** canola
- ŽKV-** **Stem 1:** wasabi **Stem 2:** garden cress, field cress **Stem 3:** wild arugula / perennial wall-rocket
- ŽKW-** **Stem 1:** cabbage **Stem 2:** brussel sprout **Stem 3:** kohlrabi
- ŽKY-** **Stem 1:** kale **Stem 2:** collard **Stem 3:** spring greens
- ŽŽP-** **Stem 1:** caper, karir **Stem 2:** shepherd tree, hanza **Stem 3:** swarstorm, cadaba

#### Legumes and Nuts:

- JFW-** **Stem 1:** soybean / soya bean, wild soybean, glycine, love creeper **Stem 2:** jicama plant / yam bean, ahipa / Andean yam bean, goiteño / nupe / jacatupe / Amazonian yam bean **Stem 3:** kudzu / Japanese arrowroot, puero, East Asian arrowroot
- JPL-** **Stem 1:** runner bean plant **Stem 2:** tepary bean plant **Stem 3:** year bean plant
- JPR-** **Stem 1:** lima/butter bean plant **Stem 2:** spotted bean plant **Stem 3:** slimjim bean plant, other *Phaseolus* bean plant
- JPW-** **Stem 1:** kidney/red bean plant **Stem 2:** white/navy bean plant **Stem 3:** cannellini bean plant
- JPY-** **Stem 1:** pinto bean plant **Stem 2:** black turtle bean plant **Stem 3:** flageolet bean plant
- NŁK-** **Stem 1:** pistachio plant **Stem 2:** cashew tree
- RJP-** **Stem 1:** pea plant **Stem 2:** snap pea plant **Stem 3:** snow pea plant
- RJPL-** **Stem 1:** peanut plant
- RJPW-** **Stem 1:** fava bean plant **Stem 3:** lentil
- RJPY-** **Stem 2:** chickpea/garbanzo bean plant
- ŘNTÇ-** **Stem 2:** pecan tree
- ŘNTF-** **Stem 1:** walnut tree, butternut tree
- ŘNTN-** **Stem 3:** hazel tree, filbert tree

Miscellaneous: -**VST-** **Stem 1:** maple tree

<b>-KC- ‘PLANT PARTS I’</b> Associated Affix: EPP		
<b>BSC</b>	<b>Stem 1:</b> (to be) a seed or pit of a plant	<b>Stem 2:</b> (to be) a fruit or nut of a plant  <b>Stem 3:</b> (to be) a bulb/tuber/corm of a plant
<b>CTE</b>	(to be) the potential for germination/sprouting/nourishment contained within a plant seed or pit	
<b>CSV</b>	(to be) the physical flesh/material of which a plant seed or pit is composed	
<b>OBJ</b>	(to be) a seed/pit of a plant as an energy source; to consume a plant seed/pit as energy source (e.g., by burning, eating, fermenting, etc.)	

The following two roots have the same Specification pattern as the root **-KC-** above:

<b>-KŠW- ‘PLANT PARTS II’</b>		
1. root	2. stem/stalk/shoot	3. branch/limb/twig

<b>-KŠN- ‘PLANT PARTS III’</b>		
1. leaf	2. flower	3. bud

<b>-VTY- ‘PSYCHOACTIVE/INTOXICATING SUBSTANCE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/state of being intoxicated by using/ingesting a naturally derived psychoactive chemical substance (e.g., ethyl alcohol, cannabis, peyote, psilocybin, ayahuasca, etc.); to be(come) intoxicated due to use/ingestion of such a substance	<b>Stem 2:</b> (to be) a synthetic medicinal chemical used recreationally (e.g., a prescription drug)  <b>Stem 3:</b> (to be) a chemical substance repurposed for recreational use (e.g., glue/solvents, etc.)
<b>CTE</b>	(to be) in a state of intoxication from a naturally derived chemical substance; to be/get drunk/high/intoxicated	
<b>CSV</b>	(to be) an act of using/ingesting a naturally derived chemical substance; to use/ingest/smoke/inject an intoxicating substance	
<b>OBJ</b>	(to be) a(n amount/serving/hit/drink/cigarette, etc. of a) particular intoxicating/psychoactive substance itself	

<b>-STH- ‘OTHER METHODS OF BODILY INGESTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/state of smoking of a gaseous or aerosolized substance (i.e., the oral intake/inhalation of fumes via an ingressive velaric airstream)	<b>Stem 2:</b> (to be) an act/state of nasal inhalation of a substance (e.g., snuff, cocaine, other powdery substance)  <b>Stem 3:</b> (to be) an act/process of subcutaneous or intravenous injection (e.g., with a syringe) of a substance
<b>CTE</b>	(to be) the smoke/fumes of a burning substance which one takes in or inhales orally via smoking	
<b>CSV</b>	(to be) an act of smoking; to smoke, to intake/inhale orally by means of smoking	
<b>OBJ</b>	(to be) the apparatus utilized for an act of smoking	

## 7.2 THE BODY

<b>-NT- ‘BIRTH / BE BORN / GESTATION / CONCEPTION’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of birth; to give birth or be born (i.e., the leaving of a child from their mother’s womb to enter the world, with no implied perspective as to it being an act/state of the mother or the child)	<b>Stem 2:</b> (to be) a state of maternal gestation; to gestate, carry a developing fetus within one’s womb
<b>CTE</b>	(to be) a state/act of being born [from the child’s perspective]	
<b>CSV</b>	(to be) the physical act of giving birth [from the perspective of the mother]	<b>Stem 3:</b> (to be) an act of biological conception, to conceive a zygote
<b>OBJ</b>	(to be) the newborn infant	

<b>-Š- SEX</b> (i.e., genetically-based, the normally 2-way distinction in higher living organisms for reproductive/procreative purposes) Associated Affix: <b>SEX</b>		
<b>BSC</b>	<b>Stem 1:</b> (be/manifest) a particular sex of an organism that is normally one of two sexes (e.g., chordates) [both the existence and the clinical/biological determination/identification thereof]	<b>Stem 2:</b> (to be/manifest) the female sex of an organism that is normally one of two biological sexes.  <b>Stem 3:</b> (to be/manifest) the male sex of an organism that is normally one of two biological sexes.
<b>CTE</b>	(be) a particular biological sex	
<b>CSV</b>	(be) an act/process/state of clinical/biological determination/identification of sex; to clinically/biologically determine a particular sex	
<b>OBJ</b>	(to be) that which biologically determines or by which one identifies a particular sex	

<b>-ŽF- ‘HEALTHINESS / PHYSICAL CONDITION / FITNESS / SANITY’</b> Associated Affix: <b>HEA</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of physical and mental healthiness (i.e., freedom from illness or malady)	<b>Stem 2:</b> (to be) one’s state of mental health  <b>Stem 3:</b> (to be) one’s physical condition or state of health/fitness (i.e., the extent to which one is sufficiently healthy/fit to carry out specialized physical tasks or feats of physical prowess/stress)
<b>CTE</b>	(to be) the state of healthiness itself; good health	
<b>CSV</b>	(to be) the state of living and going about one’s desired normal life due to good health; to live in a state of healthiness, be healthy	
<b>OBJ</b>	(to be) what one does to stay healthy; a healthy living praxis (e.g., diet, exercise, avoiding stress, prophylactic medication, healthy lifestyle, etc.)	



<b>-ÇK- ‘ILLNESS / SICKNESS / DISEASE / MALADY / AILMENT’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of having infectious illness/disease/ailment; to be/fall ill/come down/get sick with an infectious illness/disease [the disease itself plus its symptoms]	<b>Stem 2:</b> (to be) a long-term/chronic physical malady/disorder/disease/ailment [ideopathic or iatrogenic in origin due to poor personal habits (e.g., diet, chemical/drug abuse, lack of exercise, etc.), accident, improper treatment, toxic exposure, environmental cause, etc.  <b>Stem 3:</b> (to be) a [long-term/chronic] physical malady/disorder/disease/ailment [neoplastic, genetic, or unknown in origin rather than infectious]
<b>CTE</b>	(to be) a disease/illness/ailment	
<b>CSV</b>	(to be) the physical manifestation/symptoms of a disease/illness; to feel/experience the symptoms of a illness/disease	
<b>OBJ</b>	(to be) a living being infected/suffering from an infectious illness/disease; entity/party that is sick	

<b>-ŘD- ‘REMEDY / HEAL / RECOVER / RECUPERATE / RESTORE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of medically treating, remedying something or someone; to treat [medically], to (try to) remedy something	<b>Stem 2:</b> (to be) a state/act of recuperation/healing/recovery; to recuperate, to heal, to recover  <b>Stem 3:</b> (to be) a state/act of restoration; to restore
<b>CTE</b>	(to be) a state of [medical] treatment	
<b>CSV</b>	(to be) a physical act of treating/remedying	
<b>OBJ</b>	(to be) a remedy/treatment	

<b>-ŘDV- ‘MEDICATION/MEDICINE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) an act/state of administering a medicine/medication orally in solid form (e.g., pill, tablet, capsule, etc.); to administer a (solid) oral medication	<b>Stem 2:</b> (to be) an act/state of administering a medicine/medication orally in liquid form (e.g., cough syrup, chemical dissolved in liquid, etc.); to administer a liquid medication  <b>Stem 3:</b> (to be) to be) an act/state of administering a medicine/medication via injection; to inject a medication
<b>CTE</b>	(to be) a state of being on a solid oral medication	
<b>CSV</b>	(to be) an act of swallowing a (solid) oral medication; to swallow a pill/tablet/capsule	
<b>OBJ</b>	(to be) the (pill/tablet/capsule of) medication itself	

<b>-ŠKL- ‘PSYCHIATRIC TREATMENT / THERAPY’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) an act of psychiatric treatment or therapeutic psychological therapy	<b>STEM 2:</b> (to be) an act of subliminal psychological manipulation  <b>STEM 3:</b> (to be) an act of brainwashing [i.e., psychological manipulation to the extent that a person’s personality/motivations/values/memories/beliefs, etc. are changed for covert or nefarious purposes]
<b>CTE</b>	(to be) a state of being under or subject to psychiatric/psychological treatment/therapy	
<b>CSV</b>	(to be) a physical act of administering psychiatric/psychological treatment/therapy; to treat a patient by means of psychiatry/psychological therapy	
<b>OBJ</b>	(to be) the nature/specifics of a (course of) psychiatric/psychological therapy	

<b>-MT- ‘ONE’S AGE / LIFE-STAGE OR PHASE’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of aging; to age, get older	<b>Stem 2:</b> (to be) a (developmental) stage/phase in one’s life (i.e., a period of time during the life of an entity where it displays/manifests certain characteristics, activities, ideas, values, attributes, etc. specific to that period of time)  <b>Stem 3:</b> (to be) a state/act of celebration/recognition/acknowledgement of one reaching a particular age; a birthday; to celebrate/recognize/acknowledge one’s birthday (i.e., anniversary of one’s birth)
<b>CTE</b>	(to be) a state of being/having a certain age	
<b>CSV</b>	(to be) the state/process of aging, getting older; to do/feel/notice/observe something that manifests/demonstrates one is aging/getting older	
<b>OBJ</b>	(to be) one’s age (i.e., the amount of elapsed time since an entity came into being)	

<b>-ÐÐ- ‘SLEEP / UNCONSCIOUSNESS / COMA’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of sleep, being asleep; (be) an act of putting to sleep; to sleep, be asleep	<b>Stem 2:</b> (to be) a state of unconsciousness, act of rendering an entity unconscious; to be/render unconscious  <b>Stem 3:</b> (to be) a state of coma; act of putting someone into a coma; to be in a coma, to put into/induce a coma
<b>CTE</b>	(to be) the state of sleeping	
<b>CSV</b>	(to be) a state/act of falling asleep; to fall asleep, put to sleep	
<b>OBJ</b>	(to be) the quality/duration/description of one’s sleep; how one sleeps	

<b>-LF- ‘WAKEFULNESS’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a state of being awake, being fully conscious	<b>Stem 2:</b> (to be) a state/process of waking (up); to transition from sleep to wakefulness, to “come about”, to be waking up, to be regaining consciousness [CPT version = to regain consciousness, to come fully awake]  <b>Stem 3:</b> (to be) a state of dozing or being half-awake; to doze, to be half-asleep, half-awake, to be in a state of half-sleep
<b>CTE</b>	(to be) the state of wakefulness	
<b>CSV</b>	(to be) a state/act of doing something that demonstrates one is awake	
<b>OBJ</b>	(to be) the level of awareness of oneself and one’s surroundings one has while awake	

**-MR- ‘DEATH’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of dying; to die/perish	<b>Stem 2:</b> (to be) a state/process of approaching death, to be dying, to have a fatal condition, to be in a fatal state (i.e., to be in a terminal state where death is immanent, e.g., from a terminal illness, starvation, a mortal wound, etc.)
<b>CTE</b>	(to be) the state of being dead	
<b>CSV</b>	(to be) an act of dying; to undergo the act of passing from life to death	
<b>OBJ</b>	(to be) the cause/manner of one’s death	<b>Stem 3:</b> (to be) a state of mortality; be mortal (i.e., certain that one will eventually die)

**-LM- ‘DEGREE OF BODILY STRENGTH / ENERGY / VIGOR’** Affix: **STR** (use SUF/EXN/EXD, etc. )

<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of brute bodily strength; to manifest/apply a particular degree of strength ( = available bodily dynamic energy) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of bodily energy/vigor/vitality; “feel weak/strong” <b>STEM 3:</b> (to be/manifest a) degree of stamina
<b>CTE</b>	(to be) something with a degree of brute bodily strength	
<b>CSV</b>	(to be) a degree of brute bodily strength	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of brute bodily strength	

**-SM- ‘DEGREE OF BODILY APPLIED ENERGY / POWER / FORCE’** Affix: **FRC** (use SUF/EXN/EXD, etc. )

<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of applied physical force — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of energy <b>STEM 3:</b> (to be/manifest a) degree of potency, “might” ( = potential strength/power to cause or accomplish something)
<b>CTE</b>	(to be) something with a degree of applied physical force	
<b>CSV</b>	(to be) a degree of applied physical force	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of applied physical force	

**-ŽŃ- ‘DEGREE OF PHYSICAL STAMINA / ENDURANCE / RESISTANCE TO PAIN’** (use with SUF/EXN affixes)

<b>BSC</b>	<b>Stem 1:</b> (to be) a degree of brute bodily/physical stamina/endurance	<b>Stem 2:</b> (to be) a degree of resistance to physical pain; display/manifest a degree of resistance to physical pain, endure physical pain
<b>CTE</b>	(to be) one’s physical stamina as a faculty	
<b>CSV</b>	(to be) an act of maintaining physical stamina	
<b>OBJ</b>	(to be) what one is/must have stamina/endurance against or for	<b>Stem 3:</b> (to be) a degree of physical hardship; undergo physical hardship

<b>-LM- ‘DEGREE OF BODILY STRENGTH / ENERGY / VIGOR’</b> Affix: <b>STR</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of brute bodily strength; to manifest/apply a particular degree of strength ( = available bodily dynamic energy) — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of bodily energy/vigor/vitality; “feel weak/strong”  <b>STEM 3:</b> (to be/manifest a) degree of stamina
<b>CTE</b>	(to be) something with a degree of brute bodily strength	
<b>CSV</b>	(to be) a degree of brute bodily strength	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of brute bodily strength	

<b>-SM- ‘DEGREE OF BODILY APPLIED ENERGY / POWER / FORCE’</b> Affix: <b>FRC</b> (use SUF/EXN/EXD, etc. )		
<b>BSC</b>	<b>STEM 1:</b> (to be/manifest a) degree of applied physical force — [both the quality and the entity manifesting such]	<b>STEM 2:</b> (to be/manifest a) degree of energy  <b>STEM 3:</b> (to be/manifest a) degree of potency, “might” ( = potential strength/power to cause or accomplish something)
<b>CTE</b>	(to be) something with a degree of applied physical force	
<b>CSV</b>	(to be) a degree of applied physical force	
<b>OBJ</b>	(to be) an entity/party impacted/affected by one’s degree of applied physical force	

<b>-ZŇ- ‘DEGREE OF PHYSICAL STAMINA / ENDURANCE / RESISTANCE TO PAIN’ (use with SUF/EXN affixes)</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a degree of brute bodily/physical stamina/endurance	<b>Stem 2:</b> (to be) a degree of resistance to physical pain; display/manifest a degree of resistance to physical pain, endure physical pain  <b>Stem 3:</b> (to be) a degree of physical hardship; undergo physical hardship
<b>CTE</b>	(to be) one’s physical stamina as a faculty	
<b>CSV</b>	(to be) an act of maintaining physical stamina	
<b>OBJ</b>	(to be) what one is/must have stamina/endurance against or for	

<b>-JMW- ‘HAND AS FLAT RIGID “BLADE”’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) a hand as flat rigid “blade” for use of outside “edge” of rigidly-held hand (as in a karate chop)	<b>Stem 2:</b> (to be) a hand as flat rigid “blade” for use of fingers used “head-on” for pressing/jabbing/poking  <b>Stem 3:</b> (to be) a hand held flat and rigid for use in covering something or stopping something from escaping (e.g., from a hole or tear)
<b>CTE</b>	(to be) the physical process of chopping with one’s hand	
<b>CSV</b>	(to be) a closed fist used in chopping with one’s hand	
<b>OBJ</b>	(to be) the blow/impact delivered from chopping with one’s hand	

**-JMY- ‘CLOSED FIST’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a closed fist for pounding; use outside surface of closed fist in hammer-like manner for pounding	<b>Stem 2:</b> (to be) a closed fist for hitting; use front of fist (i.e, the surface created by the dorsal side of one’s fingers) in cudgel-like manner for hitting
<b>CTE</b>	(to be) the physical process of pounding with one’s fist	
<b>CSV</b>	(to be) a closed fist used in pounding	
<b>OBJ</b>	(to be) the blow/impact delivered from a pounding fist	<b>Stem 3:</b> (to be) a closed fist for knocking; use knuckles of fist for knocking

**-ŇP- ‘COMMON HUMAN BODILY POSITIONS’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of standing upright/erect; to (be) stand(ing) upright, stand erect	<b>Stem 2:</b> (to be) a state/act of sitting, being seated, being in a sitting/seated position; to sit, be seated, be in sitting/seated position, to be sitting down  <b>Stem 3:</b> (to be) a state of lying prone, lying down; to lie prone, to be lying down
<b>CTE</b>	(to be) a state of being standing (upright/erect)	
<b>CSV</b>	(to be) a physical act of standing up; to stand up, to get up on one’s feet	
<b>OBJ</b>	(to be) what one stands/is standing upon or within	

**-ŇPW- ‘LESS COMMON HUMAN BODILY POSITIONS’**

<b>BSC</b>	<b>Stem 1:</b> (to be) a state/act of crouching (down), being in a crouch(ed) position; to be crouched (down), be in a crouched/crouching position	<b>Stem 2:</b> (to be) a state/act of (being in a) kneeling (position); to kneel, be in a kneeling position, be on one’s knees  <b>Stem 3:</b> (to be) a state,act of being curled up in to a (quasi-)fetal position; to (be) curl(ed) up into a (quasi-)fetal position
<b>CTE</b>	(to be) a state of being in a crouched/crouching position	
<b>CSV</b>	(to be) a physical act of crouching down; to crouch down, to get down into a crouched/crouching position	
<b>OBJ</b>	(to be) what one crouches upon or within	

### 7.2.1 Parts of the Body

The various roots/stems below for bodily parts/organs/tissues all have the following Specification pattern:

<b>BSC</b>	(to be) a particular bodily part/organ/tissue [both the material/physical aspect and the functional aspect thereof]
<b>CTE</b>	(to be) the function of a particular bodily part/organ/tissue
<b>CSV</b>	(to be) the physical/material make-up of a particular bodily part/organ/tissue
<b>OBJ</b>	(to be) the body to whom the particular bodily part/organ/tissue belongs or is from

<b>-GW- ‘BODILY ORGAN / GLAND / TISSUE’</b>	
<b>STEM 1</b>	bodily organ
<b>STEM 2</b>	gland
<b>STEM 3</b>	tissue (non-organ, non-gland)

<b>-PN- ‘UPPER G.I. ORGANS’</b>	
<b>STEM 1</b>	stomach
<b>STEM 2</b>	esophagus
<b>STEM 3</b>	pancreas

<b>-ŠM- ‘MANIPULATIVE OR AMBULATORY APPENDAGE’</b>	
<b>STEM 1</b>	limb
<b>STEM 2</b>	tentacle
<b>STEM 3</b>	pseudopod

<b>-LŇ- ‘TAIL / CAUDAL STRUCTURE’</b>	
<b>STEM 1</b>	tail
<b>STEM 2</b>	flagellum
<b>STEM 3</b>	tail-like body part or appendage; caudal structure

<b>-ŠN- ‘LEG’</b>	
<b>STEM 1</b>	leg/strut as support structure of animal or inanimate entity
<b>STEM 2</b>	leg as ambulatory appendage of animal or ambulatory entity
<b>STEM 3</b>	leg as functional “tool”/manipulator (e.g., with which to kick, push, press, apply force, etc.)

<b>-CM- ‘ARM’</b>	
<b>STEM 1</b>	arm as support(ing) structure of animal or inanimate entity
<b>STEM 2</b>	arm as appendage of animal (or anthropomorphic entity) for holding, carrying, lifting
<b>STEM 3</b>	arm as functional “tool”/manipulator by which to reach, hit, push, press, apply force, protect oneself, etc.

<b>-TY- ‘HEAD’</b>	
<b>STEM 1</b>	head as a living being’s primary “interface” or “access point” for communication, ingestion, non-tactile sensory input, etc.
<b>STEM 2</b>	head as seat of one’s consciousness/personality/identity/mind/brain
<b>STEM 3</b>	head as “top” or “forward” extension of bodily form

<b>-NL- ‘HAND’</b>	
<b>STEM 1</b>	hand as an animal’s primary body part for fine-motor physical manipulation/handling of external entities
<b>STEM 2</b>	hand as holder, grasper, striker
<b>STEM 3</b>	hand as primary tactile-sensory interface, “feeler”, toucher

<b>-NR- ‘FOOT / PAW’</b>	
<b>STEM 1</b>	foot/paw as an entity’s primary contact/support point with ground/firmament when standing/ambulating
<b>STEM 2</b>	foot/paw as ambulatory appendage
<b>STEM 3</b>	foot/paw as functional “tool”/manipulator (e.g., with which to kick, push, press, apply force, etc.)

<b>-MFR- ‘PARTS OF HAND OR FOOT’</b>	
<b>STEM 1</b>	quasi-flat ventral mid-part of appendage (incorporate ‘hand’ or ‘foot’ to specify whether palm or underside of foot)
<b>STEM 2</b>	ball of the foot or upper palmar ridge of the hand (incorporate ‘hand’ or ‘foot’ to specify which)
<b>STEM 3</b>	butt of the hand or foot (incorporate ‘hand’ or ‘foot’ to specify whether butt of the palm or heel)

<b>-NK- ‘BODILY DIGIT’</b>	
<b>STEM 1</b>	finger
<b>STEM 2</b>	thumb
<b>STEM 3</b>	toe

<b>-DL- ‘CARDIO-PULMONARY ORGANS’</b>	
<b>STEM 1</b>	heart
<b>STEM 2</b>	lung
<b>STEM 3</b>	diaphragm

<b>-NDY- ‘BLOOD VESSEL’</b>	
<b>STEM 1</b>	artery
<b>STEM 2</b>	vein
<b>STEM 3</b>	capillary

<b>-VZ- ‘CENTRAL NERVOUS SYSTEM ORGAN/TISSUE’</b>	
<b>STEM 1</b>	brain
<b>STEM 2</b>	brain stem
<b>STEM 3</b>	spinal chord

<b>-NGY- ‘PERIPHERAL NERVOUS TISSUE’</b>	
<b>STEM 1</b>	sensory (afferent) nerve tissue
<b>STEM 2</b>	motor (efferent) nerve tissue
<b>STEM 3</b>	somatic nerve tissue

<b>-RDY- ‘AUTONOMIC NERVOUS TISSUE’</b>	
<b>STEM 1</b>	sympathetic nerve tissue
<b>STEM 2</b>	parasympathetic nerve tissue
<b>STEM 3</b>	enteric nerve tissue

<b>-ṬŘ- ‘BODILY LIMB-JOINT’</b>	
<b>STEM 1</b>	mid-limb joint [incorporate stems for leg or arm to specify knee or elbow]
<b>STEM 2</b>	proximal limb joint [incorporate stems for leg or arm to specify hip-joint or shoulder-joint]
<b>STEM 3</b>	distal limb joint [incorporate stems for leg or arm to specify ankle or wrist]

<b>-GR- ‘BONE’</b>	
<b>STEM 1</b>	quasi-cylindrical bone (e.g., tibia, ulna, phalanx, etc.)
<b>STEM 2</b>	plate-like or quasi-planar bone (e.g., skull-section, scapula, pelvis)
<b>STEM 3</b>	special-shaped bone (e.g., vertebra, rib, calcaneus, talus, antler, etc.)

<b>-ṬFR- ‘JOINT STRUCTURAL COMPONENT / CARTILAGE’</b>	
<b>STEM 1</b>	cartilage
<b>STEM 2</b>	joint cavity [containing synovial fluid]
<b>STEM 3</b>	articular capsule of a joint

<b>-ZGR- ‘MAJOR CONFIGURATIVE BONE SYSTEM OF BODY’</b>	
<b>STEM 1</b>	skull
<b>STEM 2</b>	rib cage
<b>STEM 3</b>	spine (including cervical vertebrae and coccyx)

<b>-PFL- ‘DETOXIFICATION/FILTRATION/RECYCLING ORGAN/TISSUE’</b>	
<b>STEM 1</b>	liver
<b>STEM 2</b>	kidney
<b>STEM 3</b>	spleen

<b>-LT- ‘INTEGUMENT / SKIN / PELLICLE’</b>	
<b>STEM 1</b>	skin / hide / pellicle / integument
<b>STEM 2</b>	bark / integument of tree trunk/limb or plant main stem
<b>STEM 3</b>	peel / rind / husk / casing of seed or pod or fruit

<b>-VMR- ‘ENDOCRINE GLANDS OF THE BRAIN’</b>	
<b>STEM 1</b>	hypothalamus
<b>STEM 2</b>	pituitary gland
<b>STEM 3</b>	pineal gland

<b>-FSR - ‘ENDOCRINE GLANDS OF THE BODY’</b>	
<b>STEM 1</b>	thyroid gland
<b>STEM 2</b>	parathyroid gland
<b>STEM 3</b>	adrenal gland

<b>-STY- ‘ORIENTATIONAL BODY SURFACE’</b>	
<b>STEM 1</b>	dorsal surface (i.e., the back [or topside] of a corporeal body)
<b>STEM 2</b>	ventral surface (i.e., the front [or underbelly] of a corporeal body)
<b>STEM 3</b>	lateral surface (i.e., the side/flank of a corporeal body)

<b>-LŽ- ‘FACE / VISAGE’</b>	
<b>STEM 1</b>	face (as gestalt entity made up of the various facial quasi-planar surfaces plus the eyes, nose, lips, eyebrows, etc.)
<b>STEM 2</b>	face (as one’s primary interface area for vocalization and display of emotion)
<b>STEM 3</b>	face/visage (as one’s primary source/trait for recognition/identification)



<b>-TÇM- ‘EXCRETORY GLAND’</b>	
<b>STEM 1</b>	sweat gland; to sweat
<b>STEM 2</b>	salivatory gland; to salivate
<b>STEM 3</b>	sebaceous gland

<b>-SKW- ‘CENTRAL BODY SECTION/PART’</b>	
<b>STEM 1</b>	chest, pectoral area
<b>STEM 2</b>	abdomen, midriff, waist, “stomach”/ “belly” / “tummy” area
<b>STEM 3</b>	trunk, thorax

<b>-LP- ‘PRIMATE MAMMARY ORGAN/TISSUE’</b>	
<b>STEM 1</b>	breast (of human or primate)
<b>STEM 2</b>	nipple
<b>STEM 3</b>	aureola

<b>-LPŘ- ‘NON-PRIMATE MAMMARY ORGAN/TISSUE’</b>	
<b>STEM 1</b>	non-primate mammary organ (e.g., udder, dug)
<b>STEM 2</b>	nipple of non-primate mammary organ
<b>STEM 3</b>	aureola or surrounding structure of nipple in non-primate mammary organ

<b>-MD- ‘BODILY HAIR / FUR / FEATHER’</b>	
<b>STEM 1</b>	a (single strand of) human body hair (other than thick scalp/facial/pubic/armpit hair)
<b>STEM 2</b>	a (single strand of) non-human bodily hair/fur/fleece
<b>STEM 3</b>	a(n avian) feather

<b>-ND- ‘HUMAN-SPECIFIC HAIR’</b>	
<b>STEM 1</b>	a (single strand of) human head hair (other than androgenic facial hair or eyebrows/eyelashes)
<b>STEM 2</b>	a (single strand of) human androgenic facial hair
<b>STEM 3</b>	a (single strand of) human armpit or pubic or eyebrow/eyelash hair (i.e., thick body hair that stops growing at a certain length)

<b>-DDR- ‘SPECIALTY HAIR-LIKE TISSUE’</b>	
<b>STEM 1</b>	an eyelash
<b>STEM 2</b>	a whisker/vibrissa
<b>STEM 3</b>	barbel

<b>-NZG- ‘HARD KERATINOUS TISSUE’</b>	
<b>STEM 1</b>	finger nail/toenail or claw
<b>STEM 2</b>	hoof
<b>STEM 3</b>	horn of animal

<b>-ŇZM- ‘MUCOSAL TISSUE’</b>	
<b>STEM 1</b>	inside surface of oral/naso-pharyngeal cavity
<b>STEM 2</b>	interior lining of gastro-intestinal tract
<b>STEM 3</b>	interior lining of bodily orifice (anus/rectum, vaginal canal, etc.)

<b>-LDL- ‘MUSCLE / LIGAMENT / TENDON’</b>	
<b>STEM 1</b>	muscle
<b>STEM 2</b>	ligament
<b>STEM 3</b>	tendon

<b>-GZG- ‘SMALL INTESTINE’</b>	
<b>STEM 1</b>	duodenum
<b>STEM 2</b>	jejunum
<b>STEM 3</b>	ileum

<b>-RGD- ‘LARGE INTESTINE / COLON’</b>	
<b>STEM 1</b>	ascending colon
<b>STEM 2</b>	transverse colon
<b>STEM 3</b>	descending and sigmoid colon

<b>-DŘ- ‘TOOTH’</b>	
<b>STEM 1</b>	tooth
<b>STEM 2</b>	fang
<b>STEM 3</b>	tusk

<b>-ŇW- ‘NECK’</b>	
<b>STEM 1</b>	neck
<b>STEM 2</b>	neck (as bodily support/swivel point for head)
<b>STEM 3</b>	neck (as narrowest, most vulnerable body part)

<b>-LR- ‘WING’</b>	
<b>STEM 1</b>	wing (avian/feathered)
<b>STEM 2</b>	wing (mammalian or reptilian, i.e., a membrane extending from arm-like appendages)
<b>STEM 3</b>	wing-like extension (mechanical, but still used for flying, e.g., wing of an airplane)

<b>-PKL- ‘FIN / FLIPPER’</b>	
<b>STEM 1</b>	fin (e.g., of a fish)
<b>STEM 2</b>	flipper (e.g., of a dolphin, seal, walrus, manatee, etc.)
<b>STEM 3</b>	fin- or flipper-like extension (mechanical)

<b>-ŘC- ‘THROAT’</b>	
<b>STEM 1</b>	throat (i.e., front/ventral portion of neck)
<b>STEM 2</b>	upper portion of throat (i.e., the underside of the jaw)
<b>STEM 3</b>	lower portion of the throat (i.e., overlying the gullet/trachea/larynx)

<b>-XBY- ‘PARTS OF A BODILY JOINT’</b>	
<b>STEM 1</b>	(to be) the superior/dorsal side of a bodily joint [i.e., the “hard/bony” side of a bodily joint]*
<b>STEM 2</b>	(to be) the inferior/ventral side of a bodily joint [i.e., the soft, concave side of a bodily joint]*
<b>STEM 3</b>	(to be) the internal “swivel” mechanism of a bodily joint (i.e., the internal anatomy of a joint which allows an appendage to bend/twist*)

\*incorporate the stem of a specific limb or digit to specify ‘elbow’, ‘knee’, ‘knuckle (of finger)’, ‘knuckle (of toe)’, ‘shoulder’, etc.

<b>-LDN- ‘GUM TISSUE / HARD PALATE</b>	
<b>STEM 1</b>	gum tissue
<b>STEM 2</b>	alveolar ridge
<b>STEM 3</b>	hard palate

<b>-LPF- ‘INTERIOR SURFACE TISSUES OF MOUTH’</b>	
<b>STEM 1</b>	soft area between jaws underneath the front half of the tongue
<b>STEM 2</b>	soft palate
<b>STEM 3</b>	uvula

<b>-BF- ‘GENERIC REPRODUCTIVE ORGANS / CELLS’</b>	
<b>STEM 1</b>	gonad (i.e., testicle, ovary)
<b>STEM 2</b>	gamete (i.e., ovum/egg cell, spermatozoon/sperm cell)
<b>STEM 3</b>	transport duct/tubule for gametes from gonad (i.e., Fallopian tube, vas deferens)

<b>-NM- ‘INTERNAL FEMALE REPRODUCTIVE ORGANS’</b>	
<b>STEM 1</b>	uterus / womb
<b>STEM 2</b>	cervix
<b>STEM 3</b>	vagina

<b>-GČ- ‘MALE REPRODUCTIVE ORGANS / TISSUES’</b>	
<b>STEM 1</b>	penis
<b>STEM 2</b>	glans of penis
<b>STEM 3</b>	scrotum

<b>-BDW- ‘EXTERNAL FEMALE REPRODUCTIVE ORGANS/ TISSUES’</b>	
<b>STEM 1</b>	clitoris
<b>STEM 2</b>	inner labium
<b>STEM 3</b>	outer labium

<b>-PČ- ‘MOUTH / GULLET / ORAL CAVITY’</b>		
<b>BSC</b>	<b>Stem 1:</b> (to be) the mouth [of a chordate animal]	<b>Stem 2:</b> (to be) the gullet [of a non-chordate animal, plant, protist]  <b>Stem 3:</b> (to be) the bodily apparatus/process by which an entity takes in external food
<b>CTE</b>	(to be) the oral cavity (i.e., the interior space of a mouth)	
<b>CSV</b>	(to be) the structural tissue(s) which form a mouth	
<b>OBJ</b>	(to be) that which enters or is placed within one’s mouth	

<b>-LMW- PROBOSCIS / NOSE / SNOUT / BEAK</b>	
<b>STEM 1</b>	nose [i.e., the visible external proboscis, not the nostrils or one's olfactory sense organ (see -ŽG-)]
<b>STEM 2</b>	snout, proboscis [mammalian, e.g., elephant trunk, tapir's snout, etc.]
<b>STEM 3</b>	beak

<b>-JGR- 'ADIPOSE TISSUE (i.e., FAT)'</b>	
<b>STEM 1</b>	adipose tissue / fat; have fat, be fat
<b>STEM 2</b>	blubber
<b>STEM 3</b>	cellulite

<b>-NKW- 'TONGUE'</b>	
<b>STEM 1</b>	tongue as organ for manipulation of food for eating and seat of taste buds
<b>STEM 2</b>	tongue as manipulative organ for the production of spoken language
<b>STEM 3</b>	proboscis [non-mammalian], i.e., tubular organ(s) for feeding/sensing as in insects, worms, molluscs, etc.)

<b>-LLN- 'MEMBRANOUS TISSUE'</b>	
<b>STEM 1</b>	eardrum, tympanic membrane
<b>STEM 2</b>	synovial membrane (interior lining of articular capsule of joint)
<b>STEM 3</b>	serous membrane (membrane lining a body cavity, e.g., peritoneal, pleural, pericardial membranes)

### 7.2.2 Bodily Fluids, Secretions, Excretia

While many bodily fluids/secretions/excretia can be named by either utilizing the **ROC/8** affix with an existing stem naming a bodily process (e.g., urination, ejaculation, etc.) or by incorporating **-TKL-** Informal Stem 2 or **-TKL-** Formal Stem 1 into a stem naming a body part, it is nevertheless convenient to have lexical stems for the most common of such fluids/secretions/excretia.

Keep in mind that, while the English translations of the following stems are almost all non-count/mass nouns, the Ithkuil stems are countable, each meaning “(to be) an amount of” the particular substance/fluid in question. They follow the same Specification pattern as for Parts of the Body in Sec. 12.0 above.

**-LPL-** 1. blood 2. blood plasma 3. lymph

**-TCN-** 1. sweat 2. saliva 3. sebum

**-NGM-** 1. breast milk 2. vaginal fluid 3. amniotic fluid

**-ŃZR-** 1. earwax 2. perilymph 3. synovial fluid

**-GPH-** 1. feces 2. urine 3. pus

**-ŃZL-** 1. mucus 2. phlegm/sputum 3. rheum

**-NXM-** 1. tears 2. vitreous humor 3. aqueous humor

**-KṬČ-** 1. semen 2. bile/gall 3. gastric acid/stomach acid

**-FṬŘ-** 1. cerebrospinal fluid 2. peritoneal fluid 3. pericardial fluid

### 7.3 BIOLOGICAL LIFE-FORMS

In addition to roots and stems associated with formalized, hierarchically arranged biological taxonomies (which are listed later), the following roots and stems are available for informal use when talking about biological life-forms in general:

<b>-ŠW- ‘LIFE-FORM, LIVING THING’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a living being; a life-form; a form of life; to be something that is alive	<b>STEM2:</b> (to be) something vital; manifest vitality; activity consistent with being alive
<b>CTE</b>	(to be) the individual essence/soul, set of instincts, or mind of a life-form (that distinguishes it from other individuals)	
<b>CSV</b>	(to be) the physical body or corporeal aspect of a living thing	<b>STEM 3:</b> (to be) something reproduced or brought to life; to reproduce [biologically], bring to life
<b>OBJ</b>	(to be) an entity/party impacted/affected by the presence of, or interaction with a living being	

As will be seen beginning on Page 294 in the quasi-taxonomic listings of animals, numerous animal classes are divided up into several roots due to the diversity of similar taxonomic/phylogenic orders, sub-orders, infra-orders, families, super-families, etc. An example of this is the myriad number of moth types. However, it becomes necessary for laypersons to have a simple generic term for ‘moth’ irrespective of the particular type of moth. While the **RES**, **TXN**, and **HSR** affixes listed later below are available to form generic terms, these generic notions of animal types are semantically salient enough to warrant their own “shortcut” roots/stems for non-scientific, non-taxonomic lexical categorization. Such roots/stems are provided here; they follow the same Specification pattern as the root **-ŠW-** above:

<b>-FST- ‘PROKARYOTIC, NON-VISIBLE LIFE FORMS’</b>
<ol style="list-style-type: none"> <li>1. bacterium</li> <li>2. archaeon</li> <li>3. virus</li> </ol>

<b>-SV- ‘EUKARYOTIC LIFE FORM’</b>
<ol style="list-style-type: none"> <li>1. plant</li> <li>2. animal</li> <li>3. non-plant / non-animal eukaryote, i.e., protist, fungus, or chromist</li> </ol>

<b>-KST- ‘NON-PLANT &amp; NON-ANIMAL EUKARYOTIC LIFE-FORM’</b>
<ol style="list-style-type: none"> <li>1. protist (i.e., protozoa, amoeboids, protophytic algae, slime molds)</li> <li>2. fungus</li> <li>3. chromist (brown algae, diatoms, water molds)</li> </ol>

<b>-LD- ‘TREE / SHRUB / BUSH’</b>
<ol style="list-style-type: none"> <li>1. tree</li> <li>2. shrub</li> <li>3. bush</li> </ol>

**-LḐR- ‘GENERAL TREE TYPE’**

1. conifer or conifer-like evergreen tree
2. non-conifer evergreen tree
3. deciduous tree

**-LḐL- ‘NON-VASCULAR (i.e., PRIMITIVE) PLANT FORM’**

1. alga
2. moss
3. hornwort, liverwort, or lichen

**-ZHW- ‘GRASS-LIKE, STALK-LIKE PLANT FORM’**

1. grass
2. stalk-like plant
3. cereal grain or pseudo-cereal grain (e.g., wheat, rice, buckwheat, amaranth, etc.)

**-ZTÇ- ‘FERN-LIKE PLANT’**

1. fern
2. eusporangiate fern (e.g., whisk fern, grapefern, horsetail, adder’s tongue)
3. lycopod (e.g., club moss, firmoss, spike moss, quillwort)

**-LMY- ‘FLOWERING PLANT’**

1. flowering plant/tree/bush
2. herb
3. vine / liana

**-VN- ‘BASIC ANIMAL TYPES’**

1. animal of land or air (“terroid”)
2. waterlife-animal, animal living in water (“aquoid”)
3. amphibian

**-TN- ‘MAMMAL’**

1. placental mammal
2. marsupial
3. monotreme (egg-laying mammal)

**-L- ‘HUMAN BEING’**

1. adult human being
2. human child
3. adolescent human being, “teenager”

**-ṬL- ‘ANIMALS OF THE AIR’ (i.e., capable of self-powered flight)**

1. bird
2. flying insect
3. bat

**-ZZ- ‘(SMALLER) REPTILE’**

1. lizard-like reptile (e.g., lizard, skink, gecko, monitor)
2. snake or legless lizard
3. turtle/tortoise

**-NXW- ‘AMPHIBIAN’**

1. Salientian amphibian (i.e., frog, toad)
2. Caudatan amphibian (i.e., salamander, newt)
3. Gymnophione (caecilian) amphibian (i.e., snake-like or worm-like amphibian)

**-FŇ- ‘NON-PLANT WATERLIFE FORM’**

1. motile, free-swimming waterlife form, e.g., fish, eels, whales, octopus, etc.
2. crawling waterlife form, e.g., crustaceans, crabs
3. non-motile/sessile waterlife form, e.g., shellfish, sea urchin, starfish, etc.

**-PFT- ‘TYPES OF FISH’**

1. skate / ray
2. shark
3. [lobe-finned or ray-finned] fish

**-NGL- ‘MOLLUSC [other than cephalopod]’**

1. snail or slug
2. bivalve (e.g., clam, mussel, scallop, oyster, cockle, etc.)
3. other non-cephalopod mollusc (e.g., nautilus, chiton, solenogaster, etc.)

**-NGW- ‘WORM-LIKE INVERTEBRATE’**

1. worm (i.e., annelid worm or nematode worm)
2. flatworm or tapeworm
3. fluke or leech

**-NGŘ- ‘OTHER INVERTBRATE’**

1. cephalopod (e.g., octopus, squid, cuttlefish, argonaut, etc.)
2. sponge (i.e., poriferan)
3. cnidarian, ctenophore, or placozoan (e.g., jellyfish, coral, sea anemone, hydra, comb jelly, etc.)

**-ŽJ- ‘ARTHROPOD’**

1. hexapod or chelicerate (i.e., insect or arachnid, including springtail, conehead, dipluran, horseshoe crab, and sea spider)
2. crustacean
3. myriapod (i.e., millipede or centipede)

**-ZT- ‘ARACHNID’**

1. spider or harvester (a.k.a. harvestman or daddy longlegs)
2. scorpion or solifuge (a.k.a. wind scorpion, camel spider, sun spider)
3. tick or mite

**-ĐP- ‘LARGE DECAPODIAN CRUSTACEAN’**

1. lobster / crayfish
2. crab
3. shrimp / prawn

**-GLL- ‘BUG-LIKE INSECT’**

1. beetle or beetle-like insect (in terms of appearance/behavior)
2. ant or ant-like insect (in terms of behavior/appearance)
3. rounded “bug”-like insect other than beetle (e.g., bed bug, stink bug, junebug, etc.)

**-ZZC- ‘STINGING FLYING INSECT’**

1. bee, bumblebee or bee-like insect (in terms of appearance/behavior)
2. wasp, hornet, sawfly, or wasp-like insect (in terms of appearance/behavior)
3. gnat / midge / mosquito or similar insect (in terms of appearance/behavior)

**-NNZ- ‘FLY-LIKE INSECT’**

1. fly or fly-like insect (in terms of appearance/behavior)
2. louse, aphid, thrip or similar insect (in terms of behavior/appearance)
3. lacewing or lacewing-like insect (in terms of appearance/behavior), e.g., stonefly, alderfly, fishfly, antlion, owlfly, etc.

**-NV- ‘BUTTERFLY / MOTH’**

1. butterfly
2. moth
3. moth-butterfly, butterfly-moth, butterfly-mimicking moth

**-KSTW- ‘FUNGUS-TYPE / MUSHROOM’**

1. mushroom (edible)
2. non-harmful / non-parasitic fungus
3. harmful (i.e., parasitic, disease-causing or poisonous) fungus/mushroom

**-KSTY- ‘PROTIST-TYPE’**

1. non-amoeboid protozoan
2. amoeboid life-form
3. protophytic algae or slime mold

**-ŽŇ- ‘NON-MAMMALIAN LIFE STAGE’**

	<b>-ŽŇ- ‘NON-MAMMALIAN LIFE STAGE’</b>		
<b>BSC</b>	<b>STEM 1:</b> (to be) a newborn, newly hatched, newly sprouted, first-stage life-form (e.g., sprout, larva, tadpole, caterpillar, etc.)	<b>STEM 2:</b> (to be) the pupal stage of a metamorphic life-form	<b>STEM 3:</b> (to be) the “birth” or hatching of a life-form from a cocoon, chrysalis, external (shell-bearing) egg, or other interim metamorphic life-stage; to hatch, emerge from a cocoon, emerge from a marsupial pouch, etc.
<b>CTE</b>	(to be) the individual essence/soul, set of instincts, or mind of a first-stage life-form (that distinguishes it from other individuals)	(to be) the state of metamorphosis undergone by a pupa	(to be) the state of having completed a metamorphic life-stage and becoming one’s final corporeal form
<b>CSV</b>	(to be) the physical body or corporeal aspect of a first-stage life-form	(to be) a pupa, i.e., a life-form in a pupal stage of development	(to be) the process of hatching/emerging itself
<b>OBJ</b>	(to be) an entity/party impacted/affected by the presence of, or interaction with a first-stage life-form	(to be) a cocoon or chrysalis	(to be) the discarded cocoon, egg-casing, bud, etc. emerged from



### 7.3.0.1 Preliminary Note on Quasi-Taxonomic Roots/Stems Denoting Biological Life-forms

Beginning in Section 17.1 below, the roots and stems or specific life-forms are presented. The general rule regarding roots associated with biological life-forms is the use of a simple two- or three- (sometimes four-) consonant root to designate the “base level” (i.e., most common or most representative) genus and/or species of a particular class/family/order/sub-order of animals, e.g., common domesticated animals, common insects, common birds, common reptiles, etc. Each of these roots then serves as the basis for expansion of the root by a single consonant (e.g., the adding of **-y**, **-w**, **-l**, **-r**, **-ř**, **-m**, **-n**, **-f**, **-t**, **-v**, etc. and/or the prefixing of **l-**, **r-** or **ř-**) to designate less common genera in the same class/family/order/sub-order or to designate corollary or associated roots.

When the distinction between similar life-forms is a common one, stems are assigned to individual species within a genus. Otherwise, the designation of species and sub-species is to be accomplished via use of a Type-2  $V_xC_s$  affix or via Type-2 stem incorporation, the specific affixes and incorporated roots as-yet-to-be-determined. As an example, Stem No. 3 of the root **-RRN-** ‘OCELOT-LIKE FELINES’ designates any less common species of the genus *Leopardus* other than the ocelot itself (*L. pardalis*) (designated by Stem No. 1) or the margay (*L. wiedii*) (designated by Stem No. 2). Therefore, Stem No. 3 refers to an animal that could be either an oncilla (*L. tigrina*), an Andean mountain cat (*L. jacobita*), a Pampas cat (*L. colocola*), a kodkod (*L. guigna*), a southern tigrina (*L. guttula*), or Geoffroy’s cat (*L. geoffroyi*). To distinguish these individual six species, either an appropriate Type-2  $V_xC_s$  affix would be used or a Type-2 incorporated stem. At this time the author has not yet assigned the specific affixes or stems to be used due to time constraints.

**NOTE:** The three stems of many of these roots are structured to reflect quasi-trinary divisions within the scientific taxonomies of each animal-type. Often, these quasi-trinary distinctions are of little practical importance to laypersons, in which case the use of Stem “Zero” may be of the most practical value when referring to the particular animal. As an example, the three stems of the root **-MVY-** refer to the three species (or sub-species) of bison; however, most speakers will likely be uninterested in (or ignorant about) distinguishing between a plains bison versus a wood bison versus a wisent; thus, use of Stem “Zero” to refer simply to a bison is convenient. (Alternately, use of Stem 1 with additional morphology such as a “fuzzy” configuration, or RPV Essence, or the REA/7 affix may be used.)

### 7.3.0.2 Affixes Used with Taxonomic Stems for Genus or Species or Sub-Species Identification

In addition to Type-2 stem-incorporation, the following affixes are available to use with biological life-form stems to help differentiate (or, if used as a Type-2 affix, to formally name) the species or sub-species of a particular genus, or in cases where a stem refers to an entire family or class of life-forms (as is the case for less familiar or less differentiated life-forms such as annelid worms), to identify or name a particular genus. (Note that the use of affixes to identify species of a genus are certainly not limited to the following affixes; these affixes are presented here only because they have been specifically designed for use with such stems. Conversely, these affixes may also be used with any relevant/applicable stem, and are not reserved solely for use with stems denoting biological/taxonomic life-forms.)

<b>-zč</b>	<b>PG1 Physical Features Based on Geography 1 for Species or Sub-Species Differentiation</b>
1	having physical features characteristic of mainland Asian origin or environment
2	having physical features characteristic of Southeast Asian/Polynesian origin or environment
3	having physical features characteristic of Central Asian origin or environment
4	having physical features characteristic of the Indian sub-continent in origin or environment
5	having physical features characteristic of Western Asian/Mesopotamian origin or environment
6	having physical features characteristic of Western European/Nordic origin or environment
7	having physical features characteristic of Eastern European/Balkans origin or environment
8	having physical features characteristic of sub-Saharan African origin or environment
9	having physical features characteristic of North African/Mediterranean origin or environment

<b>-zj</b>	<b>PG2 Physical Features Based on Geography 2 for Species or Sub-Species Differentiation</b>
1	having physical features characteristic of Arctic origin or environment
2	having physical features characteristic of Mediterranean Sea origin or environment
3	having physical features characteristic of Pacific Ocean or environment
4	having physical features characteristic of North Atlantic origin or environment
5	having physical features characteristic of South Atlantic origin or environment
6	having physical features characteristic of South Pacific oceanic origin or environment
7	having physical features characteristic of Indian Ocean origin or environment
8	having physical features characteristic of Antarctic origin or environment
9	having physical features characteristic of New World / American origin or environment

<b>-zg</b>	<b>Biogeographic Realm/Ecozone</b>
1	inhabiting or originating in the Palearctic ecozone
2	inhabiting or originating in the Nearctic ecozone
3	inhabiting or originating in the Holarctic ecozone
4	inhabiting or originating in the Afrotropic ecozone
5	inhabiting or originating in the Neotropic ecozone
6	inhabiting or originating in the Australasia ecozone
7	inhabiting or originating in the Indomalaya ecozone
8	inhabiting or originating in the Oceania ecozone
9	inhabiting or originating in the Antarctic ecozone

<b>-šb</b>	<b>GEO Geographic or Environmental Niche for Species or Sub-Species Differentiation</b>
1	inhabiting or associated with high mountains
2	inhabiting or associated with the desert
3	inhabiting or associated with rocky terrain
4	inhabiting or associated with the tundra
5	inhabiting or associated with brushland, scrubland, bushy terrain
6	inhabiting or associated with swampy/boggy/marshy terrain
7	inhabiting or associated with savannah/grassland
8	inhabiting or associated with trees / arboreal
9	inhabiting or associated with the rainforest

<b>-šd</b>	<b>WBN Water-based Environmental Niche for Species or Sub-Species Differentiation</b>
1	inhabiting or associated with islands
2	inhabiting or associated with offshore / shallow ocean dwelling
3	inhabiting or associated with the seashore / littoral
4	inhabiting or associated with estuaries/lagoons
5	inhabiting or associated with saltwater marshes
6	inhabiting or associated with freshwater lakes
7	inhabiting or associated with freshwater ponds
8	inhabiting or associated with rivers / riparian
9	inhabiting or associated with streams or brooks

<b>-šg</b>	<b>ENS Environmental Niche for Species or Sub-Species Differentiation</b>
1	active at twilight / crepuscular
2	active at night / nocturnal
3	active around dawn
4	active during the morning
5	active during the day / diurnal
6	sessile, not motile -- adhering to a substrate by direct attachment (not via a stalk/stipe/pedicel/connecting medium)
7	attached to a substrate via a stalk/stipe/pedicel/connecting medium
8	motile in reaction to heat
9	motile in reaction to light

<b>-tč</b>	<b>DBM Distinctive Bodily/Fur Markings for Species or Sub-Species Differentiation</b>
1	having rows of lighter-colored spots
2	having rows of darker-colored spots
3	having lighter-colored facial band(s)
4	having darker-colored facial band(s)
5	having a distinctive pattern of fur/bodily markings colored differently from the rest of the body/fur
6	having lighter-colored dorsal band(s) or stripe(s)
7	having darker-colored dorsal band(s) or stripe(s)
8	having lighter-colored lateral band(s) or stripe(s)
9	having darker-colored lateral band(s) or stripe(s)

<b>-vž</b>	<b>MB1 Morphological Bodily Distinctions for Species or Sub-Species Differentiation 1</b>
1	having a longer-than-average tail
2	having a larger-than-average-mouth/beak/gullet
3	having larger-than-average eyes
4	having larger/longer-than-average wings/wingspan
5	having larger/longer-than-average nose/snout/proboscis
6	having larger/longer-than-average limbs
7	having a larger or more robust body than average
8	being longer/taller than average
9	being more rotund/fatter/thicker than average

<b>-tj</b>	<b>MB2 Morphological Bodily Distinctions for Species or Sub-Species Differentiation 2</b>
1	having a shorter-than-average tail
2	having a smaller-than-average-mouth/beak/gullet
3	having smaller-than-average eyes
4	having smaller/shorter-than-average wings/wingspan
5	having smaller/shorter-than-average nose/snout/proboscis
6	having smaller/shorter-than-average limbs
7	having a smaller body than average
8	being shorter than average
9	being more slender/streamlined than average

<b>-cd</b>	<b>RES Resemblances to Other Species</b>
1	having behavioral characteristics similar to X
2	having eating/foraging/hunting habits similar to X
3	having a voice/call/cry/whistle, etc. similar to X
4	inhabiting an environmental niche similar to X
5	having various factors of appearance and behavior similar to X
6	having a facial resemblance to X
7	having a bodily form similar to X
8	having bodily markings similar to X
9	having nesting/parenting/burrowing habits similar to X

The PTY affix can also be utilized to designate species differentiation.

<b>-zv</b>	<b>SYM Symbiotic Relationship</b>
1	in an obligate [i.e., required/mandatory/necessary] relationship with another party to mutual benefit, i.e., obligate mutualistic relationship
2	in an obligate [i.e., required/mandatory/necessary] relationship to the benefit of oneself but neutral to the other party, i.e., obligate commensal relationship
3	in an obligate [i.e., required/mandatory/necessary] relationship to the benefit of oneself but harmful to the other party, i.e., obligate parasitic relationship
4	in a facultative [i.e., optional] relationship with another party to mutual benefit, i.e., optionally mutualistic relationship
5	in a facultative [i.e., optional] relationship to the benefit of oneself but neutral to the other party, i.e., optional commensal relationship
6	in a facultative [i.e., optional] relationship to the benefit of oneself but harmful to the other party, i.e., optional parasitic relationship
7	in an obligate or facultative relationship with another party of no benefit to oneself but advantageous/beneficial to the other party
8	in an obligate or facultative relationship with another party harmful to oneself but advantageous/beneficial to the other party
9	in a competitive relationship with another party [potentially] harmful to both parties

The eleven new **Areal/Cultural Association** affixes may also be used with musical Taxonomic Genus or Species Stems (see v.0.7 of the Affixes document)

### 7.3.0.3 Affixes for Grouping Biological Life-Form Roots/Stems into Classificatory Schemata/Taxonomies

-bv	<b>TXN Taxonomic Classification Hierarchy (to be added to the Base Root forms for various groupings)</b>	Type-2 TXN affixes are used specifically for biological taxonomic classification, as listed below:
1	X as representative of a 3rd-level sub-grouping of the basic-level grouping	the sub-species or strain of which X is a member
2	X as representative of a sub-sub-group or sub-sub-section of X's base-level group	the species of which X is a member
3	X as representative of a sub-group or sub-section of X's base-level group	the genus of which X is a member
4	X as the basic or common hierarchical level representative of a group; X as member, X as representative	the tribe of which X is a member
5	the "tribe", group, club, section of which X is a member	the family of which X is a member
6	the "family" of which X is a member; the grouping to which X's "tribe"/club/group/section belongs	the order of which X is a member
7	3rd-order hierarchical super-group of which X is a member; the grouping to which the grouping containing X's group/section belongs	the class of which X is a member
8	4th-order hierarchical super-group of which X is a member	the phylum of which X is a member
9	5th-order hierarchical super-group of which X is a member	the kingdom of which X is a member

-dv	<b>HSR Hierarchical Sub- and Super-Rankings</b>
1	sub-sub- (two degree of ranking below)
2	sub- (one degrees of ranking below)
3	comprising some of a section; some of the sub-sections of a section
4	comprising most of a section but not including all sub-sections; most of the sub-sections of a section
5	comprising more than one sub-section
6	comprising more than one section
7	comprising at least one section and at least one subsection of another section
8	super- (one degree of ranking above)
9	super-super (two degrees of ranking above)

### 7.3.0.4 Affixes for Describing Extinct Genera

With few exceptions, the list of quasi-taxonomic roots for life-forms below do not include extinct genera. To signify/name an extinct genus, choose an extant genus in the same family/order, etc., apply the appropriate RES affix (shown on the previous page), then add the new PEB affix in Degree-9 shown below, along with one of the additional affixes shown below indicating a particular era or epoch (if signifying a fossil species).

<b>-rç-</b>	<b>PEB Overall Presence/Participation Within an Environmental Niche or Biosphere</b>
1	dominant component/feature/element/life-form/factor
2	near-dominant
3	thriving
4	up-and-coming, close to thriving
5	newfound / newly arrived / newly present
6	declining
7	threatened
8	near-extinct
9	extinct

<b>-xn-</b>	<b>PZE Paleozoic Era</b>
1	of/from/during the Paleozoic Era
2	of/from/during the Early (or Lower) or Middle Cambrian Period
3	of/from/during the Late (Upper) Cambrian epoch or Furongian period
4	of/from/during the Ordovician epoch
5	of/from/during the Silurian epoch
6	of/from/during the Devonian epoch
7	of/from/during the Mississippian period of the Carboniferous epoch
8	of/from/during the Pennsylvanian period of the Carboniferous epoch
9	of/from/during the Permian epoch

<b>-pn-</b>	<b>MZE Mesozoic Era</b>
1	of/from/during the Mesozoic Era
2	of/from/during the Early (or Lower) Triassic epoch
3	of/from/during the Middle Triassic epoch
4	of/from/during the Late (or Upper) epoch
5	of/from/during the Early (or Lower) Jurassic epoch
6	of/from/during the Middle Jurassic epoch
7	of/from/during the Late (or Upper) Jurassic epoch
8	of/from/during the Early (or Lower) Cretaceous epoch
9	of/from/during the Late (or Upper) Cretaceous epoch

<b>-gn-</b>	<b>CZE Cenozoic Era</b>
1	of/from/during the Cenozoic Era
2	of/from/during the Paleocene epoch
3	of/from/during the Eocene epoch
4	of/from/during the Oligocene epoch
5	of/from/during the Miocene epoch
6	of/from/during the Pliocene epoch
7	of/from/during the Pleistocene epoch
8	of/from/during the Holocene epoch
9	of/from/during the Anthropocene epoch

### 7.3.1 Animals

All of the following stems referring to living animals have the following Specification structure:

<b>BSC</b>	(to be) an animal as a holistic entity, including its physical/corporeal body and its and mental identity and living essence; to live/be alive
<b>CTE</b>	(to be) that which gives a particular animal its individual identity; the living essence or mental identity of an animal
<b>CSV</b>	(to be) the physical body of an animal; the corporeal aspect of an animal
<b>OBJ</b>	(to be) an activity engaged in by an animal; what an animal is doing; to act (as a particular animal species does)

At this time, the author has completed the listing of roots and stems associated with the kingdoms Animalia and Plantae. They are listed below, grouped by more or less familiar taxonomic classification schemes, with pragmatic factors such as degree of familiarity/utility among laypersons taken into account. For example, animal orders/classes familiar to laypersons such as mammals have many stems at the species level, while unfamiliar orders/classes such as Annelids forego taxonomic lexicalization entirely and instead lexicalize common-sense, superficial morphological distinctions, i.e., ‘earthworm’ vs. ‘leech’, vs. ‘other ringed/segmented worm’.

Lexical roots/stems for other biological domains/kingdoms (fungi, unicellular eukaryotes, bacteria, archaea) remain to be worked on.

#### 7.3.1.1 Mammals

##### Feliforms

-**RR**- ‘CAT’ 1. (*Felis catus*) cat (domestic) 2. (genus *Felis*, other than *catus* species) wildcat 3. (genera *Prionailurus* or *Otocolobus*) leopard cat, fishing cat, flat-headed cat, rusty-spotted cat, Pallas’s cat/manul

-**RRW**- ‘LARGE FELINE’ (genus *Panthera*)’ 1. tiger 2. lion 3. jaguar

-**RRY**- ‘LEOPARD’ (genera *Panthera* and *Neofelis*) 1. leopard 2. snow leopard 3. clouded leopard

-**RRM**- ‘LYNX-LIKE ANIMAL’ (genus *Lynx*) 1. (*L. rufus*) bobcat 2. (*L. lynx*, *L. pardinus*) Eurasian or Iberian lynx 3. (*L. canadensis*) Canada lynx

-**RRN**- ‘OCELOT-LIKE FELINE’ (genus *Leopardus*)’ 1. ocelot 2. margay 3. other ocelot-like feline (e.g., oncilla, pampas cat, kodkod, tigrina, etc.)

-**RRL**- ‘PUMA-LIKE FELINE’ 1. (genus *Acinonyx*) cheetah 2. (genus *Puma*) cougar (a.k.a. puma/panther/catamount) 3. (genus *Herpailurus*) jaguarundi

-**RRF**- ‘BAY CAT FELINE’ (genera *Catopuma*, *Pardofelis*)’ 1. bay cat 2. Asian golden cat 3. marbled cat

-**RRT**- ‘CARACAL FELINE’ (genera *Caracal*, *Leptailurus*)’ 1. caracal 2. African golden cat 3. serval

-**RRC**- ‘OTHER FELIFORM’ 1. (genus *Nandinia*) African palm civet 2. (genus *Prionodon*) banded linsang 3. (genus *Prionodon*) spotted linsang



## Canines

- ZV**- ‘COMMON CANINE’ 1. (*Canis lupus familiaris*, *C. lupus dingo*) domestic dog, dingo 2. (*Canis lupus*) gray wolf 3. (*Canis latrans*) coyote (= American jackal)
- ZVY**- ‘OTHER CANINE’ 1. (genus *Canis*; species *anthus*, *simensis*, *aureus*, *mesomelas*, *adustus*) African wolf, Asian wolf, jackal 2. (genus *Cuon*) dhole, Asiatic wild dog 3. (genus *Lycaon*) African wild dog/painted wolf
- ZVW**- ‘FOX’ 1. (*Vulpes vulpes*) red fox 2. (other *Vulpes* species: *zerda*, *cana*, *chama*, *rueppellii*, *corsac*, *ferrilata*, *macrotis*, *lagopus*) fox 3. (genus *Otocyon*) bat-eared fox
- ZVL**- ‘SOUTH AMERICAN CERDOCYONINE FOX/DOG/WOLF’ 1. (genus *Lycalopex*; species *vetulus*, *sechurae*, *fulvipes*, *gymnocercus*, *griseus*, *culpaeus*) [South American] fox 2. (genus *Speothos*) bush dog 3. other South American cerdocyonine canine (e.g., genera *Chrysocyon*, *Dusicyon*, *Cerdocyon*, *Atelocynus*)
- ZVR**- ‘ADDITIONAL CANINE GENUS’ 1. (genus *Urocyon*) gray fox 2. (genus *Urocyon*) island fox 3. (genus *Nyctereutes*) raccoon dog

## Ovids

- NÇ**- ‘GOAT-LIKE ANIMAL’ 1. (*Capra aegagrus hircus*) domestic goat 2. ibex 3. (genera *Capra*, *Hemitragus*, *Arabitragus*, *Ammotragus*) wild goat, tahr, tur, markhor
- NÇW**- ‘SHEEP-LIKE ANIMAL’ 1. (*Ovis aries*) domestic sheep 2. (genus *Ovis*, other than *aries* species) wild sheep, mouflon, argali, urial, dall 3. (genera *Nilgritragus*, *Pseudois*) bharal, dwarf blue sheep, Nilgiri tahr
- NÇL**- ‘OTHER CAPRINOID ANIMAL’ 1. (genus *Capricornis*) serow 2. (genus *Nemorhaedus*) goral 3. (genera *Oreamnos*, *Rupicapra*) mountain goat, chamois
- NÇR**- ‘OVIBOVINE’ 1. (genus *Ovibos*) musk-ox 2. (genus *Budorcas*) takin 3. golden takin
- NÇŘ**- ‘ANTELOPE’ 1. (genus *Hippotragus*) antelope 2. (genus *Oryx*) oryx, gemsbok 3. (genus *Addax*) addax
- NÇF**- ‘ALCELAPHINE ANTELOPE’ 1. (genus *Alcelaphus*) hartebeest 2. (genus *Connochaetes*) wildebeest 3. (genera *Damaliscus*, *Beatragus*) topi, bontebok, blesbok, tsessebe, korrigum, hirola
- NÇT**- ‘ANTELOPE-LIKE ANIMAL’ 1. (genus *Aepyceros*) impala 2. (genera *Gazella*, *Eudorcas*, *Nanger*, *Procapra*, *Antidorcas*) gazelle, springbok 3. (genera *Litocranius*, *Antelope*, *Ammodorcas*) East-African or Asian antelope (e.g., dibatag, gerenuk, blackbuck)
- NÇV**- ‘DWARF ANTELOPE’ 1. (genus *Madoqua*) dik-dik 2. (genera *Neotragus*, *Nesotragus*) Bates’ pygmy antelope, suni, royal antelope 3. (genera *Beira*, *Oreotragus*, *Ourebia*, *Raphicerus*) beira, klipspringer, oribi, steenbok, grysbok
- NÇM**- ‘DUIKER’ 1. (genus *Cephalophus*) duiker 2. (genus *Philantomba*) blue duiker, Maxwells’s duiker, Walter’s duiker 3. (genus *Sylvicapra*) common duiker
- NÇN**- ‘REDUNCINE ANTELOPE’ 1. (genus *Redunca*) reedbuck 2. (*Kobus ellipsiprymnus*) waterbuck 3. (genus *Kobus* other than *ellipsiprymnus* species) kob, puku, lechwe

## Bovines

- MV**- ‘CATTLE’ 1. (*Bos primigenius*) cow/bull, cattle, auroch 2. (subgenus *Bibos*) gaur, gayal/mithun, banteng 3. (subgenera *Poephagus*, *Novibos*) yak, kouprey
- MVY**- ‘BISON’ 1. (*Bison bison bison*) American plains bison 2. (*Bison bison athabasca*) American wood bison 3. (*Bison bonasus*) European bison/wisent
- MVW**- ‘WATER BUFFALO’ 1. (genus *Bubalus*) Asian water buffalo 2. (genus *Bubalus*) anoa, tamaraw 3. (genus *Syncerus*) African water buffalo
- MVL**- ‘TRAGELAPHINE BOVINE’ 1. (genus *Taurotragus*) common eland, giant eland 2. (genus *Tragelaphus*) greater and lesser kudu, nyala, mountain nyala 3. (genus *Tragelaphus*) bongo, sitatunga, kéwel, imbabala/bushbuck
- MVR**- ‘BOVINE-RELATED ANIMAL’ 1. (genus *Giraffa*) giraffe 2. (genus *Okapia*) okapi 3. (genus *Pseudoryx*) saola
- MVŘ**- ‘OTHER BOVINE-RELATED ANIMAL’ 1. (genus *Antilocapra*) pronghorn 2. (genera *Hyemoschus*, *Moschiola*) chevrotain 3. (genus *Tragulus*) mouse-deer
- MVM**- ‘BOVINE HYBRID’ 1. dzo/yakow (cow/bull + yak) 2. “beefalo”/“zubron” (cow + bison) 3. “yakalo” (bison + yak)

## Cervines

- LV- 'CERVINE (OLD WORLD DEER) (genera *Cervus*, *Rusa*)' 1. [Old World] deer 2. [American] elk, wapiti 3. (genera other than *Cervus* or *Rusa*) hog deer, fallow deer, chital, swamp deer, thamin
- LVW- 'LARGER CAPREOLINE (NEW WORLD DEER) 1. (genus *Alces*) moose / Eurasian elk 2. (genus *Rangifer*) reindeer/caribou 3. (genus *Blastocerus*) marsh deer
- LVY- 'SMALLER CAPREOLINE (NEW WORLD DEER)' 1. (genus *Mazama*) brocket 2. (genus *Hippocamelus*) taruca, huemul 3. (genera *Capreolus*, *Ozotoceros*, *Pudu*, *Odocoileus*) roe deer, pudu, pampas deer, white-tailed deer, mule deer
- LVR- 'OTHER DEER(-LIKE ANIMAL)' 1. (genus *Muntiacus*) muntjac 2. (genus *Elaphodus*) tufted deer 3. (genus *Moschus*) musk deer

## Ursids

- RH- 'BEAR (Genus *Ursus*)' 1. Black Bear (species *americanus*) 2. Grizzly Bear (species *horribilis*) 3. Big Brown Bear (species *arctos*)
- RHM- 'OTHER URSUS BEAR SPECIES' (Genus *Ursus* [previously *Thalarctos*]) 1. Polar Bear (species *maritimus*) 2. Sun bear (species *malayanus*) 3. Sloth bear (species *ursinus*)
- RHN- 'OTHER BEAR GENUS' 1. giant panda (genus *Ailuropoda*) 2. Qinling panda (genus *Ailuropoda*) 3. spectacled bear (genus *Tremarctos*)

## Musteloids

- ČT- 'PROCYONINE' 1. (genus *Procyon*) raccoon 2. (genera *Nasua*, *Nasuella*) coati 3. (genus *Bassariscus*) ringtail cat, cacomistle
- ČTW- 'OTHER PROCYONID' 1. kinkajou 2. olingo 3. olinguito
- ČTY- 'MUSTELID' 1. (genus *Mustela*) weasel/polecat/stoat/European mink 2. ferret (= genus *Mustela*; domesticated weasel/polecat) 3. (genus *Neovison*) American mink
- ČTL- 'GULONINE' 1. (genera *Martes*, *Pekania*) marten/sable/fisher 2. (genus *Gulo*) wolverine 3. (genus *Eira*) tayra
- ČTR- 'OTTER' 1. (genus *Enhydra*) sea otter 2. (genus *Lontra*) river otter 3. other otters (genera *Aonyx*, *Lutra*, *Hydricis*, *Lutrogale*, *Pteronura*)
- ČTR- 'BADGER' 1. (genus *Taxidea*) American badger 2. (genus *Meles*) European/Asian/Japanese badger 3. (genus *Arctonyx*) hog badger
- ČTM- 'SKUNK' 1. (genera *Mephitis*, *Spilogale*) skunk 2. (genus *Conepatus*) hognose skunk 3. (genus *Mydaus*) stink badger
- ČTN- 'ICTONYCHINEA' 1. (genus *Galictis*) grison 2. (genera *Ictonyx*, *Vormela*) striped polecat, marbled polecat 3. (genus *Lyncodon*, *Poecilogale*) Patagonian weasel, African striped weasel
- ČTF- 'OTHER MUSTELOID' 1. (genus *Ailurus*) red panda 2. (genus *Melogale*) ferret-badger, 3. (genus *Mellivora*) honey badger

## Suids

- PX- 'SUID' 1. (*Sus scrofa domestica*) domestic pig 2. (*Sus scrofa*) wild boar 3. (other *Sus* species) warty pig, bearded pig
- PXW- 'OTHER SUID' 1. (genus *Porcula*) pygmy hog 2. (genus *Potamochoerus*) bushpig, red river hog 3. (genus *Babyrusa*) babirusa
- PXL- 'SUID-LIKE ANIMAL' 1. (genus *Phacochoerus*) warthog 2. (genus *Hylochoerus*) giant forest hog 3. (genus *Tayassu*) peccary/javelina/skunk pig

## Hippopotamus

-VD- HIPPOPOTAMUS 1. (genus *Hippopotamus*) hippopotamus 2. (genus *Choeropsis*) pygmy hippo

## Cetaceans

-BŽ- ‘CETACEAN’ 1. baleen whale 2. toothed whale 3. delphinoid (includes oceanic dolphins, river dolphins, porpoises, and narwhals)

-BŽW- ‘SPERM WHALE’ 1. (genus *Physeter*) sperm whale 2. (*Kogia breviceps*) pygmy sperm whale 3. (*Kogia sima*) dwarf sperm whale

-BŽY- ‘RIVER DOLPHIN’ 1. (genus *Platanista*) Asian river dolphin 2. (genus *Inia*) South American river dolphin 3. (genus *Pontoporia*) La Plata dolphin/franciscana

-BŽL- ‘BEAKED WHALE’ 1. (genus *Berardius*) giant beaked whale 2. (genus *Hyperoodon*) bottlenose whale 3. (genera *Indopacetus*, *Mesoplodon*, *Tasmacetus*) small beaked whales

-BŽR- ‘OCEANIC DOLPHIN’ 1. (genera *Delphinus*, *Tursiops*, *Lissodelphis*, *Sotalia*, *Sousa*, *Stenella*, *Cephalorhynchus*, *Grampus*, *Lagenodelphis*, *Lagenorhynchus*) dolphin 2. (genus *Orcinus*) killer whale 3. (genera *Feresa*, *Pseudorca*) pygmy killer whale, false killer whale

-BŽŘ- ‘OTHER OCEANIC DOLPHIN’ 1. (genus *Globicephala*) pilot whale 2. (genus *Peponocephala*) melon-headed whale 3. (genus *Orcaella*) snubfin dolphin

-BŽM- ‘PORPOISE’ 1. (genus *Phocoena*) porpoise 2. (genus *Neophocoena*) finless porpoise 3. (genus *Phocoenoides*) Dall’s porpoise

-BŽN- ‘MONODONT DELPHINOID’ 1. (genus *Delphinapterus*) beluga whale, white whale 2. (genus *Monodon*) narwhal

## Camelids

-ŇŁW- ‘CAMEL (genus *Camelis*)’ 1. dromedary camel 2. domesticated bactrian camel 3. wild bactrian camel

-ŇŁY- ‘LAMINID’ 1. (genus *Lama*) llama, guanaco 2. (*Vicugna pacos*) alpaca 3. (*Vicugna vicugna*) vicuña

## Rhinoceros

-PŽ- ‘RHINOCEROS’ 1. (genus *Rhinoceros*) Indian & Javan rhinoceros 2. (genus *Dicerorhinus*) Sumatran rhinoceros 3. (genera *Ceratotherium*, *Diceros*) African white and black rhinoceros

## Tapirs

-XJ- ‘TAPIR’ (genus *Tapirus*) 1. Central American tapir 2. South American and Mountain tapir 3. Asian tapir

## Equines

-XC- ‘EQUINE (genus *Equus*)’ 1. (subgenus *ferus*) horse 2. (subgenus *asinus*) ass, kiang, onager, kulan, donkey 3. (subgenus *hippotigris*) zebra

-XCW- ‘EQUINE HYBRID’ 1. mule 2. hinny 3. “zebroid” (including “zorse”, “zeedonk”, “zony”)

## Viverroids

-ZB- ‘VIVERRID’ 1. (Viverrines and Hemigalines: genera *Viverra*, *Viverricula*, *Civettictis*, *Hemigalus*, *Cynogale*, *Diplogale*, *Chrotogale*) civet 2. (Paradoxurines: genera *Paradoxurus*, *Arctictis*, *Paguma*, *Macrogalidia*, *Arctogalidia*) [Asian] civet, binturong/bearcat 3. (Genettines: genera *Genetta*, *Poiana*) genet, oyan or African linsang

**-ZBY-** ‘HYAENA’ 1. (genus *Crocota*) spotted hyaena 2. (genera *Hyaena*, *Parahyaena*) hyaena (striped, brown) 3. (genus *Proteles*) aardwolf

**-ZBW-** ‘MONGOOSE’ 1. (Herpestine subfamily: genera *Herpestes*, *Atilax*, *Cynictis*, *Ichneumia*, *Bdeogale*, *Galerella*, *Rhynchogale*, *Paracynictis*) mongoose 2. (Mongotine subfamily: genera *Mungos*, *Suricata*, *Crossarchus*, *Helogale*, *Dolgale*, *Liberiictis*) mongoose, meerkat, kusimanse, dwarf mongoose 3. (Euplerine and Galidiine subfamilies: genera *Cryptoprocta*, *Eupleres*, *Fossa*, *Galidia*, *Galidictus*, *Mungotictis*, *Salanoia*) fossa, falanouc, vontsira, Malagasy mongoose, Malagasy civet

### **Eulipotyphla (Hedgehogs, Gymnures, Shrews, Moles, Shrew-Moles, Desmans, Solenodons)**

**-DX-** ‘HEDGEHOG’ 1. (genus *Erinaceus*) common hedgehog 2. (genus *Atelerix*) African hedgehog 3. (genera *Hemiechinus*, *Mesechinus*, *Paraechinus*) Asian hedgehog

**-DXW-** ‘MOONRAT/GYMNURE’ 1. (genus *Echinosorex*) moonrat 2. (genera *Hylomys*, *Neohylomys*, *Podogymnura*) gymnure 3. (genus *Neotetracus*) shrew gymnure, shrew hedgehog

**-DXL-** ‘SHREW’ 1. (Crociturines; genera *Crocituria*, *Diplomesodon*, *Feroculus*, *Palawanosorex*, *Paracrocituria*, *Ruwenzorisorex*, *Scutisorex*, *Solisorex*, *Suncus*, *Sylvisorex*) white-toothed shrew, large-headed shrew, armored shrew / hero shrew, forest shrew 2. (Myosoricines; genera *Myosorex*, *Congosorex*, *Surdisorex*) African shrew 3. (Soricines; genera *Anourosorex*, *Blarinella*, *Blarina*, *Cryptotis*, *Chimarrogale*, *Chodsigoa*, *Episoriculus*, *Nectogale*, *Neomys*, *Soriculus*, *Megasorex*, *Notiosorex*, *Sorex*) red-toothed shrew

**-DXR-** ‘MOLE/SHREW-MOLE/DESMAN/SOLENOTODON’ 1. (genera *Condylura*, *Parascalops*, *Scalopus*, *Scapanulus*, *Scapanus*, *Uropsilus*, *Euroscaptor*, *Mogera*, *Parascaptor*, *Scaptorchirus*, *Talpa*, *Scaptonyx*, *Dymecodon*, *Urotrichus*, *Neurotrichus*) mole, shrew-mole 2. (genera *Desmana*, *Galemys*) desman 3. (genus *Solenodon*) solenodon

### **Leporiforms And Rodents**

**-BZ-** ‘RABBIT/HARE/PIKA’ 1. (genera *Nesolagus*, *Poelagus*, *Pronolagus*, *Romerolagus*, *Sylvilagus*, *Brachylagus*, *Caprolagus*, *Oryctolagus*, *Bunolagus*, *Pentalagus*) rabbit/bunny/coney 2. (genus *Lepus*) hare, jackrabbit 3. (genus *Ochotona*) pika

**-BZW-** ‘BEAVER’ 1. (*Castor canadensis*) North American beaver 2. (*Castor fiber*) Eurasian beaver 3. (genus *Aplodontia*) mountain beaver

**-BZY-** ‘CHIPMUNK/MARMOT/PRAIRIE DOG’ 1. (genera *Tamias*, *Eutamias*, *Neotamias*) chipmunk 2. (genus *Marmota*) marmot 3. (genus *Cynomys*) prairie dog

**-BZL-** ‘SQUIRREL’ 1. (genera *Spermophilus*, *Uroditellus*, *Notoditellus*, *Ammospermophilus*, *Otospermophilus*, *Callospermophilus*, *Xerospermophilus*, *Ictidomys*, *Atlantoxerus*, *Xerus*, *Spermophilopsis*, *Epixerus*, *Funisciurus*, *Heliosciurus*, *Myosciurus*, *Paraxerus*, *Protoxerus*, *Callosciurus*, *Dremomys*, *Exilisciurus*, *Glyphotes*, *Hyosciurus*, *Lariscus*, *Menetes*, *Nannosciurus*, *Prosciurillus*, *Rhinosciurus*, *Rubrisciuris*, *Sundasciurus*, *Tamiops*, *Funambulus*, *Ratufa*) ground squirrel, Asian ornate squirrel, Oriental giant squirrel 2. (genera *Sciurus*, *Rheithrosciurus*, *Microsciurus*, *Scirillus*, *Tamiasciurus*, *Sciurillus*) tree squirrel, neotropical pygmy squirrel 3. (genera *Eoglacomys*, *Glaucomys*, *Hylomys*, *Petaurillus*, *Petinomys*, *Aeretes*, *Aeromys*, *Belomys*, *Biswamoyopterus*, *Eupetaurus*, *Petaurista*, *Pteromys*, *Pteromyscus*, *Trogopterus*) flying squirrel

**-BZR-** ‘VOLE/LEMMING/MUSKRAT’ 1. (genera *Arvicola*, *Blanfordimys*, *Chionomys*, *Lasiopodomys*, *Lemmingscus*, *Microtus*, *Neodon*, *Phaiomys*, *Proedromys*, *Volemys*, *Ellobius*, *Alticola*, *Caryomys*, *Eothenomys*, *Hyperacrius*, *Myodes*, *Dinaromys*, *Prometheomys*, *Arborimus*, *Phenacomys*) vole, water vole, mole-vole, snow vole, tree vole, heather vole 2. (genera *Lemmus*, *Lagurus*, *Eolagurus*, *Dicrostonyx*, *Myopus*, *Synaptomys*) lemming, steppe lemming, bog lemming, collared lemming 3. (genera *Ondatra*, *Neofiber*) muskrat

**-BZŔ-** ‘HAMSTER’ 1. (genera *Cricetus*, *Allocricetulus*, *Cansumys*, *Tscherskia*) hamster 2. (genus *Mesocricetus*) golden hamster 3. (genera *Cricetulus*, *Phodopus*) dwarf hamster

**-BZM-** ‘RAT’ 1. (Murid/Old world rats; Murines, Lophiomyines, Leimacomyines; numerous genera) rat 2. (Sigmodontine and Tylomyine New World/South American rats; numerous genera) cotton rat, rice rat, marsh rat, fish-eating rat, water rat, forest rat, swamp rat, bunny rat, conyrat, tapecua, giant rat, vesper rat, climbing rat 3.

(Neotomine, Nyctomyine, Nesomyid and Deomyine rats; numerous genera) woodrat, isthmus rat, hamster-rat, pouched rat, giant pouched rat, antsangy, tufted-tail rat, short-tailed rat, brush-furred rat, link rat

**-BZN-** ‘MOUSE’ 1. (Murid/Old world mice; numerous genera) mouse 2. (Sigmodontine/New World/South American mice; numerous genera) South American water mouse, bristly mouse, spiny mouse, cane mouse, montaine mouse, arboreal mouse, climbing mouse, Oldfield mouse, grass mouse, long-clawed mouse, brucie, bolo mouse, hocidudo, cerrado mouse, chaco mouse, vesper mouse, big-eared mouse, chincilla mouse, gerbil mouse, leaf-eared mouse 3. (Neotomine, Nesomyid, and Deomyine mice; numerous genera) pygmy mouse, deer mouse, harvest mouse, grasshopper mouse, pouched mouse, climbing mouse, African fat mouse, big-footed mouse, island mouse, voalavo, rock mouse, pygmy rock mouse, brush-furred mouse, spiny mouse

**-BZV-** ‘DORMOUSE’ 1. (genera *Glirulus*, *Glis*) dormouse 2. (genus *Graphiurus*) African dormouse 3. (genera *Chaetocauda*, *Dryomys*, *Eliomys*, *Muscardinus*, *Myomimus*, *Selevinia*) Asian dormouse

**-BZMW-** ‘PORCUPINE’ 1. (genera *Hystrix*, *Atherurus*, *Trychis*) Old World Porcupine 2. (genus *Erethizon*) North American porcupine 3. (genera *Coendou*, *Chaetomys*) South American prehensile-tailed porcupine, Brazilian bristle-spined porcupine

**-BZMY-** ‘GOPHER’ 1. (genera *Cratogeomys*, *Pappogeomys*, *Thomomys*, *Zygogeomys*) western & Mexican pocket gopher 2. (genus *Geomys*) eastern pocket gopher 3. (genus *Orthogeomys*) giant pocket gopher, taltuza

**-BZML-** ‘HETEROMYID’ 1. (genus *Heteromys*) spiny pocket mouse 2. (genera *Dipodomys*, *Microdipodops*) kangaroo rat, kangaroo mouse 3. (genera *Perognathus*, *Chaetodipus*) pocket mouse

**-BZMR-** ‘DIPODID’ 1. (genus *Sicista*) birch mouse 2. (genera *Eozapus*, *Napaeozepus*, *Zapus*) jumping mouse 3. (genera *Allactaga*, *Allactodipus*, *Pygeretmus*, *Cardiocranius*, *Salpingotulus*, *Salpingotus*, *Dipus*, *Eremodipus*, *Jaculus*, *Stylodipus*, *Paradipus*, *Euchoreutes*) jerboa

**-BZMR-** ‘PLATACANTHOMYID’ 1. (genus *Platacanthomys*) spiny dormouse 2. (genus *Typhlomys*) Chinese pygmy dormouse

**-BZVW-** ‘SPALACID’ 1. (genera *Myospalax*, *Eospalax*) zokor 2. (genera *Rhizomys*, *Cannomys*, *Tachyoryctes*) bamboo rat (a.k.a., root rat), African mole-rat 3. (genus *Spalax*) blind mole-rat

**-BZVL-** ‘OTHER RODENT’ 1. (genus *Calmyscus*) mouse-like hamster 2. (genus *Pedetes*) springhare 3. (genus *Petromus*) dassie rat

**-BZVR-** ‘GERBIL / JIRDS / TATERIL’ 1. (genera *Dipodillus*, *Pachyuromys*, *Desmodilliscus*, *Ammodillus*, *Gerbillus*, *Microdillus*, *Desmodillus*, *Gerbilliscus*, *Gerbillurus*) gerbil, pygmy gerbil 2. (genera *Brachionis*, *Merionis*, *Psammomys*, *Rhombomys*, *Sekeetamys*) jird, sand rat 3. (genus *Taterillus*) tateril

**-BZVŘ-** ‘ANOMALURINE SCALY-TAILED FLYING SQUIRREL’ 1. (genus *Anomalurus*) scaly-tailed flying squirrel 2. (genus *Idiurus*) long-eared flying mouse, pygmy scaly-tailed flying squirrel, 3. (genus *Zenkerella*) Cameroon scaly-tail

**-BZVY-** ‘NICHE AFRICAN RODENT’ 1. (genera *Ctenodactylus*, *Felovia*, *Massoutiera*, *Pectinator*) gundi 2. (genus *Thryonomys*) cane rat 3. (genera *Georychus*, *Cryptomys*, *Fukomys*, *Heliophobius*, *Bathyergus*) blesmol / mole-rat

**-BZD-** ‘CHINCHILLA/VISCACHA/PACARANA’ 1. (genus *Chinchilla*) chinchilla 2. (genera *Lagidium*, *Lagostomus*) viscacha 3. (genus *Dinomys*) pacarana

**-BZDL-** ‘AGOUTI / ACOUCHI / PACA’ 1. (genus *Dasyprocta*) agouti 2. (genus *Myoprocta*) acouchi 3. (genus *Cuniculus*) paca

**-BZDR-** ‘GUINEA PIG / CAVY / CAPYBARA’ 1. (genera *Cavia*, *Galea*, *Microcavia*) guinea pig / cavy 2. (genus *Dolichotis*) Patagonian cavy (a.k.a. mara) 3. (genera *Hydrochoerus*, *Kerodon*) capybara, rock cavy

**-BZDŘ-** OCTODONTID RODENT 1. (genus *Aconaemys*) Andean rock rat 2. (genera *Octodon*, *Octodontomys*,) degu 3. (genera *Octomys*, *Pipanacoctomys*, *Tympanoctomys*) viscacha rat

**-BZDW-** ‘ECHIMYID RODENT’ 1. (numerous genera) spiny rat, spiny tree-rat, punaré, armored rat, guiara 2. (genera *Capromys*, *Geocapromys*, *Mesocapromys*, *Mysateles*, *Plagiodontia*) hutia 3. (genus *Myocastor*) nutria/coypu

**-BZDY-** ‘OTHER SOUTH AMERICAN RODENT’ 1. (genus *Ctenomys*) tuco-tuco 2. (genera *Abrocoma*, *Cuscomys*) chinchilla-rat 3. (genus *Spalocopus*) coruro

## Bats

**-BH-** ‘BAT’ 1. (Microchiroptera; numerous genera) [micro]bat 2. (Megachiroptera; numerous genera) [mega]bat / fruit-bat [other than flying fox] 3. (genera *Pteropus*, *Acerodon*) flying fox

## Treeshrews

**-JÑW-** ‘TREESHREW’ 1. (genus *Anathana*) Indian treeshrew 2. (genera *Dendrogale*, *Tupaia*, *Urogale*) Asian treeshrew 3. (genus *Ptilocercus*) pen-tailed treeshrew

## Apes and Monkeys [for genus *Homo*, use the root **-L-** given earlier]

**-LGW-** ‘APE’ 1. (genus *Pan*) chimpanzee 2. (genus *Gorilla*) gorilla 3. (genus *Pongo*) orangutan

**-LGY-** ‘GIBBON’ 1. (genera *Hylobates*, *Nomascus*) dwarf gibbon, crested gibbon 2. (genus *Hoolock*) hoolock gibbon 3. (genus *Symphalangus*) siamang

**-LGL-** ‘LEMUR’ 1. (genera *Lemur*, *Eulemur*, *Varecia*, *Hapalemur*, *Prolemur*, *Lepilemur*, *Indri*, *Avahi*, *Propithecus*, *Daubentonia*) lemur, indri, sifaka, aye-aye 2. (genera *Cheirogaleus*, *Microcebus*, *Mirza*, *Allocebus*, *Phaner*) dwarf lemur, mouse lemur 3. (genera *Cynocephalus*, *Gaelopterus*) colugo [flying lemur]

**-LGR-** ‘BABOON/MACAQUE/MANGAGEY’ 1. (genus *Papio*) baboon 2. (genus *Macaca*) macaque 3. (genera *Lophocebus*, *Cercocebus*) mangabey

**-LGŘ-** ‘OTHER BABOON-LIKE MONKEY’ 1. (genus *Mandrillus*) drill, mandrill 2. (genus *Theropithecus*) gelada 3. (genus *Rungwecebus*) kipunji

**-LGZW-** ‘COLOBUS MONKEY’ 1. (genus *Colobus*) black-and-white colobus 2. (genus *Piliocolobus*) red colobus 3. (genus *Procolobus*) olive colobus

**-LGZY** ‘LANGUR/LUTUNG/ SURILLI’ 1. (genera *Trachypithecus*, *Simias*) lutung/langur/leaf monkey, pig-tailed langur 2. (genus *Semnopithecus*) gray langur 3. (genus *Presbytis*) surilli

**-LGZL-** ‘ODD-NOSED MONKEY’ 1. (genus *Pygathrix*) douc 2. (genus *Rhinopithecus*) snub-nosed monkey 3. (genus *Nasalis*) proboscis monkey

**-LGZR-** ‘CAPUCHIN/SQUIRREL MONKEY’ 1. (genus *Cebus*) [gracile] capuchin monkey 2. (genus *Sapajus*) [robust] capuchin monkey 3. (genus *Saimiri*) squirrel monkey

**-LGZŘ-** ‘CERCOPITHECINE MONKEY’ 1. (genus *Cercopithecus*) guenon, mona monkey 2. (genus *Miopithecus*) talapoin 3. (genera *Chlorocebus*, *Allenopithecus*, *Erythrocebus*) grivet, vervet, malbrouck, swamp monkey, patas monkey

**-LGZM-** ‘LORIS/POTTO/ANGWANTIBO’ 1. (genera *Loris*, *Nycticebus*) loris 2. (genera *Perodicticus*, *Pseudopotto*) potto, false potto 3. (genus *Arctocebus*) angwantibo

**-LGZN-** ‘GALAGO/BUSHBABY’ 1. (genera *Galago*, *Galagoides*) galago/bushbaby 2. (genus *Euoticus*) needle-clawed bushbaby 3. (genera *Otolemur*, *Sciurocheirus*) greater galago / thick-tailed bushbaby / squirrel galago

**-LGZG-** ‘TARSIER’ 1. (genus *Tarsius*) [South-East Asian] tarsier 2. (genus *Cephalopachus*) western tarsier 3. (genus *Carlito*) Philippine tarsier

**-LGZD-** ‘MARMOSET/TAMARIN’ 1. (genera *Cebuella*, *Callibella*, *Mico*, *Callithrix*, *Callimico*) marmoset 2. (genus *Saguinus*) tamarin 3. (genus *Leontopithecus*) lion tamarin

## Seals, Sea Lions & Walrus

**-VXL-** ‘PHOCID (“EARLESS”/ “TRUE”) SEAL’ 1. (Arctic/Northern seals: genera *Phoca*, *Pusa*, *Halichoerus*, *Histiophoca*, *Pagophilus*, *Erignathus*, *Cystophora*) seal 2. (Antarctic seals: genera *Mirounga*, *Ommatophoca*, *Hydrurga*, *Leptonychotes*, *Lobodon*) [Antarctic] seal 3. (tropical seals: genera *Monachus*, *Neomonachus*) monk seal

-**VXR**- ‘OTARIID (“EARED”) SEAL’ 1. (genera *Arctocephalus*, *Callorhinus*) fur seal 2. (genera *Neophoca*, *Phocarcos*, *Zalophus*, *Otaria*, *Eumetopias*) sea lion 3. (genus *Odobenus*) walrus

### Pangolins

-**ZDW**- ‘PANGOLIN (Scaly Anteaters)’ 1. (genus *Manis*) Asian scaly anteater 2. (genus *Phataginus*) African tree pangolin and long-tailed pangolin 3. (genus *Smutsia*) African giant pangolin and ground pangolin

### Elephant Shrews, Sengis

-**ZKT**- ‘ELEPHANT SHREW / SENGI’ 1. (genus *Elephantulus*) ‘elephant shrew’ 2. (genera *Macroscelides*, *Petrodomus*, *Petrosaltator*) sengi 3. (genus *Rhynchocyon*) checkered elephant shrew / giant sengi

### Tenrecs

-**ZKTW**- ‘TENREC’ 1. (genus *Tenrec*) common tenrec 2. (genera *Microgale*, *Nesogale*) shrew tenrec 3. (genera *Geogale*, *Setifer*, *Hemicentetes*, *Echinops*, *Oryzorictes*) large-eared tenrec, hedgehog tenrec, streaked tenrec, rice tenrec

-**ZKTY**- ‘AFRICAN INSECTIVORE (other than tenrecs)’ 1. (genus *Orycteropus*) aardvark 2. (genera *Potamogale*, *Micropotamogale*) otter shrew 3. (Chrysochloridae; numerous genera) golden mole

### Elephants

-**GM**- ‘ELEPHANT/MAMMOTH’ 1. (genus *Loxodonta*) African elephant 2. (genus *Elephas*) Asian elephant 3. (genus *Mammuthus*) mammoth

-**GMW**- ‘HYRAX’ 1. (genus *Procavia*) rock hyrax 2. (genus *Heterohyrax*) bush hyrax 3. (genus *Dendrohyrax*) tree hyrax

-**GMY**- ‘MANATEE/DUGONG’ 1. (genus *Trichechus*) manatee / sea cow 2. (genus *Dugong*) dugong 3. (genus *Hydrodamalis*) Steller’s sea cow

### Armadillos

-**VCW**- ‘ARMADILLO’ 1. (Tolypeutines and Dasypodides; genera *Cabassous*, *Priodontes*, *Tolypeutes*, *Dasypus*) naked-tailed armadillo, giant armadillo, three-banded armadillo, long-nosed armadillo 2. (Euphractines; genera *Eupractus*, *Zaedyus*, *Chaetophractus*) hairy armadillo, six-banded armadillo, pichi 3. (Clamyphorines; genera *Calyptophractus*, *Chlamyphorus*) fairy armadillo

### (New World) Anteaters and Sloths

-**NDW**- ‘(NEW WORLD) ANTEATER’ 1. (genus *Myrmecophaga*) giant anteater 2. (genus *Cyclopes*) silky anteater 3. (genus *Tamandua*) tamandua

-**NDY**- ‘SLOTH’ 1. (genus *Bradypus*) three-toed sloth 2. (*Choloepus didactylus*) Linnaeus’ two-toed sloth / unau 3. (*Choloepus hoffmanni*) Hoffmann’s two-toed sloth

### Opossums

-**MZTL**- ‘OPOSSUM’ 1. (numerous sub-families and genera) opossum 2. (genera *Caenolestes*, *Lestoros*, *Rhyncholestes*) shrew opossum (a.k.a. rat opossum, caenolestid) 3. (genus *Dromiciops*) colocolo opossum (a.k.a. monito del monte)

## Marsupials

- RDK** - 'DASYURINE MARSUPIAL' 1. (genus *Dasyurus*) quoll 2. (genus *Myoictis*) dasyure 3. (genus *Neophascogale*) speckled dasyure
- RDKW** - 'OTHER DASYURINE MARSUPIAL' 1. (genus *Dasyercus*) mulgara 2. (genus *Dasykaluta*) kaluta 3. (genus *Dasyuroides*) kowari
- RDKY** - 'MORE DASYURINE MARSUPIAL' 1. (genus *Pseudantechinus*) false antechinus 2. (genus *Phascosorex*) marsupial shrew 3. (genus *Parantechinus*) dibbler
- RDKL** - 'PHASCOGALINE MARSUPIAL' 1. (genus *Antechinus*) antechinus 2. (genus *Phascogale*) phascogale / wambenger 3. (genera *Micromurexia*, *Murexechinus*, *Murexia*, *Paramurexia*, *Phascomurexia*) Habbema dasyure, black-tailed dasyure, short-furred dasyure, broad-striped dasyure, long-nosed dasyure
- RDKR** - 'SMINTHOPSINE MARSUPIAL' 1. (genus *Sminthopsis*) dunnart 2. (genus *Planigale*) planigale 3. (genera *Antechinomys*, *Ningaui*) kultarr, ningau
- RDKR** - 'OTHER DASYUROMORPHS' 1. (genus *Sarcophilus*) Tasmanian devil 2. (genus *Myrmecobius*) numbat 3. (genus *Thylacinus*) thylacine [Tasmanian tiger]
- RDKF** - 'PHALANGERIFORM POSSUM' 1. (Phalangerides; numerous genera) cuscus 2. (Trichosurines; genera *Trichosurus*, *Wyulda*) brushtail possum, scaly-tailed possum 3. (Burramyides; genera *Burramys*, *Cercartetus*) pygmy possum
- RDKT** - 'PETAUROID POSSUM' 1. (Pseudocheirides; numerous genera) ring-tailed possum 2. (Petaurides; genera *Dactylopsila*, *Gymnobelideus*, *Petaurus*) triok, glider 3. (Tarsipedes and Acrobatides; genera *Tarsipes*, *Acrobates*, *Distoechurus*) honey possum, feathertail glider, feather-tailed possum

## Bandicoots and Bilbies

- KTXW** - 'PERAMELEMORPH & NOTORYCTEMORPH' 1. (Peramelines; numerous genera) bandicoot 2. (genus *Macrotis*) bilby 3. (genus *Notoryctes*) marsupial mole

## Wombats and Koalas

- LJXW** - 'WOMBAT/KOALA' 1. (genus *Vombatus*) common wombat 2. (genus *Lasiorhinus*) hairy-nosed wombat 3. (genus *Phascolarctos*) koala

## Kangaroos, Wallaroos, Wallabies

- LMKW** - 'KANGAROO/WALLAROO/WALLABY (genera *Macropus*, *Onychogalea*, *Wallabia*)' 1. kangaroo 2. wallaroo 3. wallaby
- LMKY** - 'POTOROIFORM' 1. (genera *Aepyprymnus*, *Hypsiprymnodon*) rat-kangaroo, musky rat-kangaroo 2. (genus *Bettongia*) bettong 3. (genus *Potorous*) potoroo
- LMKL** - 'OTHER MACROPODID' 1. (genus *Dendrolagus*,) tree-kangaroo, dingiso, tenkile 2. (genera *Dorcopsis*, *Dorcopsulus*, *Lagorchestes*) dorcopsis, hare-wallaby 3. (genus *Lagostrophus*) banded hare-wallaby/mernine/munning
- LMKR** - 'OTHER MACROPODINE' 1. (Genus *Petrogale*) rock-wallaby, monjon, nabarlek 2. (Genus *Setonix*) quokka 3. (Genus *Thylogale*) pademelon

## Monotremes

- LCXW** - 'MONOTREME' 1. (genus *Ornithorhynchus*) platypus 2. (genus *Tachyglossus*) short-beaked echidna 3. (genus *Zaglossus*) long-beaked echidna



### 7.3.1.2 Reptiles

#### Turtles

**-ZZC-** ‘TURTLE/TORTOISE’ 1. (Pleurodira turtles; numerous genera) snake-necked, side-necked, twist-necked, swamp, snapping, big-headed, helmeted turtle 2. (Polycryptodira turtles [except tortoises]; numerous genera) [pond, box, water, river, leaf, roofed, mud, sea, leatherback, softshell, pignose] turtle 3. (Testudinides; numerous genera) tortoise

**Lizard-Like Animals** [NOTE: To refer to “lizard” as a generic or catch-all term, use Stem 1 of the root **-ZZ-** shown in Sec. 17.0 above.]

**-ZZW-** ‘PLEURODONTINE LIZARD’ 1. (iguanide, liolaemid, and oplurine lizards; numerous genera) iguana, chuckwalla 2. (crotaphytine, hoplocercine, phrynosomatine, polychrotine, and leiosaurid lizards; numerous genera) [collared, leopard, wood, clubtail, earless, spiny, tree, side-blotched, horned] lizard 3. (tropidurides; numerous genera) neotropical ground lizard, lava lizard, Pacific iguana, whorltail iguana, thornytail iguana

**-ZZY-** ‘DISTINCTIVE PLEURODONTINE LIZARD’ 1. (corytophanides; genera *Basiliscus*, *Corytophanes*, *Laemantus*) basilisk, helmeted iguana, casquehead iguana 2. (dactyloids and polychrotides; numerous genera) anole 3. (genus *Leiocephalus*) curly tailed lizard

**-ZZL-** ‘AGAMIDE LIZARD’ 1. (agamide and uromastigine lizards; numerous genera) frilled lizard, agama, mastigure, dabb lizard 2. (amphibolurine, draconine, and hydrosaurine lizards; numerous genera) dragon lizard, fan-throated lizard, lyreshead lizard, gliding lizard, sailfin lizard 3. (leiolepidines; numerous genera) butterfly lizards

**-ZZR-** ‘OTHER IGUANA-LIKE ANIMAL’- 1. (chamaeleonide lizards; numerous genera) chameleon 2. (genus *Sphenodon*) tuatara 3.

**-ZZŘ-** ‘PALEOANGUIMORPH’ 1. (genera *Veranus*, *Lanthanotus* [other than *V. veranus komodoensis*]) monitor lizard 2. (*V. veranus komodoensis*) komodo dragon 3. (genus *Shinisaurus*) Chinese crocodile lizard

**-ZZM-** ‘NON-ANGUIOID NEOANGUIMORPH’ 1. (genus *Heloderma* [other than species *H. suspectum*]) beaded lizard 2. (*Heloderma suspectum*) gila monster 3. (genus *Xenosaurus*) knob-scaled lizard

**-ZZN-** ‘ANGUIOID’ 1. (genera *Celestus*, *Diploglossus*) galliwasp 2. (anguines and anniellids; several genera) slowworm, glass lizard, scheltopusik, American legless lizard 3. (genera *Gerrhonotus*, *Abronia*, *Elgaria*) alligator lizard

**-ZZF-** ‘TEIFORM LIZARD’ 1. (Teiine lizards; numerous genera) jungle-runner, whiptail lizard, desert tegu 2. (Tupinambine lizards; several genera) false monitor, Caiman lizard, tegu 3. (gymnophthalmids; numerous genera) spectacled lizard / microteiid

**-ZZV-** ‘LACERETIBAENIAN LIZARD’ 1. (Lacertid lizards; numerous genera) wall lizard, true lizard, lacerta 2. (Amphisbaenian legless lizards; numerous genera) worm lizard 3. (genus *Bipes*) Mexican mole lizard

#### Skinks

**-ZZÑ-** ‘SCINCIFORM LIZARD’ 1. (Scincids; numerous genera) skink 2. (Gerrhosaurids and Cordylides; several genera) plated lizard, girdled lizards/spinytail lizards 3. (Xantusiids; genera *Cricosaura*, *Lepidophyma*, *Xantusia*) night lizard

#### Geckos & Close Relatives

**-ZZH-** ‘GECKO (and genetically-related creatures)’ 1. (carphodactylids; numerous genera) gecko 2. (pygopodides; several genera) legless lizard, snake-lizard, flap-footed lizard 3. (dibamides; genera *Dibamus*, *Anelytropsis*) blind skink

**Snakes** [NOTE: To refer to “snake” as a generic or “catch-all” term, use Stem 2 of the root **-ZZ-** shown earlier.

**-ZZG-** ‘PYTHON-LIKE SNAKE’ 1. (Pythonids; several genera) python 2. (genus *Xenopeltis*) sunbeam snake 3. (genus *Loxocemus*) Mexican python

**-ZZB-** ‘BOA-LIKE SNAKE’ 1. (Boids; numerous genera) boa, anaconda 2. (genus *Xenophidion*) spinejaw snake 3. (genera *Bolyeria*, *Casarea*) splitjaw snake

**-ZZD-** ‘VIPER’ 1. (Viperines; numerous genera) [true or pitless] viper 2. (Crotalines; numerous genera) pit viper, lancehead, rattlesnake, moccasin, bushmaster, temple viper 3. (genus *Azemiops*) Fea’s viper

**-ZZT-** ‘LESSER-KNOWN PROTEROGLYPH SNAKE’ 1. (Homalopsids; numerous genera) Indo-Australian water snake, mudsnake, bockadam 2. (Colubrids; numerous genera) colubrid snake 3. (Lamprophiids; numerous genera) lamprophiid snake

**-ZZP-** ‘RARE CAENOPHID SNAKE’ 1. (genus *Acrochordus*) wart snake/ file snake/ elephant trunk snake/ dogface snake 2. (Xenodermids; several genera) xenodermid snake 3. (Pareids; several genera) pareid snake

**-ZZK-** ‘ELAPID SNAKE’\* 1. (genera *Aspidelaps*, *Boulengerina*, *Dendroaspis*, *Hemachatus*, *Naja*, *Ophiophagus*, *Pseudohaje*, *Walterinnesia*) cobra, mamba, rinkhal, asp 2. (genera *Calliophis*, *Hemibungaris*, *Micruroides*, *Micrurus*, *Salomonelaps*, *Simoselaps*) coral snake 3. (numerous genera) other elapid snake (e.g., krait, sea snake, mudsnake, black snake, king brown snake, taipan, bola, tiger snake, harlequin snake, swamp snake, African garter snake, grass snake, bardick, whipsnake, copperhead, adder)

\* Note that the tripartite division of stems for this root is based on traditional morphological/behavioral criteria rather than contemporary scientific (i.e., genetic) criteria, as recent genetic analyses do not support such divisions among elapid snakes.

**-ZZQ-** ‘NON CAENOPHID and NON-CONSTRICTING BOOIDE SNAKE’ 1. (Scolophorids and Anomalepidids; numerous genera) blind snake, thread snake, dawn blind snake 2. (Cylindrophids, Anomochids, and Aniliids; numerous genera) pipe snake 3. (Uropeltids; several genera) shield-tailed snake

## Crocodylians

**-GZW-** ‘CROCODYLIAN’ 1. (genera *Crocodylus*, *Osteolaemus*, *Mecistops*) crocodile 2. (genera *Alligator*, *Caiman*, *Paleosuchus*) alligator, caiman 3. (genera *Gavialis*, *Tomistoma*) gharial, false gharial

## Extinct Sauropsids (including Dinosaurs)

**-GZY-** ‘SAUROPSID’ 1. (Avemetarsalians other than birds) dinosaur, pterosaur, aphanosaur 2. (all extinct Eureptilia other than Avemetarsalia) extinct non-dinosaurian reptile 3. parareptile (extinct non-reptilian sauropsid, i.e., mesosaur, millerettid, procolophonid, pareiasaur)

### 7.3.1.3 Amphibians

**-NXL-** ‘FROG/TOAD’ 1. (Neobatrachians [other than Bufonids] and Mesobatrachians; numerous genera) frog 2. (Bufonids; numerous genera) toad 3. (Archaeobatrachians; numerous genera) small primitive frog/toad

**-NXR-** ‘SALAMANDER/NEWT/SIREN’ 1. (Salamandrids, Cryptobranchids and Hynobiids; numerous genera) [mole, lungless, torrent, giant, Asiatic] salamander, mudpuppy/olm 2. (Pleurodelines; numerous genera) newt 3. (genera *Siren*, *Pseudobranchius*) siren, dwarf siren

### 7.3.1.4 Birds

-**NSD**- ‘PALEOGNATH’ I 1. (Struthionids; genus *Struthio*) ostrich 2. (Rheids; genus *Rhea*) rhea 3. (Dromaiids; genus *Dromaius*) emu

-**NSDW**- PALEOGNATH’ II 1. (Casuariids; genus *Casuarius*) cassowary 2. (Apterygids; genus *Apteryx*) kiwi 3. (Tinamids; genus *Tinamus*) tinamou

-**NSDY**- ‘MEGAPODIID (BRUSHTURKEY/SCRUBFOWL)’ 1. (Alecturines; genera *Talegalla*, *Alectura*, *Aepypodius*) brushturkey 2. (genus *Leipoa*) malleefowl 2. (Megapodiids; genera *Macrocephalon*, *Eulipoa*, *Megapodius*) scrubfowl, maleo, megapode

-**NSDL**- ‘CRACID (GUAN & CURASSOW)’ 1. (Cracida - Penelopines and Orthalidines; several genera) guan, chachalaca 2. (Oreophasines; genus *Oreophasis*) horned guan 3. (Cracini; several genera) curassow

-**NSDR**- ‘ODONTOPHORID & NUMIDID (NEW WORLD QUAIL & GUINEAFOWL)’ 1. (Odontophorines; numerous genera) New World quail 2. (Ptilopachines; genus *Ptilopachus*) stone partridge, Nahan’s partridge 3. (Numidids; several genera) guineafowl

-**NSP**- ‘CHICKEN & TURKEY’ 1. (*Gallus gallus domesticus*) chicken 2. (genus *Gallus* other than *G. g. domesticus*) junglefowl 3. (genus *Meleagris*) turkey, wild turkey, ocellated turkey

-**NSPW**- ‘TETRAOGALLINE (PARTRIDGE / QUAIL)’ 1. (genera *Coturnix*, *Anurophasis*, *Synoicus*, *Excalfactoria*, *Ophrysia*, *Perdicula*) quail 2. (genera *Ammoperdix*, *Margaroperdix*, *Alectoris*) [Old World] partridge 3. (genus *Tetraogallus*) snowcock

-**NSPY**- ‘OTHER PARTRIDGE-LIKE BIRD’ 1. (Rollulines; several genera) Asiatic partridge / jungle partridge / wood partridge 2. (Tetraogallines and Perdicines - genera *Pternistis*, *Dendroperdix*, *Francolinus*, *Galloperdix*, *Peliperdix*, *Scleroptila*) francolin, spurfowl 3. (other Perdicines; genera *Arborophila*, *Bambusicola*, *Haematortyx*, *Lerwa*, *Perdix*, *Tetraophasis*, *Tropicoperdix*) partridge, monal-partridge

-**NSPL**- ‘PHASIANINE (PHEASANT)’ I 1. (genus *Phasianus*) [common] pheasant 2. (genus *Tragopan*) horned pheasant, tragopan 3. (genus *Ithaginis*) blood pheasant

-**NSPR**- ‘PHASIANINE (PHEASANT)’ II 1. (Pavonii; genera *Pavo*, *Afropavo*) peafowl (including peacock and peahen) 2. (Polyplectronini; genus *Polyplectron*) peacock-pheasant 3. (genus *Syrnaticus*) long-tailed pheasant

-**NSPŘ**- ‘PHASIANINE (PHEASANT)’ III 1. (genus *Argusianus*) great argus 2. (genus *Rheinardia*) crested argus 3. (genus *Catreus*) cheer pheasant / Wallich’s pheasant

-**NSPF**- ‘PHASIANINE (PHEASANT)’ IV 1. (genus *Chrysolophus*) ruffed pheasant, golden pheasant 2. (genus *Crossoptilon*) eared pheasant 3. (genus *Lophophorus*) monal

-**NSPV**- ‘PHASIANINE (PHEASANT)’ V 1. (genus *Lophura*) gallopheasant, fireback 2. (genus *Pucrasia*) koklass

-**NSPÇ**- ‘TETRAONINE (GROUSE)’ 1. (genera *Falcipennis*, *Dendragapus*, *Tetrao*, *Tetrastes*, *Bonasa*, *Centrocerus*) grouse, capercaillie 2. (genus *Lagopus*) ptarmigan 3. (genus *Tympanuchus*) prairie grouse, prairie chicken

-**NSG**- ‘DUCK’ I 1. (Anatines; numerous genera) dabbling duck, mallard, teal, shoveler, pintail, widgeon, gadwall, Asian/Madagascar/East African/Pacific duck 2. (Merginines; numerous genera) seaduck, merganser, smew, eider, scoter, goldeneye, bufflehead, long-tailed duck, harlequin duck 3. (Oxyurini; genera *Heteronetta*, *Nomonyx*, *Oxyura*) black-headed duck, masked duck, stiff-tailed duck

-**NSGW**- ‘DUCK’ II 1. (Dendrocynines; genera *Dendrocygna*, *Thalassornis*) whistling duck, white-backed duck 2. (Stictonettines; genus *Stictonetta*) freckled duck 3. (genus *Tachyeres*) steamer duck

-**NSGL**- ‘TADORNINE (SHELDUCK / SHELDGOOSE)’ 1. (genera *Tadorna*, *Radjah*, *Hymenolaimus*, *Merganetta*, *Malacorhynchus*, *Aix*, *Carina*, *callonetta*, *Chenonetta*, *Salvadorina*, *Sarkidiornis*) shelduck, blue duck, torrent duck, pink-eared duck, Mandarin duck, wood duck, Muscovy duck, ringed teal, maned duck, Salvadorini’s teal, knob-

billed duck 2. (genera *Alopochen*, *Neochen*, *Chloephaga*, *Cyanochen*, *Plectropterus*) sheldgoose, Egyptian goose, Orinoco goose, Andean goose, blue-winged goose, spur-winged goose 3. (genera *Aythya*, *Netta*, *Marmaronetta*) diving duck, pochard, scaup, canvasback, marbled teal

-**NSGY**- 'GOOSE' 1. (genus *Anser*) goose (including grey and white geese) 2. (genus *Branta*) black goose, Canada goose, barnacle goose, cackling goose, nene, brant 3. (genus *Cereopsis*) Cape Barren goose

-**NSGR**- 'SWAN' 1. (genus *Cygnus*) swan 2. (genus *Olor*) black-and-yellow-billed swan 3. (genus *Coscoroba*) coscoroba swan

-**NSGR**- 'ANSERIFORM' 1. (Anhimids; genera *Anhima*, *Chauna*) screamer 2. (Anseranatids; genus *Anseranas*) magpie goose 3. (genus *Nettapus*) pygmy goose

-**NSB**- 'DOVE' 1. (Turturini, Claravinae and Phabini except *Ocyphaps*, *Petrophassa*, *Leucosarcia*; several genera) dove 2. (Zenaidini; several genera) quail-dove, zenaida dove 3. (genera *Reinwardtoena*, *Turacoena*, *Macropygia*) cuckoo-dove

-**NSBW**- 'PIGEON' 1. (Raphini, Treronini, Ptilinopini; numerous genera) pigeon 2. (genus *Patagioenas*) American pigeon 3. (genera *Ocyphaps*, *Petrophassa*, *Leucosarcia*) phabine pigeon

-**NSBY**- 'OTHER COLUMBIFORM BIRD' 1. (Mesitornithids; genera *Monias*, *Mesitornis*) mesite 2. (Pteroclidids; several genera) sandgrouse

-**NSBL**- 'GRUIFORM' 1. (Gruids; genera *Grus*, *Belearica*) crane 2. (Aramids; genus *Aramus*) limpkin / carrao / courlan / crying bird 3. (Psophiids; genus *Psophia*) trumpeter

-**NSBR**- 'RALLID (RAIL)' I 1. (genera *Rallus*, *Lewinia*, *Gallirallus*, *Rallidula*, *Dryolimnas*, *Gymnocrex*, *Hypotaenidia*, *Pardirallus*, *Aramides*, *Himantornis*, *Megacrex*, *Coturnicops*) rail, weka 2. (genus *Crex*, *Anurolimnas*, *Mustelirallus*, *Amaurolimnas*, *Porzana*, *Aenigmatolimnas*, *Amaurornis*, *Gallinula*, *Myrcropygia*, *Laterallus*, *Mundia*, *Hapalocrex*) crake, sora, bush-hen, watercock 3. (genera *Gallinula*, *Paragallinula*, *Porphyrio*, *Tribonyx*) moorhen, marsh hen, gallinule, nativehen, waterhen / swamp chicken

-**NSBR**- 'RALLID (RAIL)' II 1. (genus *Canirallus*) grey-throated rail 2. (genus *Sarothrura*) flufftail 3. (genus *Rougetius*) Rouget's rail

-**NSBV**- 'HELIORNITHID (FINFOOT)' 1. (genus *Heliopais*) masked finfoot / Asian finfoot 2. (genus *Podica*) African finfoot 3. (genus *Heliornis*) sungrebe

-**NSBV**- 'OTIDIMORPH (CUCKOO / BUSTARD)' 1. (Cuculids; numerous genera) cuckoo, koel, malkoha, coua, yellowbill, roadrunner, coucal, ani 2. (Musophagids; several genera) turaco, go-away-bird, plantain-eater 3. (Otidids; numerous genera) bustard, florican, korhaan

-**NSDV**- 'CAPRIMULGIFORM (NIGHTJAR / NIGHTHAWK)' I 1. (Caprimulgines and Eurostopodines; numerous genera) nightjar, poorwill, whip-poor-will, pauraque 2. (Chordeilines; genera *Nyctiprogne*, *Chordeiles*, *Lurocalis*) nighthawk 3. (Aegothelids; genus *Aegothales*) owl-nightjar

-**NSGV**- 'CAPRIMULGIFORM (NIGHTJAR / NIGHTHAWK)' II 1. (Podargids; genera *Podargus*, *Batrachostomus*, *Rigidipenna*) frogmouth 2. (Nyctibiids; genus *Nyctibius*) potoo 3. (Steatornithids; genus *Steatornis*) oilbird

-**NSGV**- 'APODID (SWIFT / TREESWIFT)' 1. (Cypseloidini, Apodini, Collocaliini; several genera) swift, palm swift, swallow-tail swift, swiftlet 2. (Chaeturini; several genera) needletail, spinetail, spine-tailed swift 3. (Hemiprocnids; genus *Hemiprocne*) treeswift / crested swift

-**NSDV**- 'TROCHILID (HUMMINGBIRD)' 1. (Trochilines; numerous genera) hummingbird 2. (Phaethornithines; several genera) hermit, sicklebill, barbtrogon

-**NSBT**- 'CHARADRIIFORM' I 1. (Charadriids; genera *Pluvialis*, *Pluvianus*, *Charadrius*, *Thinornis*, *Plegadis*) plover 2. (Ibidorhynchids; genus *Ibidorhyncha*) ibisbill 3. (Charadriines, Anarhynchines, and Vanellines; genera *Oreopholus*, *Eurodromas*, *Peltohyas*, *Erythrogonus*, *Anarhynchus*, *Vanellus*) dotterel, wrybill, lapwing

-**NSBT**- 'CHARADRIIFORM' II 1. (Haematopodids; genus *Haematopus*) oystercatcher 2. (Recurvirostrids; genus *Recurvirostra*) avocet 3. (Recurvirostrids; genera *Cladorhynchus*, *Himantopus*) stilt

- NŠTY**- ‘CHIONIDIFORM’ 1. (Burhinids; genera *Burhinus*, *Esacus*) stone-curlew, thick-knee 2. (Chionids; genus *Chionis*) sheathbill / paddy 3. (Pluvianellids; genus *Pluvianellus*) Magellanic plover
- NŠTÇ**- ‘JACANID’ 1. (several genera except *Irediparra*) jacana 2. (genus *Irediparra*) lotusbird / lilytrotter / comb-crested jacana
- NŠTF**- ‘THINOCOROID’ 1. (Rostratulids; genera *Rostratula*, *Nycticryphes*) painted-snipe 2. (Thinocorids; genera *Attagis*, *Thinocorus*) seedsnipe 3. (Pedionomids; genus *Pedionomus*) plains-wanderer
- NŠTL**- ‘SCOLOPACID (SANDPIPER)’ I 1. (genera *Calidris*/*Eriola*/*Ereunetes*, *Bartramia*, *Actitis*, *Xenus*, *Prosobonia*) sandpiper, stint / peep, knot, sanderling, dunlin, ruff, surfbird 2. (genus *Numenius*) curlew, whimbrel 3. (genus *Limosa*) godwit
- NŠTR**- ‘SCOLOPACID (SANDPIPER)’ II 1. (genus *Arenaria*) turnstone 2. (genus *Phalaropus*) phalarope 3. (genus *Tringa*) tattler, yellowlegs, shank
- NŠTR̂**- ‘SCOLOPACINE (SNIPE)’ 1. (genera *Gallinago*, *Coenocorypha*, *Lymnocyrtus*) snipe, jacksnipe 2. (genus *Limnodromus*) dowitcher 3. (genus *Scolopax*) woodcock
- NŠTV**- ‘TURNICID & GLAREOLOID’ 1. (Turnicids; genera *Turnix*, *Ortyxelos*) buttonquail, quail-plover 2. (Dromadids; genus *Dromas*) crab-plover 3. (Glareolids; genera *Glareola*, *Siltia*, *Rhinoptilus*, *Cursorius*) pratincole, courser
- NŠTM**- ‘ALCOID (SKUA / PUFFIN / AUKLET)’ 1. (Stercorariids; genus *Stercorarius*) skua, jaeger 2. (Fratrunculines; genera *Fratruncula*, *Cerorhinca*) puffin, rhinoceros puffin 3. (Fratrunculines; genera *Aethia*, *Ptychoramphus*) auklet
- NŠTN**- ‘ALCINE (MURRE / GUILLEMOT / AUK)’ 1. (genera *Brachyramphus*, *Synthliboramphus*) murrelet 2. (genera *Cephus*, *Uria*) guillemot, murre / turr 3. (genera *Alle*, *Alca*) dovekie / little auk, razorbill / lesser auk
- NSDŘ**- ‘LAROID (GULL / TERN / NODDY / SKIMMER)’ 1. (Larines; numerous genera) gull / seagull, kittiwake 2. (Sternines and Gygines; numerous genera) tern 3. (Anoines and Rynchopines; genera *Anous*, *Rynchops*) noddy, skimmer
- NŠK**- ‘MIRADORNITHID’ 1. (Phoenicopterids; several genera) flamingo 2. (Podicipedids; several genera) grebe
- NŠKW**- ‘EURYPYGIMORPH’ 1. (Phaetontids; genus *Phaethon*) tropicbird 2. (Eurypygid; genus *Eurypyga*) sunbittern 3. (Rhynochetids; genus *Rhynochetos*) kagu
- NŠKY**- ‘PROCELLARIFORM (TUBENOSE)’ 1. (Gaviids; genus *Gavia*) loon / diver 2. (Diomedids; several genera) albatross, mollymawk 3. (Hydrobatids and Oceanitids; numerous genera) storm petrel
- NŠKL**- ‘PROCELLARIID (PETREL / PRION / SHEARWATER)’ 1. (genera *Macronectes*, *Fulmarus*, *thalassoica*, *Daption*, *Pagodroma*, *Pterodroma*) petrel, fulmar 2. (genera *Pachyptila*, *Halobaena*) prion 3. (genera *Calonectris*, *Puffinus*, *Ardenna*, *Bulweria*, *Pseudobulweria*, *Lugensa*, *Procellaria*) shearwater
- NŠKR**- ‘SPHENISCID (PENGUIN)’ 1. (genus *Aptenodytes*) king penguin, emperor penguin 2. (genus *Eudyptes*) crested penguin, rockhopper penguin, [macaroni penguin](#), [royal penguin](#), [fiordland penguin](#) 3. (genera *Spheniscus*, *Pygoscelis*, *Megadyptes*, *Eudyptula*) penguin, [Megallanic penguin](#), [Humboldt penguin](#), [Galápagos penguin](#), [African penguin](#), banded penguin, fairy penguin, [gentoo penguin](#), [Adélie penguin](#), [chinstrap penguin](#), [rump-legged penguin](#) / [brush-tailed penguin](#), [yellow-eyed penguin](#), [little penguin](#)
- NŠKR̂**- ‘CICONIID (STORK)’ 1. (genera *Mycteria*, *Ciconia*, *Ephippiorhynchus*, *Leptoptilos*) stork, adjutant 2. (genus *Anastomus*) openbill 3. (genus *Jabiru*) jabiru
- NŠKM**- ‘SULIFORM (BOOBY / GANNET / FRIGATEBIRD)’ I 1. (Sulids; genera *Sula*, *Papasula*) booby 2. (Sulids; genus *Morus*) gannet 3. (Fregatids; genus *Fregata*) frigatebird
- NŠKN**- ‘SULIFORM (CORMORANT / DARTER)’ II 1. (Phalacrocoracids; genera *Phalacrocorax*, *Microcarbo*) cormorant, shag 2. (Phalacrocoracids; genus *Leucocarbo*) blue-eyed shag 3. (Anhingids; genus *Anhinga*) darter, snakebird, water turkey
- NŠKÇ**- ‘PELECANIFORM’ 1. (Pelecanids; genus *Pelecanus*) pelican 2. (Scopids; genus *Scopus*) hamerkop 3. (Balaenicipitids; genus *Balaeniceps*) shoebill / whalehead

- ŇSKF**- ‘ARDEID (HERON / EGRET / BITTERN)’ 1. (Ardeines and Tigrionithines; numerous genera) heron 2. (Ardeines; genera *Egretta*, *Bubulcus*) egret, cattle egret 3. (Bosaurines; several genera) bittern
- ŇSKT**- ‘THRESKORNITHID (IBIS / SPOONBILL)’ 1. (Threskornithines; numerous genera) ibis 2. (Plataleines; genus *Platalea*) spoonbill
- ŇSD**- ‘VULTURE / CONDOR’ 1. (Catharids; genera *Cathartes*, *Coragyps*, *Sarcoramphus*) [New World] vulture 2. (Catharids; genera *Gymnogyps*, *Vultur*) condor 3. (Aegypiines and Gypaetines; several genera) [Old World] vulture
- ŇSDW**- ‘ACCIPITRIFORM & OPISTHOCOMID’ 1. (Pandionids; genus *Pandion*) osprey 2. (Sagittariids; genus *Sagittarius*) secretarybird 3. (Opisthocomids; genus *Opisthocomus*) hoatzin
- ŇSDY**- ‘ACCIPITRIID’ I 1. (Aquilines; numerous genera) eagle, hawk-eagle 2. (Haliaeetines; genus *Haliaeetus*) sea eagle, ern, fish eagle, bald eagle 3. (Circaetines; several genera) snake-eagle, serpent-eagle, bateleur
- ŇSDL**- ‘ACCIPITRIID’ II 1. (Milvines and Elanines; numerous genera) kite 2. (Pernines; several genera) honey buzzard, kite 3. (Harpiines; genera *Harpia*, *Morphnus*, *Harpyopsis*) harpy eagle, crested eagle
- ŇSDR**- ‘ACCIPITRIID’ III 1. (Buteonines; numerous genera) hawk, buzzard, buzzard-eagle 2. (Accipitrines and Melieraxines; several genera) hawk, goshawk, sparrowhawk 3. (Circines and Polyboroidines; genera *Circus*, *Polyboroides*) harrier, harrier-hawk
- MSKW**- ‘OWL’ 1. (Strigids; numerous genera) owl (including screech owls, eared owls, horned owls, eagle-owls) 2. (Tytonines; genus *Tyto*) barn owl, grass owl, masked owl 3. (Tytonines; genus *Phodilus*) bay owl
- MSKY**- ‘CORACIIMORPH’ 1. (Coliids; genera *Colius*, *Urocolius*) mousebird 2. (Leptosomids; genus *Leptosomus*) cuckoo roller / courol 3. (Trogonids; several genera) trogon, quetzal
- MSKL**- ‘BUCEROTIFORM’ 1. (Bucerotids and Bucorvids; numerous genera) hornbill, ground hornbill 2. (Phoeniculids [except *Rhinopomastus*] and Upupids; genera *Phoeniculus*, *Upupa*) hoopoe, wood hoopoe 3. (Pheonculids; genus *Rhinopomastus*) scimitarbill
- ŇSP**- ‘PICIDS (WOODPECKER)’ 1. (Picines; numerous genera) woodpecker 2. (Picumnines and Nesocitines; genera *Picumnus*, *Sasia*, *Nesocitites*) piculet 3. (Jyngines; genus *Jynx*) wryneck
- ŇSPW**- ‘PICIFORM’ I 1. (Indicatorids; several genera) honeyguide, honeybird 2. (Megalaaimids, Lybiids, Captonids, Semnornithids; numerous genera) barbet, toucan-barbet 3. (Ramphastids; several genera) toucan, toucanet, araçari
- ŇSPY**- ‘PICIFORM’ II 1. (Galbulids; several genera) jacamar 2. (Bucconids; genera *Notharchus*, *Bucco*, *Nystalus*, *Hypnelus*, *Malacoptila*, *Chelidoptera*) puffbird 3. (Bucconids; genera *Monasa*, *Hapaloptila*, *Nonnulla*, *Micromonacha*) nunbird, nunlet, monklet
- ŇSPL**- ‘CORACIIFORM’ I 1. (Coraciids; genera *Coracias*, *Eurystomus*) roller, dollarbird 2. (Brachypteraciids; several genera) ground roller 3. (Meropids; genera *Merops*, *Meropogon*, *Nyctyornis*) bee-eater
- ŇSPR**- ‘CORACIIFORM’ II 1. (Alcedinids; numerous genera) kingfisher, kookaburra 2. (Todids; genus *Todus*) tody 3. (Momotids; several genera) motmot
- ŇSPŘ**- ‘FALCONIFORM & CARIAMIFORM’ 1. (Falconines; several genera) falcon, falconet, kestrel, hobby, gyrfalcon 2. (Polyborines; several genera) caracara 3. (Cariamids; genera *Cariama*, *Chunga*) seriema
- ŇSPF**- ‘PSITTACOID (PARROT)’ 1. (Psittacoids; numerous genera) parrot, parakeet, macaw, amazon, rosella, bluebonnet, racket-tail 2. (Loriines; numerous genera) lory, lorikeet 3. (Melopsittacines; genus *Melopsittacus*) budgerigar / budgie
- ŇSPV**- ‘CACATUID (COCKATOO)’ 1. (Cacatuines; several genera) cockatoo, corella, galah 2. (Calyptrorhynchines; genus *Calyptrorhynchus*) black cockatoo 3. (Nymphicines; genus *Nymphicus*) cockatiel / weiro / quarrior

-**ÑSPÇ**- ‘STRIGOPOID (NEW ZEALAND PARROT)’ 1. (genus *Nestor*) kaka 2. (*N. notabilis*) kea 3. (genus *Strigops*) kakapo

-**ÑSGW**- ‘SAPAYOID & ACANTHISITTID BIRD’ 1. (Sapayoids; genus *Sapayoa*) sapayoa 2. (Acanthisittids; genus *Acanthisitta*) rifleman 3. (Acanthisittids; genus *Xenicus*) New Zealand rock wren

-**ÑSGY**- ‘EURYLAIMOID BIRD’ 1. (Eurylaimids and Calyptomenids; several genera) broadbill 2. (Pittids; genera *Pitta*, *Hydrornis*, *Erythropitta*) pitta 3. (Philepittids; genera *Philepitta*, *Neodrepanis*) asity, sunbird-asity

-**ÑSGL**- ‘TYRANNIOID BIRD’ I 1. (Piprids; numerous genera) manakin, tyrant-manakin, piprites 2. (Cotingids; numerous genera) cotinga, plantcutter, berryeater, fruiteater, cock-of-the-rock, bellbird, piha, fruitcrow, capuchinbird, umbrellabird 3. (Tityrids; numerous genera) sharpbill, flycatcher, mylobius, tityra, schiffornis, mourner, purpletuft, laniisoma, xenopsaris, becard

-**ÑSGR**- ‘TYRANNIOID BIRD’ II 1. (Tyrannids; numerous genera) flycatcher, tyrant, tyrannulet, kiskadee 2. (Platyrrhynchids; genus *Platyrrhinus*) spadebill 3. (Rhynchocyclids; genera *Rhynchocyclus*, *Tolmomyias*, *Ramphotrigon*) flatbill

-**ÑSBW**- ‘FORMICAROID BIRD’ I 1. (Melanopareiids; genus *Malanopareia*) crescentchest 2. (Thamnophilids; numerous genera) antbird, antshrike, antwren, antvireo 3. (Conopophagids; genera *Conopophaga*, *Pittasoma*) gnateater

-**ÑSBY**- ‘FORMICAROID BIRD’ II 1. (Grallariids; several genera) antpitta 2. (Rhynocryptids; numerous genera) tapaculo, huet-huet, turca, gallito, bamboowren, bristlefront 3. (Formicariids; genera *Formicarius*, *Chamaeza*) antthrush

-**ÑSBL**- ‘FURNARIID (NEOTROPICAL OVENBIRD)’ I 1. (Furnariini; numerous genera) neotropical ovenbird, hornero, reedhaunter, rushbird, streamcreeper, earthcreeper, barbtail, tuftedcheeks 2. (Pygarrhichnini plus *Xenops* and *Berlepschia*; several genera) treerunner, xenops, earthcreeper, palmcreeper 3. (Philydorini; numerous genera) foliage-gleaner, hookbill, treehunter, great xenops

-**ÑSBR**- ‘FURNARIID (NEOTROPICAL OVENBIRD)’ II 1. (Synallaxini; numerous genera) spintail, treerunner, rayadito, wiretail, tit-spinetail, thornbird, firweod-gatherer, brushrunner, cacholote, false canastero, wren-spinetail, prickletail, plushcrown, graveteiro, softtail, barbtail, reedhaunter 2. (Sclerurines; genera *Sclerurus*, *Geositta*) leafthosser, miner 3. (Dendrocolaptines; numerous genera) woodcreeper

-**ÑST**- ‘MENUROID BIRD’ 1. (Menurids; genus *Menura*) lyrebird 2. (Atrichornithids; genus *Atrichornis*) scrubbird

-**ÑSTW**- ‘CLIMACTERIOID BIRD’ 1. (Ptilonorhynchids; genera *Archboldia*, *Amblyomis*, *Prionodura*, *Sericulus*, *Ptilonorhynchus*, *Chlamydera*) bowerbird 2. (Ptilonorhynchids; genera *Ailuroedus*, *Scenopoeetes*) catbird 3. (Climacterids; genera *Climacteris*, *Cormobates*) Australian treecreeper

-**ÑSTY**- ‘MALURID (AUSTRALIAN WREN)’ 1. (Malurini; several genera) fairywren 2. (Stipiturini; genus *Stipiturus*) emu-wren 3. (Amytornithines; genus *Amytornis*) grasswren

-**ÑSTL**- ‘ACANTHIZID (AUSTRALIAN WARBLER)’ I 1. (genera *Sericornis*, *Aethomyias*, *Neosericornis*) scrubwren 2. (genus *Orescopus*) fernwren 3. (genera, *Hylacola*, *Calamanthus*) fieldwren, heathwren

-**ÑSTR**- ‘ACANTHIZID (AUSTRALIAN WARBLER)’ II 1. (genus *Acanthiza*) thornbill 2. (genus *Aphelocephala*) whiteface 3. (genus *Pachycare*) goldenface

-**ÑSTR**- ‘ACANTHIZID (AUSTRALIAN WARBLER)’ III 1. (genus *Gerygone*) gerygone 2. (genus *Acanthornis*) scrubtit 3. (genus *Smicornis*) weebill

-**ÑSTÇ**- ‘ACANTHIZID (AUSTRALIAN WARBLER)’ IV 1. (genus *Pyncoptilus*) pilotbird 2. (genus *Pyrrholaemus*) redthroat, speckled warbler 3. (genus *Origma*) rockwarbler, mouse-warbler

-**ÑSTM**- ‘MELIPHAGOID BIRD’ 1. (Dasyornithids; genus *Dasyornis*) bristlebird 2. (Pardalotes; genus *Pardalotes*) pardalote / peep-wren 3. (Meliphagids; numerous genera) honeyeater, myzomela, chat, friarbird, kikau, straightbill, wattlebird, melidectes, myza

-**ÑSTN**- ‘ORTHONYCHOID BIRD’ 1. (Orthonychids; Genus *Orthonyx*) logrunner 2. (*O. spaldingii*) chowchilla 3. (Pomatostomids; genus *Pomatostomus*) Australasian babbler / pseudo-babbler

- ŇSTF**- ‘CORVIFORM BIRD’ 1. (Cinclosomatids; genera *Cinclosoma*, *Ptilorrhoa*) quail-thrush, jewel-babbler 2. (Campephagids; numerous genera) cuckooshrike, triller, minivet 3. (Neosittids; genus *Daphoenositta*) sitella
- ŇSTV**- ‘MOHOUID (genus *Mohoua*)’ 1. (*M. albicilla*) whitehead 2. (*M. novaeseelandiae*) pipipi / brown creeper 3. (*M. ochrocephala*) yellowhead
- ŇSK**- ‘ORIOOLID’ 1. (genus *Oriolus*) oriole 2. (genus *Sphecotheres*) figbird 3. (genus *Pitohui*) pitohui
- ŇSKW**- ‘ORIOLOID BIRD’ I 1. (Pachycephalids; several genera) whistler, strike-thrush 2. (Oreocids; several genera) Australo-Papuan bellbird 3. (Falcunculids; genus *Falcunculus*) crested shriketit
- ŇSKY**- ‘ORIOLOID BIRD’ II 1. (Psophodids; genera *Psophodes*, *Androphobus*) whipbird, wedgebill 2. (Paramythyids; genera *Paramythia*, *Oreocharis*) painted berrypecker 3. (Eulacestomids; genus *Eulacestoma*) wattled ploughbill
- ŇSKL**- ‘VIREONID’ I 1. (genus *Vireo*) vireo 2. (genus *Vireolanius*) shrike-vireo 3. (genera *Hylophilus*, *Tunchiornis*, *Pachysylvia*) greenlet
- ŇSKR**- ‘VIREONID’ II 1. (genus *Cyclarhis*) peppershrike 2. (genus *Pteruthius*) shrike-babbler 3. (genus *Epornis*) white-bellied epornis
- ŇSKŘ**- ‘ARTAMID’ 1. (Artamines; genus *Artamus*) woodswallow 2. (Peltopsines; genus *Peltops*) peltops 3. (Cracticines; genera *Melloria*, *Cracticus*, *Strepera*, *Gymnorhina*) butcherbird, currawong, Australian magpie
- ŇSKM**- ‘MALACONOTOID BIRD’ I 1. (Machaerirhynchids; genus *Machaerirhynchus*) boatbill 2. (Rhagologids; genus *Rhagologus*) mottled berryhunter / mottled whistler 3. (Aegithinids; genus *Aegithina*) iora
- ŇSKN**- ‘MALACONOTOID BIRD’ II 1. (Pityriaseids; genus *Pityriasis*) bristled shrike / bald-headed wood-shrike / Bornean bristlehead 2. (Malaconotids; genera *Malaconotus*, *Laniarius*, *Telophorus*, *Chlorophoneus*, *Rhodophoneus*) bush-shrike, boubou, gonolek 3. (Malaconotids; genera *Nilaus*, *Dryoscopus*, *Bocagia*, *Tchagra*) brubru, puffback, tchagra
- ŇSKÇ**- ‘PLATYSTEIRID’ 1. (genus *Platysteira*) wattle-eye 2. (genus *Batis*) batis 3. (genus *Lanioturdus*) white-tailed shrike
- ŇSKF**- ‘VANGID’ I 1. (genera *Vanga*, *Calicalicus*, *Schetba*, *Xenopirostris*, *Falcula*, *Artamella*, *Leptopterus*, *Cyanolanius*, *Oriolia*, *Tylas*, *Hypositta*) vanga 2. (genus *Newtonia*) newtonia 3. (genus *Tephrodornis*) woodshrike
- ŇSKV**- ‘VANGID’ II 1. (genus *Prionops*) helmetshrike 2. (genus *Philentoma*) philentoma 3. (genera *Bias*, *Pseudobias*, *Hemipus*, *Megabyas*, *Mystacornis*) flycatcher, flycatcher-shrike, shrike-flycatcher, Crossley’s babbler
- NST**- ‘CORVINE (CROW)’ 1. (genus *Corvus*) crow, raven, rook 2. (genus *Coloeus*) jackdaw 3. (genus *Nucifraga*) nutcracker
- NSTW**- ‘CORVID’ I 1. (genus *Pica*, *Cyanopica*, *Cissa*, *Urocissa*) magpie 3. (genus *Garrulus*) [Old World] jay 3. (Crypsirinines; genera *Dendrocitta*, *Crypsirina*, *Temnurus*, *Platysmurus*) treepie
- NSTY**- ‘CORVID’ II 1. (genus *Podoces*) ground jay / ground chough 2. (genus *Ptilostomus*) piacpiac 3. (genus *Zavattariornis*) bush crow
- NSTL**- ‘CORVID’ III 1. (genera *Cyanocorax*, *Cyanocitta*, *Cyanolyca*) jay, blue-jay, Steller’s jay 2. (genus *Psilorhinus*) brown jay 3. (genus *Calocitta*) magpie-jay
- NSTR**- ‘CORVID’ IV 1. (genera *Aphelocoma*, *Gymnorhinus*) scrub-jay, pinyon jay 2. (genus *Perisoreus*) Canada jay, Siberian jay, Sichuan jay 3. (genus *Pyrhacorax*) chough
- NSTM**- ‘CORVOID’ I 1. (Laniids; several genera) shrike 2. (Terpsiphonines; several genera) monarch, crested flycatcher, paradise flycatcher 3. (Monarchines; numerous genera) monarch, shrikebill, magpie-lark, torrent-lark, broad-billed flycatcher, ‘elepaio
- NSTN**- ‘CORVOID’ II 1. (Dicrurids; genus *Dicrurus*) drongo, balicassiao 2. (Ifritids; genus *Ifrita*) blue-caped ifrit 3. (Melampittids; genus *Melampitta*) melampitta
- NSTŘ**- ‘RHIPIDURID’ 1. (genus *Rhipidura*) fantail, wagtail 2. (genus *Lamprolia*) silktail 3. (genus *Chaetorhynchus*) drongo fantail / pygmy drongo



- NSTŇ**- ‘CORCORACID (MUDNESTER)’ 1. (genus *Corcorax*) white-winged cough 2. (genus *Struthidea*) apostlebird
- NSTÇ**- ‘PARADISAEID (BIRD-OF-PARADISE)’ I 1. (genera *Paradisaea*, *Pteridophora*, *Semioptera*, *Seleucidis*, *Cicinnurus*, *Paradisornis*) bird-of-paradise 2. (genera *Epimachus*, *Drepanornis*) sicklebill 3. (genera *Lophorina*) riflebird, superb bird-of-paradise
- NSTF**- ‘PARADISAEID (BIRD-OF-PARADISE)’ II 1. (genera *Manucodia*, *Phonygammus*) manucode 2. (genus *Astrapia*) astrapia 3. (genus *Parotia*) parotia
- NSTV**- ‘PARADISAEID (BIRD-OF-PARADISE)’ III 1. (genus *Lycocorax*) paradise-crow 2. (genus *Paradigalla*) paradigalla
- MST**- ‘PASSERID’ I 1. (Melanocharitids; genera *Melanocharis*, *Rhamphocharis*) berrypecker 2. (Melanocharitids; genera *Toxorhamphus*, *Oedistoma*) longbill 3. (Cnemophilids; genera *Cnemophilus*, *Loboparadisea*) satinbird
- MSTW**- ‘PASSERID’ II 1. (Notiomystids; genus *Notiomystis*) stitchbird / hihi 2. (Petroicids; numerous genera) Australasian robin, flyrobin 3. (Callaeids; genera *Callaeas*, *Philesturnus*, *Heteralocha*) kokako, saddleback, huia
- MSTY** ‘EUPETOID BIRD’ 1. (Picathartids; genus *Picathartes*) rockfowl / bald crow 2. (Chaetopids; genus *Chaetops*) rockjumper 3. (Eupetids; genus *Eupetes*) rail-babbler
- MSTL** ‘PAROID BIRD’ 1. (Stenotirids; several genera) fairy fly-catcher, crested flycatcher, canary-flycatcher 2. (Hylotids; genus *Hyliota*) hyliota 3. (Remizids; several genera) penduline tit, verdin
- MSTR**- ‘PARID (TIT / TITMOUSE / CHICKADEE)’ 1. (genus *Parus*, *Melaniparus*, *Sittiparus*, *Pardaliparus*, *Periparus*, *Sylviparus*, *Cephalopyrus*, *Machlolophus*, *Melanochlora*, *Pseudopodoces*, *Cyanistes*, *Poecile*) tit, chickadee 2. (genus *Baeolophus*) titmouse 3. (genus *Lophophanes*) crested tit
- MSTR**- ‘MACROSPHENID (AFRICAN WARBLER)’ 1. (genus *Macrosphenus*) longbill 2. (genus *Sylvietta*) crombec 3. (genera *Achaetops*, *Sphenoeacus*, *Cryptillas*, *Melocichla*) rockrunner, grass warbler, grassbird
- MSP**- ‘SYLVIOID BIRD’ I 1. (Alaudids; numerous genera) lark, skylark, sparrow-lark, hoopoe-lark 2. (Nicatorids; genus *Nicator*) nicator 3. (Panurids; genus *Panurus*) bearded reedling / bearded parrotbill / bearded tit
- MSPW**- ‘SYLVIOID BIRD’ II 1. (Pnoepygids; genus *Pnoepyga*) cupwing / wren-babbler 2. (Acrocephalids; genus *Acrocephalus*) reed warbler, swamp warbler, millerbird 3. (Locustellids; numerous genera) grass warbler, grassbird, bush warbler, grasshopper warbler, malia
- MSPY**- ‘SYLVIOID BIRD’ III 1. (Donacobiids; genus *Donacobius*) black-capped donacobius 2. (Bernierids; several genera) Madagascar warbler, yellowbrow, bernieria, wedge-tailed jery 3. (Phylloscopids; genus *Phylloscopus*) leaf warbler, chiffchaff
- MSPL**- ‘SYLVIOID BIRD’ IV 1. (Pycnonotids; numerous genera) bulbul, greenbul, bristlebill, brownbul, leaflove 2. (Cettiids; several genera) bush warbler, stubtail, tesia, broad-billed warbler 3. (Hylids; genera *Hylia*, *Pholidornis*) hylia
- MSPR**- ‘SYLVIOID BIRD’ V 1. (Sylviids; genus *Sylvia*) [Old World] warbler, blackcap, whitethroat, parisoma 2. (Sylviids; genera *Myzornis*, *Parphasma*) myzornis, Abyssian catbird 3. (Aegithalids; several genera) bushtit, tit-warbler
- MSPŘ**- ‘SYLVIOID BIRD’ VI 1. (Sylviids; genera *Myzornis*, *Pseudoalcippe*, *Horizorhinus*, *Lioptilus*, *Fulvetta*, *Chrysomma*, *Moupinia*, *Rhopophilus*) babbler, thrush-babbler, fulvetta 2. (Sylviids; genera *Conostoma*, *Cholornis*, *Suthora*, *Sinosuthora*, *Neosuthora*, *Chleuasicus*, *Psittiparus*, *Paradoxornis*) parrotbill 3. (Sylviids; genus *Chamaea*) wrentit
- MSPÇ**- ‘SYLVIOID BIRD’ VII 1. (Timaliids; numerous genera) [Old World] babbler, wren-babbler, scimitar-babbler, tit-babbler, tawny-bellied babbler, chestnut-capped babbler, wedge-billed babbler, dark-fronted babbler 2. (Pellorneids; numerous genera) babbler, grass babbler, fulvetta, wren-babbler, iliadopsis, grassbird 3. (Leiothrichids; numerous genera) laughingthrush, babbler, cutia, crocia, barwing, minla, sibia, liocichla, babax
- MSPF**- ‘HIRUNDID (SWALLOW / MARTIN)’ 1. (genera *Hirundo*, *Cecropsis*, *Alopocheledon*, *Neochelidon*, *Atticora*, *Haplocheledon*, *Notiocheledon*, *Tachycineta*, *Cheramoeca*, *Petrochelidon*) swallow, cliff swallow 2. (genera *Delichon*, *Progne*, *Ptyonoprogne*, *Riparia*, *Phedina*, *Pseudochelidon*) martin, river martin, crag martin, house martin 3. (genus *Psalidoprocne*) saw-wing

- ŇSB-** ‘CISTICOLID (AFRICAN & ASIAN WARBLER)’ I 1. (genus *Cisticola*) cisticola 2. (genus *Neomixis*) jery 3. (genera *Oreophilais*, *Incana*, *Drymocichla*, *Spiloptila*, *Phyllolais*, *Malcorus*, *Hypergerus*, *Eminia*, *Euryptila*, *Bathmocercus*, *Sceopmycter*, *Artisomus*, *Poliolais*) [African / Asian] warbler
- ŇSBŘ-** ‘CISTICOLID (AFRICAN & ASIAN WARBLER)’ II 1. (genera *Prinia*, *Schistolais*, *Phragmacia*) prinia 2. (genera *Apalis*, *Oreolais*) apalis 3. (genus *Orthotomus*) tailorbird
- ŇSG-** ‘CISTICOLID (AFRICAN & ASIAN WARBLER)’ III 1. (genus *Micromacronus*) miniature babbler 2. (genus *Urolais*) green longtail 3. (genus *Calamonastes*) wren-warbler
- ŇSGŘ-** ‘CISTICOLID (AFRICAN & ASIAN WARBLER)’ IV 1. (genus *Camaroptera*) camaroptera 2. (genus *Eremomela*) eremomela
- NSK-** ‘TURDID (THRUSH / BLACKBIRD)’ 1. (genus *Turdus*) thrush, [Old World] blackbird, ouzel, fieldfare, redwing, American robin 2. (genus *Sialia*) bluebird 3. (genera other than *Turdus* and *Sialia*) grandala, solitaire, cochoa, fruithunter
- NSKW-** ‘ERITHACINE’ I 1. (genus *Erithacus*) European robin / robin redbreast 2. (genus *Chamaetylas*) alethe 3. (genera *Cossypha*, *Cossyphicula*) robin-chat, cave chat, ground robin
- NSKY-** ‘ERITHACINE’ II 1. (genera *Swynnertonia*, *Pogonocichla*, *Stiphromis*) forest robin, robin-chat 2. (genus *Sheppardia*) akalat 3. (genus *Cichladusa*) palm thrush
- NSKL-** ‘SAXICOLINE’ I 1. (genus *Luscinia*) nightingale, thrust nightingale, redstart, bluethroat 2. (genera *Heinrichia*, *Heteroxenicus*, *Brachypteryx*) shortwing 3. (genera *Irania*, *Larvivora*, *Vauriella*, *Myiomela*, *Tarsiger*, *Cinclidium*) blue robin, bush robin, bluetail, blue-fronted robin
- NSKR-** ‘SAXICOLINE’ II 1. (genera *Saxicola*, *Campicoloides*, *Pinarochroa*, *Thamnolaea*, *Emarginata*, *Myrmecocichla*, *Pinarornis*, *Namibornis*) chat, stonechat, cliff chat, moorland chat 2. (genus *Phoenicurus*) redstart 3. (genus *Oenanthe*) wheatear
- NSKŘ-** ‘SAXICOLINE’ III 1. (genus *Calliope*) rubythroat, firethroat, blackthroat 2. (genus *Enicurus*) forktail 3. (genera *Ficedula*, *Muscicapella*, *Humblotia*) flycatcher, pygmy flycatcher
- NSKF-** ‘SAXICOLINE’ IV 1. (genus *Myophonus*) whistling thrush 2. (genus *Monticola*) rock thrush
- RNSK-** ‘MUSCICAPOID BIRD’ I 1. (Troglodytids; numerous genera) wren 2. (Certhiids; genera *Certhia*, *Salpornis*) treecreeper, spotted creeper 3. (Poliotilids; genera *Polioptila*, *Microbates*, *Ramphocaenus*) gnatcatcher, gnatwren
- RNSKW-** ‘MUSCICAPOID BIRD’ II 1. (Tichodromadids; genus *Tichodroma*) wallcreeper 2. (Sittids; genus *Sitta*) nuthatch 3. (Regulids; genus *Regulus*) kinglet / crest
- RNSKY-** ‘MUSCICAPOID BIRD’ III 1. (Elachurids; genus *Elachura*) spotted elachura / spotted wren-babbler 2. (Ptiliogonatids; several genera) silky-flycatcher, phainoptila, phainopepla 3. (Cinclids; genus *Cinclus*) dipper
- RNSKL-** ‘MUSCICAPOID BIRD’ IV 1. (Bombycillids; genus *Bombycilla*) waxwing 2. (Dulids; genus *Dulus*) palmchat 3. (Hypocoliids; genus *Hypocolius*) grey hypocolus
- RNSKR-** ‘MUSCICAPOID BIRD’ V 1. (Mimids; numerous genera) mockingbird, catbird, thrasher 2. (Sturnids; numerous genera) starling, myna, Philippine creeper 3. (Buphagids; genus *Buphagus*) oxpecker
- RNSKŘ-** ‘MUSCICAPOID BIRD’ 1. (Muscicapini and Niltavines; several genera) [Old World] flycatcher, forest flycatcher, tit-flycatcher, silverbird 2. (Muscicapinae; genera *Copsychus*, *Cercotrichas*) magpie-robin, shama, scrub robin / bush-chat 3. (Niltavines; genus *Sholicola*) sholakili
- RNSKF-** ‘ZOSTEROPID (WHITE-EYE)’ 1. (numerous genera other than *Yuhina*, *Sterrhoptilus* and *Heleia*) white-eye, striped babbler, pygmy babbler 2. (genera *Yuhina*, *Sterrhoptilus*) yuhina 3. (genus *Heleia*) heleia

- ŇŠT**- ‘FRINGILLID (FINCH)’ 1. (Fringillines; genus *Fringilla*) chaffinch, brambling 2. (Carduellines; numerous genera) grosbeak, hawfinch, bullfinch, rosefinch, drepanid / honeycreeper, greenfinch, twite, linnet, redpoll, crossbill, serin, mountain finch, desert finch, African canary, goldfinch, siskin 3. (Euphoniines; genera *Euphonia*, *Chlorophonia*) euphonia, chlorophonia
- ŇŠTW**- ‘ESTRILDROID BIRD’ 1. (Ploceids; numerous genera) weaver, bishop, widowbird, fody, quelea, malimbe 2. (Viduids; genera *Vidua*, *Anomalospiza*) indigobird, whydah, cuckoo-finch 3. (Estrildids; numerous genera) waxbill, mannikin, munia, silverbill, twinspot, firefinch, quailfinch, antpecker, nigrita, oliveback, pytilia, crimsonwing, seedcracker, bluebill, cordon-bleu, purple grenadier, avadavat, estrildid finch
- ŇŠTY**- ‘PASSERIFORM BIRD’ I 1. (Promeropids; genus *Promerops*) sugarbird 2. (Modulatricids; genera *Modulatrix*, *Arcanator*, *Kakamega*) spot-throat, dapple-throat, grey-chested babbler 3. (Dicaeids; genera *Dicaeum*, *Prionochilus*) flowerpecker
- ŇŠTL**- ‘PASSERIFORM BIRD’ II 1. (Nectariniids; numerous genera) sunbird, spiderhunter 2. (Urocynchramids; genus *Urocynchramus*) Przewalski’s finch / Przewalski’s pinktail 3. (Irenids; genus *Irena*) fairy-bluebird
- ŇŠTR**- ‘PASSERIFORM BIRD’ III 1. (Chloropseids; genus *Chloropsis*) leafbird 2. (Peucedramids; genus *Peucedramus*) olive warbler 3. (Prunellids; genus *Prunella*) accentor, dunnoek, hedge sparrow
- ŇŠTR**- ‘PASSAROID BIRD’ 1. (Passerids; numerous genera) [Old World] sparrow, rockfinch, snowfinch, bush sparrow, ibon 2. (Motacillids; several genera) wagtail, longclaw, pipit, shorttail, madanga 3. (Calcariids; genera *Calcarius*, *Plectrophenax*, *Rhynchophanes*) longspur, bunting
- ŇŠTČ**- ‘ICTERID’ I 1. (genera *Agelaius*, *Xanthspar*, *Agelasticus*, *Chrysomus*, *Nesopsar*, *Xanthocephalus*, *Dives*, *Euphagus*, *Gymnomystax*, *Amblyramphus*, *Curaeus*, *Anumara*, *Gnorimopsar*, *Oreopsar*) [New World] blackbird 2. (genera *Quiscalus*, *Hypopyrrhus*, *Lampropsar*, *Macroagelaius*) grackle 3. (genus *Icterus*) [New World] oriole, troupial
- ŇŠTF**- ‘ICTERID’ II 1. (genera *Molothrus*, *Agelaioides*) cowbird, baywing 2. (genus *Sturnella*, *Leistes*) meadowlark 3. (genus *Pseudoleistes*) marshbird
- ŇŠTV**- ‘ICTERID’ III 1. (genus *Psarocolius*) oropendola 2. (genera *Cacicus*, *Cassidix*, *Amblycercus*) cacique 3. (genus *Dolichonyx*) bobolink
- ŇŠP**- ‘EMBERIZOID BIRD’ I 1. (Passerellids; numerous genera) [American] sparrow, towhee, lark bunting, ground sparrow, junco 2. (Emberizids; genus *Emberiza*) bunting, reed bunting, yellowhammer 3. (Rhodinocichlids; genus *Rhodinocichla*) rosy thrush-tanager
- ŇŠPW**- ‘EMBERIZOID BIRD’ II 1. (Phaenicophilids; genera *Phaenicophilus*, *Xenoligea*, *Microligea*) tanager, white-winged warbler, green-tailed warbler 2. (Zeledoniids; genus *Zeledonia*) wrenthrush 3. (Teretistris; genus *Teretistris*) Cuban warbler
- ŇŠPY**- ‘EMBERIZOID BIRD’ III 1. (Parulids; numerous genera) [New World] warbler, wood warbler, oven bird, waterthrush, yellowthroat, whitestart, parula, redstart 2. (Icteriids; genus *Icteria*) yellow-breasted chat 3. (Spindalids; genus *Spindalis*) spindalis
- ŇŠPL**- ‘EMBERIZOID BIRD’ IV 1. (Microspingids; genera *Mitrospingus*, *Orthogonys*, *Lamprospiza*) microspingid tanager 2. (Calyptophilids; genus *Calyptophilus*) chat-tanager 3. (Nesospingids; genus *Nesospingus*) Puerto Rican tanager
- ŇŠPR**- ‘THRAUPID (TANAGER)’ I 1. (numerous genera) tanager, tanager-finch, conebill, flowerpiercer 2. (Tholospiza [finch-like tanagers]; numerous genera) bullfinch, orangequit, grassquit, warbler-finch, ground finch, tree finch, bananaquit 3. (genera *Cyanicterus*, *Bangsia*, *Buthraupis*, *Cnemathraupis*, *Chloromis*, *Wetmorethraupis*, *Anisognathus*, *Dubusia*, *Pseudosaltator*) mountain tanager
- ŇŠPŘ**- ‘THRAUPID (TANAGER)’ II 1. (genera *Tersina*, *Cyanerpes*, *Chlorophanes*, *Iridophanes*) honeycreeper 2. (genus *Dacnis*) dacnis 3. (genera *Sporophila*, *Dolospingus*, *Oryzoborus*) seedeater, seed-finch
- ŇŠPF**- ‘THRAUPID (TANAGER)’ III 1. (genera *Emberizoides*, *Embernagra*) grass-finch, pampa-finch 2. (genus *Hemispingus*) hemispingus 3. (genus *Nephelornis*) pardusco
- ŇŠPV**- ‘THRAUPID (TANAGER)’ IV 1. (genus *Catamblyrhynchus*) plushcap 2. (genus *Incaspiza*) Inca finch 3. (genera *Saltator*, *Saltatricula*) saltator, many-colored Chaco finch

- MSTF**- ‘CARDINALID (CARDINAL)’ I 1. (genera *Cardinalis*, *Gubernatrix*) cardinal 2. (genera *Periporphyrus*, *Caryothraustes*, *Rhodothraupis*, *Cyanocompsa*, *Cyanoloxia*, *Pheucticus*) grosbeak 3. (genera *Chlorothraupis*, *Habia*, *Piranga*) [cardinalid] tanager
- MSTV**- ‘CARDINALID (CARDINAL)’ II 1. (genus *Passerina*) [North American] bunting 2. (genera *Spiza*, *Amaurospiza*) dickcissel, seedeater 3. (genus *Granatellus*) chat

### 7.3.1.5 Fish, Tunicates and Lancelets

#### Hagfish, Lancelets, Tunicates, Lampreys, Skates, Sawfish, & Rays

- PSGW**- ‘HAGFISH / LANCELET’ 1. (genera *Rubicundus*, *Eptatretus*, *Myxine*, *Nemamyxine*, *Neomyxine*, *Notomyxine*) hagfish 2. (Ampioxiforms; several genera) lancelet
- PSGY**- ‘TUNICATE’ 1. (Phlebobranchians and Aplousobranchians; numerous genera) sea squirt 2. (Thaliaceans; numerous genera) salp, pyrosome, doliolid tunicate 3. (Stolidobranchians and Larvaceans; several genera) other tunicate
- PSGL**- ‘LAMPREY’ 1. (genus *Geotria*) pouched lamprey 2. (genus *Mordacia*) Southern topeyed lamprey 3. (Petromyzontids; numerous genera) Northern lamprey
- PSGR**- ‘SKATE’ 1. (Rajids and Gurgesiellids; numerous genera) skate 2. (Anacanthobatids; several genera) smooth skate / leg skate 3. (Arhynchobatids; numerous genera) softnose skate
- PSGR**- ‘SAWFISH’ (genera *Pristis*, *Anoxypristis*) 1. (*P. pristis*) [largetooth, common, wide, freshwater, river, northern] sawfish / carpenter shark 2. (Indo-Pacific species; *A. cuspidata*, *P. clavata*, *P. zijron*) [knifetooth, pointed, Queensland, green, longcomb, narrowsnout, olive] sawfish 3. (Atlantic species; *P. pectinata*) smalltooth sawfish
- PSGD**- ‘ELECTRIC RAY’ 1. (genera *Torpedo*, *Tetronarce*) electric ray 2. (Narcinenes and Hypnines; several genera) numbfish, coffin ray 3. (Narkines, several genera) sleeper ray
- PSGV**- ‘STING RAY’ 1. (Myliobatoids; numerous genera) stingray, [cownose, eagle, manta, devil, butterfly, river, whiptail, deepwater, sixgill] ray 2. (genus *Zanobatis*) panray 3. (genera *Platyrrhina*, *Platyrrhinoidis*) thornback

**Sharks and Chimaeras** [To signify a ‘shark’ in general, use the appropriate stem from the general ‘TYPES OF FISH’ root -**PFT**- shown in Sec. 17.0 above]

- PSDW**- ‘COW SHARK / FRILLED SHARK’ (Hexanchids; genera *Heptranchias*, *Notorhynchus*) sevengill cow shark 2. (genus *Hexanchus*) sixgill cow shark 3. (genus *Chlamydoselachus*) frilled shark
- PSDY**- ‘SQUALIFORM SHARK’ I 1. (Squalids; genera *Cirrhigaleus*, *Squalus*) dogfish shark 2. (Dalatiids; several genera) kitefin shark 3. (Somniosids several genera) sleeper shark
- PSDL**- ‘SQUALIFORM SHARK’ II 1. (Etmopterids; several genera) lantern shark 2. (genera *Centrophorus*, *Deania*) gulper shark 3. (genus *Oxynotus*) rough shark
- PSDR**- ‘SQUATINIFORM SHARK’ 1. (genus *Squatina*) angel shark 2. (genera *Pliotrema*, *Pristiophorus*) sawshark 3. (genus *Echinorhinus*) bramble shark, prickly shark
- PSDR**- ‘GROUND SHARK’ 1. (Carcharhinids; numerous genera) requiem shark 2. (Hemigaleids; several genera) weasel shark 3. (genera *Eusphyra*, *Sphyrna*) hammerhead shark, winghead shark, bonnethead, scoophead
- PSSDW**- ‘HOUND SHARK / BULLHEAD SHARK’ 1. (Triakines; genera *Musteles*, *Scylliogaleus*, *Triakis*, *Leptocharius*) houndshark, barbeled houndshark 2. (Galeorhinines; several genera) whiskery shark, school shark, sailback houndshark, blacktip tope 3. (genus *Heterodontus*) bullhead shark
- PSSDY**- ‘MACKEREL SHARK (LAMNID)’ 1. (genus *Carcharodon*) great white shark 2. (genus *Isurus*) mako 3. (genus *Lamna*) salmon shark, porbeagle
- PSBW**- ‘LAMNIFORM SHARK’ I 1. (genus *Alopius*) thresher shark 2. (genus *Cetorhinus*) basking shark 3. (genus *Megachasma*) megamouth shark

- PSBY**- ‘LAMNIFORM SHARK’ II 1. (genus *Mitsukurina*) goblin shark 2. (Odontaspids; genera *Carcharias*, *Odontaspis*) sand shark / sand tiger shark / grey nurse shark / ragged tooth shark 3. (genus *Pseudocarcharias*) crocodile shark
- PSBL**- ‘CARPET SHARK’ I 1. (Ginglymostomatids and Brachaelurids; numerous genera) nurse shark, blind shark 2. (Orectobids; several genera) wobbegong shark 3. Hemiscylliids; genera *Chiloscyllium*, *Hemiscyllium*) bamboo shark
- PSBR**- ‘CARPET SHARK’ II 1. (genus *Rhincodon*) whale shark 2. (genus *Stegostoma*) zebra shark 3. (genera *Cirrhoscyllium*, *Parascyllium*) collared carpet shark
- PSBR**- ‘CATSHARK’ 1. (Scyliorhinids; numerous genera) catshark 2. (Proscylliids, several genera) finback catshark (including ribbontail catshark, harlequin catshark, graceful catshark, magnificent catshark) 3. (Pseudotriakids; genera *Pseudotriakis*, *Planonasus*, *Gollum*) false catshark, gollumshark
- PSDV**- ‘CHIMAERA’ 1. (Chimaerids; genera *Chimaera*, *Hydrolagus*) chimaera, rabbitfish, ghostshark, ratfish 2. (Callorhynchids; genus *Callorhynchus*) ploughnose chimaera, Cape elephantfish, Australian ghost shark 3. (Rhinochimaerids; genera *Harriotta*, *Neoharriotta*, *Rhinochimaera*) spookfish, sicklefin chimaera, paddle-nose chimaera, longnose chimaera

### Lobe-Finned and Ray-Finned Fishes

- PSSGW**- ‘ARCHAIC FISH’ 1. (Coelacanth; genus *Latimeria*) coelacanth 2. (Ceratodontids; Lepidosirenids; several genera) lungfish 3. (Polypterids; genera *Erpetoichthys*, *Polypterus*) reedfish, bichir
- PSSGY**- ‘STURGEON / PADDLEFISH’ 1. (Acipenserids; several genera) sturgeon 2. (genus *Polyodon*) American paddlefish 3. (genus *Psephurus*) Chinese paddlefish
- PSSGL**- ‘BOWFIN / GAR’ 1. (genus *Amia*) bowfin 2. (genus *Atractosteus*) alligator gar, Cuban gar, tropical gar 3. (genus *Lepisosteus*) spotted gar, longnose gar, shortnose gar, Florida gar
- PSSGR**- ‘EEL & EEL-LIKE FISH’ 1. (Anguilliforms; numerous genera) eel, moray, conger 2. (Notacanthids; genera *Lipogenys*, *Notacanthus*, *Polyacanthonotus*) deep-sea spiny eel 3. (Halosaurids; genera *Aldrovandia*, *Halosaurus*, *Halosaropsis*) halosaur
- PSSGR**- ‘ELOPIFORM & ALBULIFORM FISH’ 1. (genus *Elops*) ladyfish, skipjack, jack-rash, tenpounder 2. (genus *Megalops*) tarpon 3. (genera *Nemoopsis*, *Pterothrissus*, *Albula*) bonefish
- PSSGV**- ‘OSTEOGLOSSOID FISH’ I 1. (Arapaimids & Osteoglossids; genera *Heterotis*, *Arapaima*, *Scleropages*, *Osteoglossum*) bonytongue, arowana 2. (Pantodontids; genus *Pantodon*) butterflyfish 3. (Hiodontiforms; genus *Hiodon*) mooneye, goldeye
- PSSGD**- ‘OSTEOGLOSSOID FISH’ II 1. (Notopterids; several genera) knifefish, featherback 2. (Gymnarchids; genus *Gymnarchus*) aba aba / freshwater rat-tail, 3. (Mormyrids; numerous genera) elephant fish
- PST**- ‘CLUPEIFORM FISH’ 1. (Engraulids; numerous genera) anchovy 2. (Clupeids; numerous genera) herring, sprat, sardine, shad 3. (Clupeiforms other than Clupeids and Engraulids) denticle herring, longfin herring, wolf herring, round herring
- PSTW**- ‘GONORYNCHID FISH’ 1. (genus *Chanos*) milkfish 2. (genus *Gonorynchus*) beaked salmon / beaked sandfish 3. (Knerioids; several genera) shellear, hingemouth/snake mudhead
- PSTY**- ‘CYPRININE AND ALEPOCEPHALID FISH’ 1. (*Carassius auratus*) goldfish 2. (Cyprinines other than *Carassius*) carp, Crucian carp, Prussian carp, kimbuna 3. (Alepocephalids; numerous genera) smooth-head, slick-head marine smelt
- PSTL**- ‘LEUCISCINE FISH’ I 1. (small Leuciscines; numerous genera) minnow 2. (genera *Condoma*, *Coreoleuciscus*, *Cyprinella*, *Luxilus*, *Lythrurus*, *Notemigonus*, *Notropis*, *Pteronotropis*) shiner 3. (genera *Hesperoleucus*, *Rutilus*, *Samarutilus*, *Leucos*) roach, pigo, kutum, other roach-like fish
- PSTR**- ‘LEUCISCINE FISH’ II 1. (genera *Abramis*, *Ballerus*, *Blicca*) bream 2. (genera *Chrosomus*, *Clinostomus*, *Leuciscus*, *Margariscus*, *Leucalburnus*, *Telestes*) dace 3. (genera *Chondrostoma*, *Protochondrostoma*, *Pseudochondrostoma*) nase, sneep

- PSTR**- 'LEUCISCINE FISH' III 1. (genus *Tica*) tench, doctor fish 2. (genus *Campostoma*) stoneroller 3. (genus *Acrocheilus*) chiselmouth
- PSTC**- 'LEUCISCINE FISH' IV 1. (genus *Mylopharadon*) hardhead 2. (genus *Orthodon*) Sacramento blackfish 3. (genus *Mylocheilus*) peamouth
- PSTF**- 'LEUCISCINE FISH' V 1. (genus *Leucaspius*) sunbleak, belica, moderlieschen 2. (genus *Pelecus*) sabre carp, sabrefish, ziege, sichel 3. (genus *Vimba*) vimba
- PSTL**- 'LEUCISCINE FISH' VI 1. (genera *Hybopsis*, *Semotilus*, *Squalius*, *Hemitremia*, *Platygobio*, *Nocomis*, *Couesius*, *Iotichthys*, *Snyderichthys*, *Oregonichthys*, *Petroleuciscus*, *Erimystax*, *Gila*, *Siphateles*, *Algansea*) chub 2. (genus *Scardinius*) rudd 3. (numerous genera) other leuciscine fish
- RPSTL**- 'CYPRINID FISH (Other than Cyprinines and Leuciscines)' I 1. (Acheilognathines; several genera) bitterling 2. (Alburnines; several genera) bleak 3. (Gobionines; numerous genera) gobionine fish (including gudgeons, steeds)
- RPSTR**- 'CYPRINID FISH (Other than Cyprinines and Leuciscines)' II 1. (Barbines and Leptobarbines; numerous genera) barbine fish (including barbs, barbels, snowtrouts) and *Leptobarbus* 2. (Labeonines; numerous genera) labeonine fish (including mud carps, labeos, yellowfish) 3. (Cultrines; numerous genera) cultrine fish (including sharpbellies)
- RPSTR**- 'CYPRINID FISH (Other than Cyprinines and Leuciscines)' III 1. (Danionines; numerous genera) danionine fish (including carplets, rasboras, flying barbs, razorbelly minnows) 2. (Squaliobarbines & Xenocyprines; several genera) squaliobarbine and xenocyprine fish (including grass carp, black carp, bighead carp) 3. (Psylorhynchids and unclassified Cyprinids; numerous genera) other cyprinid fish [not otherwise indicated] (including giant salmon carp, blind barbs, mahseers, cavefish, catla, rohtees)
- RPSTC**- 'CYPRINOID FISH (Other than Cyprinids)' 1. (Catastomids; numerous genera) sucker fish 2. (genus *Psylorhynchus*) psylorhynchus 3. (Cobitoids and Gyrinocheilids; numerous genera) loach, algae-eater
- RPST**- 'CHARACIFORM FISH' 1. (Distichodontids; numerous genera) distichodontid fish 2. (Citharinids; genera *Citharidium*, *Citharinops*, *Citharinus*) lutefish 3. (Crenuchids; numerous genera) South American darter, sailfin tetra
- RPSTW**- 'ALESTIOID FISH' 1. (Hepsetids; genus *Hepsetus*) African pike characin 2. (Alestiids; numerous genera) African tetra
- RPSTY**- 'SERRASALMID FISH' 1. (genera *Catoprion*, *Pristobrycon*, *Pygocentrus*, *Pygopristis*, *Serrasalmus*) piranha 2. (numerous genera) pacu 3. (numerous genera) silver dollar
- RPSST**- 'ERYTHINOID FISH' I 1. (Tarumaniids; genus *Tarumania*) tarumania 2. (Erythrinids; genera *Erythrinus*, *Hoplerythrinus*, *Hoplias*) trahira/ tararira 3. (Cynodontids; several genera) dogtooth characin / vampire tetra / sabretooth tetra
- RPSSTW**- 'ERYTHINOID FISH' II 1. (Hemiodontids; several genera) hemiodontid fish 2. (Paradontids; several genera) pardontid fish 3. (Prochilodontids; several genera) flannel-mouthed characin
- RPSSTY**- 'ERYTHINOID FISH' III 1. (Chilodontids; genera *Caenotropus*, *Chilodus*) headstander 2. (Curimatids; several genera) toothless characin 3. (Anostomids; numerous genera) anostomid fish
- RPSSTL**- 'CHARACID FISH' I (including TETRA) 1. (Characins; several genera) characin fish 2. (Stevardiins and Characines other than Characins) characin-like fish 3. (Spintherobolines and Stethaprionines; numerous genera) other characin-like fish
- RPSSTR**- 'CHARACID FISH' II 1. (Ctenoluciids; genera *Boulengerella*, *Ctenolucius*) pike-characin 2. (Lebiasinids; several genera) pencil fish (including valadora) 3. (genus *Salminus*) dorado
- PSTH**- 'CATFISH' I 1. (Silurids; numerous genera) catfish 2. (Loricaroids; numerous genera) armored catfish, pencil catfish, parasitic catfish 3. (Diplomystids; numerous genera) velvet catfish
- PSTHW**- 'CATFISH' II 1. (Pangasiids, Mochokids, Claroteids; numerous genera) shark catfish, African catfish, squeaker 2. (Plotosids, Ictalurids, Clariids, Ailiids, Sisorids, Bagrids; numerous genera) eeltail catfish, ictalurid, airbreathing catfish, naked catfish 3. (Doradoids and Pimelodoids; numerous genera) banjo catfish, thorny catfish/talking catfish, driftwood catfish, three-barbeled catfish, bumblebee/dwarf marbled catfish, long-whiskered catfish

**-RPSTH-** ‘KNIFEFISH’ 1. (Gymnotoids; numerous genera) banded knifefish 2. (Rhamphichthyoids; numerous genera) sand knifefish, bluntnose/grass/leaf knifefish 3. (Apteronotoids; numerous genera) glass knifefish, rattail knifefish, ghost knifefish

**-RPSTHW-** ‘OTHER EUTELEOSTEOMORPHIC FISH’ 1. (genus *Lepidogalaxias*) salamanderfish 2. (Argentinoids; numerous genera) smelt, barreleye 3. (Galaxiids; several genera) galaxia

**-PSK-** ‘SALMONINE FISH’ 1. (genus *Oncorhynchus*) Pacific salmon (i.e., Chinook, Coho, Pink, Sockeye, Chum), Pacific trout (i.e., Cutthroat, Rainbow/Steelhead) 2. (genus *Salmo*) Atlantic salmon, Brown trout 3. (genera *Salvelinus*, *Salvethymus*) char (including brook trout, lake trout, bull trout, Dolly Varden trout), long-finned char

**-PSKW-** ‘SALMONID FISH’ (other than salmon/trout/char) 1. Eurasian Salmonids; genera *Hucho*, *Parahucho*, *Brachymystax* hucho, taimen/huchen, lenok 2. (genera *Coregonus*, *Prosopium*, *Stenodus*) whitefish 3. (genus *Thymallus*) grayling

**-PSKY-** ‘ESOCIFORM FISH’ 1. (genus *Esox*) pike, pickerel 2. (*E. masquinongy*) muskellunge 3. (Umbrids; several genera) mudminnow

**-PSKL-** ‘OSMERIFORM FISH’ 1. (Retropinnids and Osmerids; several genera) smelt, Australian-New Zealand grayling 2. (genus *Plecoglossus*) ayu / sweetfish 3. (Salangids; numerous genera) noodlefish / icefish

**-PSKR-** ‘STERNOPTYCHID FISH’ 1. (Maurollicines other than *Valenciennellus*; several genera) bottlelight, pearlside 2. (genus *Valenciennellus*) constellationfish 3. (Sternoptychines; genera *Argyropelecus*, *Polyipnus*, *Sternoptyx*) marine hatchetfish

**-PSKŘ-** ‘STOMIIFORM FISH’ (other than Sternoptychids) 1. (Gonostomatids; several genera) bristlemouth, anglemouth, fangjaw 2. (Stomiids; numerous genera) barbeled dragonfish, loosejaw, stareater, snaggletooth, viperfish 3. (Phosichthyids; several genera) lightfish

**-RPSKW-** ‘ALEPISAUROID FISH’ I 1. (genus *Alepisaurus*) lancetfish 2. (genus *Anotopterus*) daggertooth 3. (genus *Omosudis*) hammerjaw

**-RPSKY-** ‘ALEPISAUROID FISH’ II 1. (Evermannellids; several genera) sabertooth 2. (Paralepidids; numerous genera) barracudina 3. (Scopelarchids; several genera) pearleye

**-RPSKL-** ‘AULOPIFORM FISH’ I 1. (genera *Bathysauropsis*, *Bathysauroides*) grinner 2. (Chlorophthalmids; genera *Chlorophthalmus*, *Parasudis*) greeneye 3. (Ipnopids; several genera) tripod fish

**-RPSKR-** ‘AULOPIFORM FISH’ II 1. (Notosudids; several genera) waryfish 2. (genus *Bathysaurus*) deepsea lizardfish 3. (genus *Gigantura*) telescopefish

**-RPSKŘ-** ‘SYNODONTOID FISH’ 1. (Synodontids; several genera, and *Pseudotrichonotus*) lizardfish, Bombay duck / bummallo, sand-diving lizardfish 2. (Aulopids; several genera) flagfin 3. (genus *Paraulopus*) cucumberfish

**-RPSKÇ-** ‘MYCTOPHIFORM FISH & ATELEOPOD FISH’ 1. (Myctophids; numerous genera) lanternfish 2. (Neoscopelids; several genera) blackchin 3. (Ateleopodids; several genera) jellynose fish / tadpole fish

**-RPSKF-** ‘LAMPRIFORM FISH’ I 1. (Veliferids; genera *Velifer*, *Metavelifer*) sailfin moonfish 2. (genus *Lampris*) opah / moonfish / sunfish / kingfish 3. (genus *Radiicephalus*) tapertail

**-RPSKH-** ‘LAMPRIFORM FISH’ II 1. (Lophotids; genera *Lophotus*, *Eumecichthys*) crestfish 2. (Trachipterids; genera *Desmodema*, *Trachipterus*, *Zu*) ribbonfish 3. (Regalacids; genera *Agrostichthys*, *Regalecus*) oarfish

**-PSKÇ-** ‘PERCOPSIFORM FISH’ 1. (genus *Percopsis*) trout-perch 2. (genus *Aphredotus*) pirate-perch 3. (Amblyopsids; several species) cavefish, swampfish, ricefish

**-PSKF-** ‘ZEIFORM FISH’ I 1. (Zeids; genera *Zeus*, *Zenopsis*) dory 2. (Cyttids; genus *Cyttus*) lookdown dory, silver dory, king dory, silver dory 3. (Zeniontids; genera *Zenion*, *Capromimus*, *Cyttomimus*) zeniontid, capro dory

**-PSKV-** ‘ZEIFORM FISH’ II 1. (Oreosomatids; several genera) oreo 2. (Parazenids; several genera) parazen 3. (Grammicolepidids; several genera) tinselfish

- PSP**- ‘GADID FISH’ I 1. (genus *Gadus*) [true] cod 2. (genus *Melanogrammus*) haddock 3. (genus *Merlangius*) whiting / merling
- PSPW**- ‘GADID FISH’ II 1. (genus *Microgadus*) tomcod 2. (genus *Micromesistius*) blue whiting 3. (genus *Pollachius*) pollock
- PSPY**- ‘GADID FISH’ III 1. (genera *Arctogadus*, *Boreogadus*) arctic/polar cod 2. (genus *Eleginus/Trisopterus*) other cod 3. (genus *Raniceps*) tadpole fish
- PSPL**- ‘LOTID FISH’ I 1. (genus *Lota*) burbot / bubbot / lingcod / mariah / eelpout / coneyfish 2. (genus *Brosme*) cusk / brismak / brosmius / torsk / moonfish 3. (genus *Molva*) ling
- PSPR**- ‘LOTID FISH’ II 1. (genus *Gaidropsaurus*) rockling 2. (genus *Enchelyopus*) fourbeard rockling 3. (genus *Ciliata*) ciliata fish
- PSPŘ**- ‘GADIFORM FISH’ 1. (Bregmacerotids; genus *Bregmaceros*) codlet 2. (Eulichthyids; genus *Eulichthys*) eucla cod 3. (Muraenolepidids; genera *Muraenolepis*, *Notomuraenobathys*) eel cod
- PSPÇ**- ‘MORID FISH’ 1. (genus *Mora*) common mora, googly-eyed cod 2. (genus *Auchenoceros*) ahuru 3. (other Morids; numerous genera) codling, hakeling, mora, beardie, skulpin, grenadier cod
- PSPF**- ‘OTHER PARACANTHOPTERYGIAN FISH’ 1. (Macrourids; numerous genera) rattail / grenadier 2. (Melanonids; genus *Melanonus*) pelagic cod, arrowtail 3. (Stylephorids; genus *Stylephorus*) tube-eye / thread-tail
- PSPH**- ‘MERLUCCIID FISH’ 1. (Merlucciids; several genera) hake 2. (genus *Maruronus*) blue grenadier 3. (Phycids; genera *Phycis*, *Urophycis*) phycid hake
- PSC**- ‘BERYCIFORM FISH’ I 1. (Berycids; genus *Beryx*) alfonsino 2. (Berycids; genus *Centroberyx*) nannygal 3. (Ostracoberycids; genus *Ostracoberyx*) shellskin alfonsino
- PSČ**- ‘BERYCIFORM FISH’ II 1. (Cetomimids; numerous genera) flabby whalefish, tapetail, hairyfish 2. (Rondeletiids; genus *Rondeletia*) redmouth whalefish 3. (Barbourisiids; genus *Barbourisia*) velvet whalefish
- PŠČ**- ‘BERYCIFORM FISH’ III 1. (Melamphaidids; several genera) ridgehead / bigscale 2. (Gibberichthyids; genus *Gibberichthys*) gibberfish 3. (Stephanoberycids and Hispidoberycids; several genera) pricklefish
- PSCW**- ‘TRACHICHTHYFORM FISH’ I 1. (Trachichthyids; several genera except *Paratrychichthys*) roughy, slimehead, redfish, sawbelly 2. (genus *Paratrychichthys*) sandpaper fish 3. (Monocentrids; genera *Cleidopus*, *Monocentris*) pineapplefish / pinecone fish
- PSČW**- ‘TRACHICHTHYFORM FISH’ II 1. (Anoplogastrids; genus *Anoplogaster*) fangtooth 2. (Diretmids; genera *Diretmus*, *Diretmoides*, *Diretmichthys*) spinyfin 3. (Anomalopids; several genera) lanternfish / flashlight fish, eyelight fish
- PŠČW**- ‘HOLOCENTRIFORM & POLYMIXIIFORM FISH’ 1. (Holocentrines; genera *Holocentrus*, *Neomiphon*, *Sargocentron*) squirrelfish 2. (Myripristines; several genera) soldierfish 3. (Polymixiiforms; genus *Polymixia*) beardfish
- LPŠT**- ‘OPHIDIIFORM FISH’ 1. (Carapids; several genera) pearlfish 2. (Ophidiids, Aphyonids and Parabrotulids; numerous genera) brotula, cusk-eel, false brotula, aphyonid 3. (Bythitids; numerous genera) viviparous brotula
- LPŠTW**- ‘KURTIFORM FISH & BATRACHOIDID FISH’ 1. (Kurtids; genus *Kurtus*) nurseryfish 2. (Apogonids; numerous genera) cardinalfish 3. (Batrachoidids; numerous genera) toadfish / frogfish
- LPŠTY**- ‘GEMPYLID FISH’ 1. (genus *Thyrsites*, *Tyrsitoides*) snoek 2. (genera *Tongaichthys*, *Rexichthys*, *Promethichthys*, *Lepidocybium*, *Diplospinus*) escolar 3. (genera *Epinnula*, *Gempylus*, *Nealotus*, *Neoepinnula*, *Nesiarchus*, *Paradiplospinus*, *Rexea*, *Ruvettus*, *Thyrsitops*) snake mackerel, domine, oilfish, sackfish, black gemfish
- LPŠTL**- ‘GOBIOID FISH’ I 1. (Gobiines, Benthophilines, Gobionellines, Sicydiines; numerous genera) goby 2. (Amblyopines; numerous genera) eel goby / worm goby 3. (Oxucerdids; several genera) mudskipper



- LPŠTR-** ‘GOBIOID FISH’ II 1. (Ptereleotrids; numerous genera) dartfish 2. (Kraemeriids; genera *Kraemia*, *Gobitrichinotus*) sand darter 3. (Microdesmines; several genera) wormfish
- LPŠTR-** ‘GOBIOID FISH’ III 1. (Thalasseleotrids; genera *Thalasseleotris*, *Grahamichthys*) gudgeon 2. (Eleotrids, Butids and Odontobutids; numerous genera) sleeper goby / sleeper 3. (Milyeringids; several genera) blind cave goby,
- LPŠTČ-** ‘GOBIOID FISH’ IV 1. (Rhyacichthyids; genera *Protogobius*, *Rhyacichthys*) loach-goby 2. (Schindleriids; genus *Schindleria*) infantfish 3. (Xenisthmids; several genera) wriggler / collared wriggler, flathead wriggler
- LPŠTF-** ‘SCOMBRID FISH’ 1. (Thunnines; several genera) tuna 2. (Scombrines, Scoberomorines; Gasterochismatines; several genera) mackerel, Spanish mackerel, butterfly kingfish 3. (Sardini; genera *Sarda*, *Cybiosarda*, *Gymnosarda*, *Orcynopsis*) bonito
- LPŠŠTL-** ‘SCOMBRIFORM FISH’ I 1. (Bramids; several genera) pomfret, fanfish 2. (Stromateids; genera *Pampus*, *Peprilus*, *Stromateus*) butterfly, silver pomfret, harvestfish, Pacific pompano 3. (Nomeids and Ariommatids; genera *Cubiceps*, *Nomeus*, *Psenes*, *Ariomma*) driftfish, fathead, cubehead, cigarfish, man-of-war, bluebottle, ariomma, ariommid
- LPŠŠTR-** ‘SCOMBRIFORM FISH’ II 1. (Scombrolabracids; genus *Scombrolabrax*) longfin escolar / black mackerel 2. (Amarsipids; genus *Amarsipus*) amarsipa 3. (Tetragonurids; genus *Tetragonurus*) squaretail
- LPŠŠTR-** ‘SCOMBRIFORM FISH’ III 1. (Centrolophids; several genera) medusafish, ruff, rudderfish, blackfish, barrelfish, butterfish, warehou / trevalla 2. (Icosteids; genus *Icosteus*) ragfish 3. (Scombropids; genus *Scombrops*) gnomefish
- LPŠŠTČ-** ‘SCOMBRIFORM FISH’ IV 1. (genus *Sphyræna*) barracuda 2. (genus *Xiphias*) swordfish / broadbill 3. (Istiophorids; several genera) marlin / billfish
- LPŠTH-** ‘TRICHIURID FISH (CUTLASSFISH)’ 1. (genera *Aphanopus*, *Assurger*, *Evoxymetopon*, *Lepidopus*) scabbardfish 2. (genus *Benthodesmus*) frostfish 3. (genera *Eupleurogrammus*, *Demissolinea*, *Lepturacanthus*, *Tentoriceps*, *Thrichiurus*) hairtail
- LPŠŠT-** ‘SYNGNATHIFORM FISH’ I 1. (genus *Hippocampus*) seahorse 2. (Syngnathines; numerous genera) pipefish, pipehorse, seadragon 3. (Solenostomids; genus *Solenostomus*) ghost pipefish
- LPŠŠTW-** ‘SYNGNATHIFORM FISH’ II 1. (Pegasids; genus *Pegasus*, *Euypegasus*) seamoth 2. (genus *Aulostomus*) trumpetfish 3. (genus *Fistularia*) cornetfish / flutemouth
- LPŠŠTY-** ‘SYNGNATHIFORM FISH’ III 1. (Mullids; several genera) goatfish / red mullet 2. (Callionymids; numerous genera) dragonet 3. (Draconettids; genera *Draconetta*, *Centrodraco*) slope dragonet
- LPŠŠTF-** ‘SYNGNATHIFORM FISH’ IV 1. (Macroramphosids; genus *Macroramphosus*) snipefish / bellowfish 2. (Centriscids; genera *Aeoliscus*, *Centriscus*) shrimpfish 3. (Dactylopterids; genera *Dactyloptena*, *Dactylopterus*) flying gurnard / helmet gurnard
- LPŠTL-** ‘SYNBRANCHIFORM FISH’ 1. (Synbranchids; numerous genera) swamp eel 2. (Chaudhuriids; several genera) earthworm eel 3. (Mastacembelids; numerous - genera) spiny eel, fire eel
- LPŠTHW-** ‘ANABANTOID FISH (GOURAMI)’ 1. (Osphronemids; numerous genera) gourami 2. (Helostomids; genus *Helostoma*) kissing gourami, kisser 3. (Anabantids; several genera) climbing gourami / climbing perch
- LPŠŠTH-** ‘ANABANTIFORM FISH’ 1. (Channids; several genera) snakefish 2. (Badids; genera *Badis*, *Dario*) chameleonfish 3. (Nandids and Pristolepidids; several genera) Asian leaffish
- LPSP-** ‘CARANGID FISH’ I 1. (genus *Lichia*) leerfish / garrick 2. (genus *Trachinotus*) pompano 3. (genus *Scomberoides*) queenfish
- LPSPW-** ‘CARANGID FISH’ II 1. (genera *Oligoplites*, *Parona*) leatherjacket 2. (genus *Campogramma*) vadigo 3. (genus *Elagatis*) rainbow runner / rainbow yellowtail, Spanish jack / Hawaiian salmon
- LPSPY-** ‘CARANGID FISH’ III 1. (genus *Naucrates*) pilot fish 2. (genus *Seriola*) amberjack 3. (genus *Seriolina*) black-banded trevally
- LPSP-L-** ‘CARANGID FISH’ IV 1. (genus *Alectis*) threadfish, diamond trevally 2. (genus *Alepes*) scad 3. (genus *Atropus*) cleftbelly trevally

- LPSPR-** 'CARANGID FISH' V 1. (genera *Caranx*, *Carangoides*, *Hemicaranx*) jack, trevally, bludger 2. (genus *Atule*) yellowtail scad 3. (genus *Chloroscombrus*) bumper / bumperfish
- LPSPŘ-** 'CARANGID FISH' VI 1. (genus *Decapterus*) mackerel scad, round scad, rougher scad, Indian scad, redtail scad, Japanese scad, shortfin scad, koheru 2. (genus *Gnathodon*) golden trevally / golden kingfish / king trevally 3. (genus *Megalespis*) torpedo scad / hardtail scad / finny scad / finletted mackerel scad / cordyla scad
- LPSPÇ-** 'CARANGID FISH' VII 1. (genus *Pantolebus*) fringefin trevally / round-finned trevally / reef herring 2. (genus *Parastromateus*) black pomfret 3. (genus *Pseudocaranx*) white trevally, skipjack trevally
- LPSPF-** 'CARANGID FISH' VIII 1. (genus *Selar*) oxeye scad, bigeye scad 2. (genus *Selaroides*) yellowstripe scad / yellowstripe treally / yellow-banded trevally / smooth-tailed trevally / slender-scaled trevally 3. (genus *Selene*) lookdown, moonfish
- LPSPH-** 'CARANGID FISH' IX 1. (genus *Trachurus*) saurel / jack mackerel 2. (genus *Ulua*) silvermouth trevally, longrakered trevally 3. (genus *Uraspis*) whitetongue jack, cottonmouth jack, whitemouth jack
- LPSPĽ-** 'CARANGIFORM FISH' I 1. (genus *Nematistius*) roosterfish 2. (genus *Coryphaena*) dolphinfish 3. (genus *Rachycentron*) cobia / black kingfish / black bonito / lemonfish
- LPSPHW-** 'CARANGIFORM FISH' II 1. (Echeneids; several genera) remora / suckerfish, lousefish 2. (Menids; genus *Mene*) moonfish 3. (Centropomids; genus *Centropomus*) snook
- LPSPŤ-** 'CARANGIFORM FISH' III 1. (Polynemids; several genera) threadfin, bobo, barbu, paradise fish 2. (Leptobramids; genus *Leptobrama*) beachsalmon 3. (Toxotids; genus *Toxotes*) archerfish
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- PŠK-** 'PLEURONECTID FISH (RIGHTEYE FLOUNDER)' I 1. (*Hippoglossus hippoglossus*) Atlantic halibut 2. (*Hippoglossus stenolepis*) Pacific halibut 3. (genus *Reinhardtius*) Greenland halibut / Greenland turbot
- PŠKW-** 'PLEURONECTID FISH (RIGHTEYE FLOUNDER)' II 1. (genus *Hippoglossoides*) American plaice, flathead flounder, flathead sole, Bering flounder 2. (genus *Pleuronectes*) European plaice, Alaska plaice, American smooth flounder 3. (genus *Acanthopsetta*) scale-eye plaice
- PŠKY-** 'PLEURONECTID FISH (RIGHTEYE FLOUNDER)' III 1. (genus *Microstomus*) lemon sole, Pacific Dover sole, slime flounder 2. (genus *Eopsetta*) petrale sole, shotted halibut 3. (genus *Parophrys*) English sole
- PŠKL-** 'PLEURONECTID FISH (RIGHTEYE FLOUNDER)' IV 1. (genus *Embassichthys*) deepsea sole 2. (genus *Psettichthys*) Pacific sand sole 3. (genus *Lyopsetta*) slender sole
- PŠKR-** 'PLEURONECTID FISH (RIGHTEYE FLOUNDER)' V 1. (genus *Lepidopsetta*) rocksole, dusky sole, Northern rock sole 2. (genus *Isopsetta*) butter sole 3. (genus *Clidoderma*) roughscale sole
- PŠKŘ-** 'PLEURONECTID FISH (RIGHTEYE FLOUNDER)' VI 1. (*Glyptocephalus zachirus*) rex sole 2. (*Glyptocephalus cynoglossus*) witch flounder 3. (*Glyptocephalus stelleri*) blackfin flounder
- PŠKÇ-** 'PLEURONECTID FISH (RIGHTEYE FLOUNDER)' VII 1. (genus *Pleuronichthys*) curlfin sole, C-O sole, ridge-eyed flounder, ocellated turbot, spotted turbot, horny-head turbot 2. (genus *Limanda*) yellowfin sole, Sakhalin sole, common dab, longhead dab, yellowtail flounder, speckled flounder 3. (genus *Hypsopsetta*) diamond turbot
- PŠKF-** 'PLEURONECTID FISH (RIGHTEYE FLOUNDER)' VIII 1. (genus *Kereius*) stone flounder 2. (genus *Liopsetta*) Arctic flounder, Far Eastern smooth flounder 3. (genus *Platichthys*) European flounder, starry flounder, Baltic flounder
- PŠKH-** 'PLEURONECTID FISH (RIGHTEYE FLOUNDER)' IX 1. (genus *Pseudopleuronectes*) winter flounder, yellow-striped flounder, cresthead flounder, marbled flounder 2. (genus *Tenakius*) willow flounder 3. (genus *Verasper*) barfin flounder, spotted halibut
- PŠKŤ-** 'PLEURONECTID FISH (RIGHTEYE FLOUNDER)' X 1. (genus *Paralichthodes*) peppered flounder / measles flounder 2. (genus *Atheresthes*) Kamchatka flounder, arrowtooth flounder 3. (genera *Cleisthenes*, *Dexistes*) other righteye flounder

**-RPŠKL-** ‘RHOMBOSOLEID FISH (SOUTHERN HEMISPHERE RIGHTEYE FLOUNDER)’ I 1. (genus *Ammotretis*) shortfin flounder, elongate flounder, Tudor’s flounder, longsnout flounder 2. (genus *Azygopus*) banded-fin flounder / spotted flounder 3. (genus *Oncopterus*) Remo flounder

**-RPŠKR-** ‘RHOMBOSOLEID FISH (SOUTHERN HEMISPHERE RIGHTEYE FLOUNDER)’ II 1. (genus *Colistium*) New Zealand brill, New Zealand turbot 2 (genus *Peltorhamphus*) speckled sole, New Zealand sole 3. (genus *Pelotretis*) southern lemon sole / New Zealand lemon sole

**-RPŠKŘ-** ‘RHOMBOSOLEID FISH (SOUTHERN HEMISPHERE RIGHTEYE FLOUNDER)’ III 1. (genus *Rhombosolea*) yellowbelly flounder, sand flounder, black flounder, greenback flounder 2. (genus *Psammodiscus*) Indonesian ocellated flounder 3. (genus *Taratretis*) Derwent flounder

**-LPSK-** BOTHID FISH (LEFTEYE FLOUNDER) I 1. (genus *Arnoglossus*) scaldfish 2. (genus *Bothus*) Pacific eyed flounder, Guinean flounder, Pacific leopard flounder, plate fish, mottled flounder, flowery flounder, St. Helena flounder, Indo-Pacific oval flounder, eyed flounder, leopard flounder, wide-eyed flounder, twospot flounder 3. (genus *Crossorhombus*) blue flounder, Kobe flounder, broadbrow flounder, Lord Howe Island flounder

**-LPSKW-** ‘BOTHID FISH (LEFTEYE FLOUNDER)’ II 1. (genus *Engyophrys*) speckled-tail flounder, American spiny flounder 2. (genus *Grammatobothus*) Krempf’s flounder, Pennant flounder, threespot flounder 3. (genus *Engypropon*) fringelip dwar flounder, Bellona flounder, Bleeker’s flounder, Largescale flounder, Hureau’s flounder, long pectoral fin flounder, olive wide-eyed flounder, Natal flounder, Regan’s flatfish, long snout flounder, seven pelvic ray flounder

**-LPSKY-** ‘BOTHID FISH (LEFTEYE FLOUNDER)’ III 1. (genus *Kamoharaia*) wide-mouthed flounder 2. (genus *Laeops*) clear fin-base flounder, Philippine slender flounder, Günther’s flounder, khaki flounder, blackspotted flounder, small headed flounder, Longarm flounder 3. (genus *Monolene*) slim flounder, Asaetae flounder, Acapulco flounder, Pacific deepwater flounder, Merten’s moonflounder, smalltooth moonflounder, deepwater flounder

**-LPSKL-** ‘BOTHID FISH (LEFTEYE FLOUNDER)’ IV 1. (genus *Lophonectes*) crested flounder 2. (genus *Perissias*) striped-fin flounder 3. (genera *Asterorhombus*, *Chascanopsetta*, *Japonolaeops*, *Neolaeops*, *Parabothus*, *Psettina*, *Taeniopsetta*, *Tosarhombus*, *Tricopsetta*) other lefteye flounder

**-LPSKR-** ‘PARALYCHTHYID FISH (LARGE-TOOTH FLOUNDER)’ I 1. (genus *Ancylosetta*) Cyclope founder, three-spot flounder, three-eye flounder, four-eyed flounder, Gulf of Mexico ocellated flounder 2. (genus *Citharichthys*) megrim / whiff, sanddab 3. (genus *Cyclopsetta*) Mexican flounder, spotfin flounder, God’s flounder, toothed flounder

**-LPSKŘ-** ‘PARALYCHTHYID FISH (LARGE-TOOTH FLOUNDER)’ II 1. (genus *Etropus*) fringed flounder, shelf flounder, smallmouth flounder, Peruvian flounder, gray flounder, sole flounder, Delsman’s flounder 2. (genus *Gastropsetta*) shrimp flounder 3. (genus *Hippoglossina*) bigmouth flounder, fourspot flounder, American fourspot flounder

**-LPSKÇ-** ‘PARALYCHTHYID FISH (LARGE-TOOTH FLOUNDER)’ III 1. (genus *Paralichthys*) fine flounder, Cortez flounder, gulf flounder, Brazilian flounder, California flounder, summer flounder, fluke, bastard halibut, Patagonian flounder, broad flounder, tropical flounder, speckled flounder, olive flounder 2. (genus *Pseudorhombus*) ringed flounder, peacock flounder, largetooth flounder, cinnamon flounder, four twin-spot flounder, ocellated flounder, deep flounder, Javan flounder, small-toothed flounder, Malayan flounder, roughscale flounder, fivespot flounder, five-eyed flounder, spiny flounder, three spotted flounder 3. (genus *Syacium*) Papillose flounder, shoal flounder, beach flounder, longfin flounder, clearspot flounder, channel flounder, oval flounder, dusky flounder

**-LPSKF-** ‘PARALYCHTHYID FISH (LARGE-TOOTH FLOUNDER)’ IV 1. (genus *Tephrinectes*) Chinese brill 2. (genus *Xystreurus*) fantail flounder 3. (genera *Cephalopsetta*, *Tarphops*, *Thysanopsetta*) other large-tooth flounder

**-LPSKH-** ‘CITHARID FISH (LARGESCALE FLOUNDER)’ 1. (genus *Brachypleura*) yellow-dabbled flounder 2. (genus *Lepidoblepharon*) scale-eyed flounder 3. (genera *Citharus*, *Citharoides*) branched ray flounder, twospot largescale flounder, spotted flounder

**-LPSKL-** ‘POECILOPSETTINE FISH (BIGEYE FLOUNDER)’ 1. (genus *Marleyella*) comb flounder 2. (genus *Nematops*) large-scale righteye flounder, narrow-body righteye flounder, small-mouth righteye flounder 3. (genus *Poecilopsetta*) deepwater dab, colored righteye flounder, African righteye flounder, tile-colored righteye flounder, Alcock’s narrow-body righteye flounder

**-LPSKHW-** ‘ACHIROPSETTID FISH (SOUTHERN FLOUNDER)’ 1. (genera *Achiropsetta*, *Neoarchiropsetta*) finless flounder / prickly flounder, armless flounder 2. (genus *Mancopsetta*) Antarctic armless flounder 3. (genus *Pseudomancopsetta*) pygmy flounder

**-LPSKŤ-** ‘SAMARID FISH (CRESTED FLOUNDER)’ 1. (genus *Samaris*, *Samaretta*) crested flounder, cockattoo righteye flounder, large-scale crested righteye flounder 2. (genus *Samariscus*) coralline-red flounder, Huysman’s righteye flounder, deep-body righteye flounder, longfinned flounder, Luzon righteye flounder, large-mouth righteye flounder, spotted righteye flounder, New Caledonian righteye flounder, Nielsen’s righteye flounder, Sunier’s righteye flounder, three-spot righteye flounder 3. (genus *Plagiopsetta*) tongue flatfish

**-PŠT-** ‘ACHIRID FISH (AMERICAN SOLE)’ 1. (genus *Achirus*) drab sole, plainfin sole, brown sole, lined sole, Mazatlan sole, American sole, network sole 2. (genus *Trinectes*) fringed sole, freshwater sole, spotted-in sole, scrawled sole, hogchoker, spotted-cheek sole, slipper sole 3. (genera *Apionichthys*, *Catathyridium*, *Gymnachirus*, *Hypoclinemus*, *Pnictes*) other American sole fish

**-PŠTW-** ‘SOLEID FISH (TRUE SOLE)’ I 1. (*Solea solea*) common sole 2. (genus *Solea* [other than *S. solea*]) Egyptian sole, elongated sole, ovate sole, Senegalese sole, Stanaland’s sole 3. (genera *Achiroides*, *Barnardichthys*, *Bathysolea*, *Brachirus*, *Dagetichthys*, *Liachirus*, *Paradicula*, *Phyllichthys*, *Rendahlia*, *Rhinosolea*, *Synapturichthys*, *Synclidopus*, *Typhlachirus*) other true sole fish

**-PŠTY-** ‘SOLEID FISH (TRUE SOLE)’ II 1. (genus *Buglossidium*) yellow sole / solonette 2. (genus *Dexillus*) tufted sole 3. (genus *Dicologlossa*) wedge sole

**-PŠTL-** ‘SOLEID FISH (TRUE SOLE)’ III 1. (genus *Heteromycteris*) Cape sole, hook-nosed sole, bamboo sole, true sole 2. (genus *Leptachirus*) Allen’s sole, Bensbach River sole, Darwin sole, Kikori River sole, tailed sole, Lorentz River sole, manyscale sole, Robert’s sole, three-line sole 3. (genus *Microchirus*) bastard sole, Lusitanian sole, Frechkop’s sole, foureyed sole, thickback sole, banded sole

**-PŠTR-** ‘SOLEID FISH (TRUE SOLE)’ IV 1. (genus *Monochirus*) whiskered sole 2. (genus *Pardachirus*) piebald sole, peacock sole, southern peacock sole, finless sole, Persian carpet sole, estuary sole 3. (genus *Pegusa*) Cadenat’s sole, Adriatic sole, sand sole, blackhand sole, Cyclope sole

**-PŠTŘ-** ‘SOLEID FISH (TRUE SOLE)’ V 1. (genera *Aesopia*, *Pseudoaesopia*, *Zebria*) zebra sole, unicorn sole, banded sole, thickray sole, wavyband sole 2. (genus *Aseraggodes*) poisonous sole 3. (genus *Austroglossus*) west coast sole, mud sole

**-PŠTÇ-** ‘SOLEID FISH (TRUE SOLE)’ VI 1. (genus *Soleichthys*) whiteblotched sole, small-head sole, banded-eye sole, snakeskin sole 2. (genus *Synaptura*) Kaup’s sole, Guinean sole, Commerson’s sole, Portuguese sole, white-margined sole, saltpan sole 3. (genus *Vanstraelenia*) African solonette

**-PŠTF-** ‘SCOPHTALMID FISH (TURBOT / BRILL)’ 1. (genus *Scophthalmus*) turbot, brill, Black Sea turbot, windowpane flounder 2. (genus *Lepidorhombus*) megrim / whiff 3. (genera *Phrynorhombus*, *Zeugopterus*) topknot

**-PŠTH-** ‘OTHER PLEURONECTIFORM FISH’ 1. (Psettodids; genus *Psettodes*) spiny turbot, spottail spiny turbot, Indian halibut 2. (Cynoglossids; several genera) tonguefish

**-PSSK-** ‘CICHLIFORM FISH’ (Pholidichthyids; genus *Pholidichthys*) convict or engineer blenny / convict or engineer globy 2. (Tilapioids [Coelotilapines, Coptodonines, Heterotilapines, Oreochromines, Pelmatolapiines, Tilapiines]; numerous genera) tilapia 3. (other Cichlids; numerous genera) cichlid

**-PSSKW-** ‘AQUARIUM CICHLID FISH’ 1. (genus *Pterophyllum*) angelfish 2. (genus *Archocentrus*) convict cichlid / zebra cichlid 3. (genus *Symphysodon*) discus, pompadour fish

**-PSSKY-** ‘SPORT-FISHING CICHLID FISH’ 1. (genus *Cichla*) peacock bass 2. (genus *Astronotus*) oscar, tiger oscar, velvet cichlid, marble cichlid 3. (genus *Mayaheros*) Mayan cichlid / Mexican mojarra

**-PSSKL-** ‘BELONIFORM FISH’ I 1. (Adrianichthyids; several genera) ricefish, medaka 2. (Belonids; numerous genera) needlefish, long tom 3. (Exocoetids; several genera) flying fish / flying cod

**-PSSKR-** ‘BELONIFORM FISH’ II 1. (Scomberesocids; genera *Cololabis*, *Scomberesox*) saury 2. (Hemiramphids; several genera) halfbeak / spipefish, ballyhoo 3. (Zenarchopterids; several genera) viviparous halfbeak

**-PSSKŘ-** ‘CYPRINODONTIFORM FISH’ 1. (Aplocheiloids, Profundulids, Fundulids, Valenciids; numerous genera) killifish, topminnow 2. (Cyprinodontids; numerous species) pupfish 3. (Goodeids; numerous genera) springfish, poolfish, goodeid, splitfin, characodon, skiffia

- PSSKÇ-** ‘ANABLEPID FISH’ 1. (genus *Anableps*) four-eyed fish 2. (genus *Jenynsia*) onesided livebearer 3. (genus *Oxyzygonectes*) white-eye
- PSSKF-** ‘POECILIID FISH’ 1. (Procatopodines; numerous genera) lampeye 2. (Aplocheilichthines; genus *Aplocheilichthys*) banded lampeye 3. (Poeciliines; numerous genera) livebearer
- PSSKH-** ‘ATHERINOPSID FISH (NEOTROPICAL SILVERSIDE)’ 1. (genus *Atherinops*) topmelt, topmelt silverside 2. (genus *Atherinopsis*) jacksmelt, jack silverside 3. (genus *Leuresthes*) grunion
- PSSKL-** ‘ATHERINOFORM FISH’ 1. (other Atherinopsids, Notocheirids; genera *Odontesthes*, *Basilichthys*, *Colpichthys*, *Notocheirus*) other neotropical silverside fish 2. (Menidiines; numerous genera) menidiine silverside 3. (Atherinids; numerous genera) Old World silverside
- PSSKT-** ‘ATHERINOID FISH’ 1. (Isonids; genus *Iso*) surf sardine, surf sprite, flower of the wave 2. (Phallostethids; several genera) priapium fish 3. (Atherionids and Dentatherinids; genera *Atherion*, *Dentatherina*) pricklenose silverside, bearded silverside, McCulloch’s hardyhead, tusked silverside
- LPST-** ‘MELANOTAENIID FISH (RAINBOWFISH)’ 1. (Melanotaenines; several genera) rainbowfish 2. (Bedotiines and Telmatherinines; several genera) Madagascar rainbowfish, Celebes rainbowfish 3. (Pseudomugilines; genera *Kiunga*, *Pseudomugil*, *Scaturiginichthys*) blue-eye
- LPSTW-** ‘AMBASSID FISH’ 1. (genera *Ambassis*, *Parambassis*, *Gymnochanda*, *Paradoxodacna*, *Pseudoambassis*, *Chanda*) glassy, perchlet, glass(y) perchlet, glassfish 2. (genus *Tetracentrum*) four-spined glass perchlet 3. (genus *Denariusa*) pennyfish
- LPSTY-** ‘MUGILID, EMBIOTOCID, & GRAMMATID FISH’ 1. (Mugilids; numerous genera) grey mullet 2. (Embiotocids; numerous genera) surfperch / seaperch 3. (Grammatids; genera *Gramma*, *Lipogramma*) basslet
- LPSTL-** ‘PLESIOPID FISH (LONGFIN / ROUNDHEAD)’ I 1. (genus *Acanthoclinus*) rockfish 2. (genus *Acanthoplesiops*) spiny basslet, scottie, longfin 3. (genus *Beliops*) Batan longfin, Southern longfin
- LPSTR-** ‘PLESIOPID FISH (LONGFIN / ROUNDHEAD)’ II 1. (genus *Belonepterygion*) barred spiny basslet 2. (genus *Notograptus*) shark-tailed eel-blenny, spotted eel-blenny 3. (genus *Assessor*) yellow devilfish, blue devilfish, Randall’s devilfish
- LPSTR-** ‘PLESIOPID FISH (LONGFIN / ROUNDHEAD)’ III 1. (genus *Callopleysiops*) comet / marine betta 2. (genus *Fraudella*) carp prettyfin 3. (genus *Paraplesiops*) blue devil
- LPSTÇ-** ‘PLESIOPID FISH (LONGFIN / ROUNDHEAD)’ IV 1. (genus *Plesiops*) longfin, prettyfin 2. (genus *Steeneichthys*) Christmas longfin, Steene’s prettyfin 3. (genus *Trachinops*) hulafish
- RPSK-** ‘PSEUDOCROMID FISH (DOTTYBACK)’ 1. (Congrogadines; numerous genera) eel-blenny 2. (Pseudochromines and Anisochromines; numerous genera) dottyback 3. (Pseudoplesiopines; several genera) dottyback
- RPSKL-** ‘POMACENTRID FISH’ 1. (Amphiprionines; genera *Amphiprion*, *Premnas*) clownfish / anemonefish 2. (Chromines [other than *Dascyllus*] and Lepidozygines; several genera) damselfish 3. (genus *Dascyllus*) dascyllus, humbug
- RPSKHW-** ‘POMACENTRINE FISH’ I 1. (genus *Abudefduf*) sergeant, sergeant-major, nightsergeant 2. (genus *Hypsypops*) garibaldi 3. (genus *Neopomacentrus*) demoiselle / lyretail damselfish
- RPSKT-** ‘POMACENTRINE FISH’ II 1. (genus *Parma*) scalyfin, New Zealand black angelfish 2. (genus *Stegastes*) gregory 3. (genera *Chrysiptera*, *Amblyglyphidodon*, *Neopomacentrus*, *Cheiloprion*, *Dischistodus*, *Hemiglyphidodon*, *Teixeirichthys*, *Similiparma*, *Pomachromis*, *Plectroglyphidodon*, *Nexilosus*, *Microspathodon*, *Mecaenichthys*) damsel
- PSSP-** ‘BLENNIOID FISH’ I 1. (Blenniids and Labrisomids; numerous genera) blenny, rockskipper, combtooth blenny 2. (Chaenopsids; numerous genera) pike-blenny, tube-blenny, flagblenny 3. (Dactyloscopids; numerous genera) sand stargazer

- PSSPW-** ‘BLENNIOID FISH’ II 1. (Clinids; numerous genera) klipfish, cline, weedfish, kelpfish, eel blenny 2. (Tripterygiids; numerous genera) triplefin / threefin, triplefin blenny
- PSSPY-** ‘BLENNIMORPHIC FISH’ 1. (Opistognathids; several genera) jawfish 2. (Gobiesocids; numerous genera) clingfish
- PSSPL-** ‘LABRID FISH (WRASSE)’ I 1. (genus *Halichoeres* and numerous other genera) wrasse 2. (genera *Bodianus*, *Lachnolaimus*) hogfish 3. (Scarine labrids; numerous genera) parrotfish
- PSSPR-** ‘LABRID FISH (WRASSE)’ II 1. (genus *Xyrichtys*) razorfish 2. (genus *Coris*) rainbow wrasse, coris 3. (genus *Choerodon*) tuskfish
- PSSPŘ-** ‘LABRID FISH (WRASSE)’ III 1. (genus *Tautoga*) tautog, blackfish 2. (genus *Tautogolabrus*) bergall 3. (genus *Labroides*) cleaner wrasse
- PSSPÇ-** ‘LABRID FISH (WRASSE)’ IV 1. (genus *Labrichthys*) tubelip wrasse 2. (genus *Diproctacanthus*) yellowtail tubelip 3. (genus *Achoerodus*) blue groper
- PSSPF-** ‘LABRIFORM FISH’ 1. (Odacids; several genera) cale, weed whiting
- PSSPH-** ‘TRACHINIFORM FISH’ I 1. (Trachinids; genera *Trachinus*, *Echichthys*) weever / weeverfish 2. (Creediids; several genera) sandburrer / burrower, sand diver 3. (Ammodytids; several genera) sandlance / sand lance, sand eel, launce
- PSSPL-** ‘TRACHINIFORM FISH’ II 1. (Chiasmodontids; several genera) snaketooth fish / swallower 2. (Champsodontid; genus *Champsodon*) crocodile toothfish, sabre-gill, gaper 3. (Cheimarrichthyids; genus *Cheimarrichthys*) torrentfish
- PSSPHW-** ‘TRACHINIFORM FISH’ III 1. (Leptoscopids; genera *Crapatalus*, *Leptoscopus*, *Lesueuina*) southern sandfish, flathead pygmy-stargazer, estuary stargazer 2. (Percophids; numerous genera) duckbill 3. (Pinguipedids; several genera) sandperch, grubfish
- PSSPT-** ‘TRACHINIFORM FISH’ IV 1. (Trichodontids; genera *Trichodon*, *Arctoscopus*) sandfish 2. (Trichonotids; genus *Trichonotus*) sand-diver 3. (Uranoscopids; several genera) stargazer
- RPSP-** ‘CENTRARCHID FISH’ I 1. (genus *Lepomis*) sunfish 2. (genus *Micropterus*) black bass 3. (genus *Pomoxis*) crappie
- RPSPW-** ‘CENTRARCHID FISH’ II 1. (genus *Enneacanthus*) banded sunfish 2. (genus *Centrarchus*) flier 3. (genus *Archoplites*) Sacramento perch
- RPSPY-** ‘CENTRARCHID FISH’ III 1. (genus *Ambloplites*) rock bass, shadow bass, Roanoke bass, Ozark bass 2. (genus *Acantharchus*) mud sunfish
- RPSPL-** ‘CENTRARCHIFORM FISH’ I: 1. (Aplodactylids; genus *Aplodactylus*) marblefish, sea carp, rock cale 2. (Latrids and Cheilodactylids; several genera) trumpeter, morwong / butterfish / fingerfin / jackassfish / sea carp / snapper / moki 3. (Chironemids; genus *Chironemus*) kelpfish, silver spot
- RPSPR-** ‘CENTRARCHIFORM FISH’ II: 1. (Cirrhitids; numerous genera) hawkfish 2. (Dichistiids; genus *Dichistius*) galjoen 3. (Elassomatids; genus *Elassoma*) pygmy sunfish
- RPSPŘ-** ‘CENTRARCHIFORM FISH’ III: 1. (Enoplosids; genus *Enoplosus*) old wife 2. (Girellines; genera *Girella*, *Graus*) nibbler, drummer, opaleye, parore, blackfish, stripey bream 3. (Kuhliids; genus *Kuhlia*) flagtail
- RPSSTŘ-** ‘CENTRARCHIFORM FISH’ IV: 1. (Kyphosines; several genera) sea chub 2. (Microcantines; several genera) footballer, moonlighter 3. (Scorpidines; several genera) halfmoon, grey knife-fish, blue knife-fish, sweep
- RPSSTÇ-** ‘CENTRARCHIFORM FISH’ V: 1. (Oplegnathids; genus *Oplegnatus*) knifejaw 2. (Percichthyids, Percalatids, Perciliids, and Sinipercids; numerous genera) temperate perch, nightfish, pygmy perch, perchlet, mandarin fish, oriental perch 3. (Terapontids; numerous genera) grunter, tigerperch, terapon, trumpeter
- PSSC-** ‘TETRADONTIFORM FISH’ I: 1. (Tetradontids and Triodontids; numerous genera) puffer, pufferfish, blowfish, globefish, balloonfish, blowie, bubble fish, swellfish, toadfish, toady, honey toad, sugar toad, sea squab, toby, blaasop 2. (Diodontids; several genera) porcupine fish / blowfish, burrfish, swelltoad 3. (Triacanthodontids; numerous genera) spikefish, trumpetsnout
- PSSČ-** ‘TETRADONTIFORM FISH’ II: 1. (Balistids; numerous genera) triggerfish, picasso fish 2. (Triacanthids; several genera) triplespine / tripodfish 3. (Monacanthids; numerous genera) filefish, foolfish, shingle, leatherjacket, scraper

- PŠŠČ-** ‘TETRADONTIFORM FISH’ III: 1. (Molids; genera *Mola*, *Mastrurus*, *Ranzania*) sunfish / mola 2. (Ostraciids and Aracanids; several genera) boxfish, cowfish, trunkfish, turretfish, basketfish
- PSST-** ‘SCORPAENIFORM FISH’ I: 1. (Scorpaenids; numerous genera) scorpionfish, rock fish, red rock cod 2. (genus *Taenionotus*) paperfish / leaf scorpionfish 3. (genus *Centrogenys*) false scorpionfish
- PSSTW-** ‘SCORPAENIFORM FISH’ II: 1. (genus *Dendrochirus*) lionfish, firefish, turkey fish 2. (genus *Ebrosia*) lionfish 3. (genus *Pterois*) lionfish, zebrafish, firefish, turkeyfish / tastyfish / butterfly-cod
- PSSTY-** ‘SCORPAENIFORM FISH’ III: 1. (Apistids and Tetrarogids; numerous genera) wasp scorpionfish, waspfish 2. (genus *Centropogon*) fortescue 3. (genera *Glyptauchen*, *Neovespicula*) goblinfish, leaf goblinfish
- PSSTL-** ‘SCORPAENIFORM FISH’ IV: 1. (genus *Gymnapistes*) cobbler / estuary cobbler 2. (genus *Notesthes*) bullrout / freshwater stonefish / kroki 3. (genus *Tetraroge*) bearded roguefish
- PSSTR-** ‘SCORPAENIFORM FISH’ V: 1. (Agonids, Bathyagonines and Bothragonines; several genera) poacher, snailfish, starsnout, rockhead 2. (genus *Agonus*) hooknose / pogge / armed bullhead 3. (Anoplagonines; several genera) alligatorfish
- PSSTRĚ-** ‘SCORPAENIFORM FISH’ VI: 1. (Anoplopomatids; genera *Anoplopoma*, *Erilepsis*) sablefish / butterfish / black cod / blue cod / bluefish / candlefish / coal cod / coalfish / beshow, skilfish 2. (Hexagrammids; several genera) greenling, ling cod / buffalo cod 3. (Normanichthyids; genus *Normanichthys*) mole sculpin
- PSSTÇ-** ‘SCORPAENIFORM FISH’ VII: 1. (Sebastids; several genera) rockfish, rock perch, ocean perch, sea perch, thornyhead, sea ruffe, rockcod 2. (Neosebastids; genera *Neosebastes*, *Maxilllicosta*) gurnard perch, gurnard scorpionfish 3. (Triglids; numerous genera) sea robin, gurnard, latchet, piper gurnard
- PSSTF-** ‘SCORPAENIFORM FISH’ VIII: 1. (Synanceids; numerous genera) stonefish, stinger, stingfish, ghoul, devilfish 2. (Congiopodids and Perryenids; several genera) pigfish, horsefish, racehorse 3. (Pataecids; several genera) Australian prowfish, red Indianfish
- PSSTH-** ‘SCORPAENIFORM FISH’ IX: 1. (Eschmeyerids; genus *Eschmeyer*) cofish 2. (Plectrogenids; genus *Plectrogenium*) stinger flathead 3. (Setarchids; several genera) deap-sea bristly scorpionfish
- PSSTĹ-** ‘SCORPAENIFORM FISH’ X: 1. (Aploactinids and Gnathanacanthids; numerous genera) velvetfish, red velvetfish 2. (genus *Adventor*) visitor 3. (Caracanthids; genus *Caracanthus*) coral croucher, orbicular velvetfish
- PSSDL-** ‘COTTOID FISH (SCULPIN)’ I: 1. (Cottids; numerous species) sculpin, bullhead, cabezon 2. (Bathylutichthyids; genus *Bathylutichthys*) Antarctic sculpin 3. (Hemitripterids; several genera) sea raven
- PSSDR-** ‘COTTOID FISH (SCULPIN)’ II: 1. (Icelids; genus *Icelus*) scaled sculpin 2. (Comephorids; genus *Comephorus*) Baikal oilfish 3. (Cottocomephorids; several genera) Baikal sculpin / bighead sculpin
- PSSDRĚ-** ‘COTTOID FISH (SCULPIN)’ III: 1. (Ereuniids; genera *Ereunias*, *Marukawichthys*) deepwater bullhead sculpin 2. (Psychrolutids; numerous genera) blobfish, toadfish, flathead sculpin, tadpole sculpin, fathead sculpin 3. (Rhampnocottids; genus *Rhampnocottus*) grunt-fish / grunt sculpin
- PSSDV-** ‘COTTOID FISH (SCULPIN)’ IV: 1. (Cyclopterids; several genera) lumpsucker / lumpfish 2. (Liparids; numerous genera) snailfish / sea snail 3. (Abyssocottids; several genera) deep-water sculpin
- PSBV-** ‘PLATYCEPHALOID (FLATHEAD) FISH’ 1. (Platycephalids, Bembrids, Parabembrids, and Hoplichthyids; numerous genera) flathead, deep-water flathead, ghost flathead / armoured flathead 2. (genus *Papilloculiceps*) crocodilefish 3. (Peristediids; several genera) armored searobin / armored gurnard
- PSPT-** ‘GASTEROSTEOID FISH’ 1. (Gasterosteids; several genera) stickleback 2. (Aulorhynchids; genus *Aulorhynchus*) tube-snout 3. (Hypoptychids; genera *Hypoptychus*, *Aulichthys*) sand-eel, tubenose, sandlance

**-PSSBW-** ‘LOPHIIFORM FISH (ANGLERFISH)’ I 1. (Lophiids; several genera) angler, goosefish, monkfish, sea-devil 2. (Brachionichthyids; several genera) handfish / warty angler 3. (Chaunacids; genera *Chaunax*, *Chaunacops*) sea toad / coffinfish, frogmouth

**-PSSBY-** ‘LOPHIIFORM FISH (ANGLERFISH)’ II 1. (Antennariines and Lophichthyids; several genera) frogfish 2. (Histiophrynines; several genera) anglerfish 3. (Tetrabrachiids; genera *Tetrabrachium*, *Dibrachichthys*) four-armed frogfish

**-PSSBL-** ‘LOPHIIFORM FISH (ANGLERFISH)’ III 1. (Ogcocephalids; numerous genera) batfish, seabat 2. (Himantolophids; genus *Himantolophus*) footballfish 3. (Centrophrynids; genus *Centrophryne*) horned lantern fish / prickly seadevil

**-PSSBR-** ‘LOPHIIFORM FISH (ANGLERFISH)’ IV 1. (Ceratiids; genera *Ceratias*, *Cryptopsaras*) warty seadevil 2. (Diceratiids; genera *Diceratias*, *Bufoceratias*) double angler / doublespine seadevil 3. (Neoceratids; genus *Neoceratias*) toothed seadevil / spiny seadevil / netbeard seadevil

**-PSSBŘ-** ‘LOPHIIFORM FISH (ANGLERFISH)’ V 1. (Caulophrynids; genera *Caulophryne*, *Robia*) fanfin / hairy anglerfish / fanfin seadevil 2. (Melanocetids; genus *Melanocetus*) black seadevil 3. (Thaumaticthyids; genera *Thaumaticthys*, *Lasiognathus*) wolftrap angler

**-PSSBV-** ‘LOPHIIFORM FISH (ANGLERFISH)’ VI: 1. (Oneirodids; numerous genera) dreamer, dreamarm, tyrant devil 2. (Gigantoactinids; genera *Gigantactis*, *Rhynchactis*) whipnose / whipnose angler / whipnose seadevil 3. (Linophrynids; several genera) leftvent / bearded seadevil, netdevil

**-PŠP-** ‘PERCID FISH’ 1. (Percines; several genera) perch, ruffe, schraetzer, percarina 2. (Etheostomatines; several genera) darter 3. (Lucioperines; several genera) sculpin-perch, asprete, walleye, pike-perch, Zander, Sauger, streber, zingel

**-PŠPW-** ‘LUTJANIFORM FISH’ 1. (Lutjanids; numerous genera) snapper, jobfish, wenchman, pinjalo, beeliner, Chinamanfish 2. (Haemulines and Plectorhynchines; several genera) grunt, sargo, porkfish, margate, porgy, bonnetmouth, boga, dara, grunter, piggy, salema, sweetlips, rubberlip, slatey, thicklip, hotlips 3. (Caesionids; several genera) fusilier, banana fish

**-PŠPY-** ‘LOBOTIFORM FISH’ 1. (Datnioidids; genus *Datnioides*) tigerfish, tiger perch, freshwater tripletail 2. (Lobotids; genus *Lobotes*) tripletail 3. (Hapalogenyids; genus *Hapalogenys*) barbeled grunter, velvetchin, javelinfish

**-PŠPL-** ‘ACANTHUROID FISH’ I 1. (genera *Acanthurus*, *Ctenochaetus*, *Prionurus*, *Paracanthurus*) surgeonfish, sawtail, doctorfish 2. (genus *Naso*) unicorn fish 3. (genus *Zebrasoma*) tang

**-PŠPR-** ‘ACANTHUROID FISH’ II: 1. (Siganids; genus *Siganus*) rabbitfish / spinefoot 2. (Scatophagids; genera *Scatophagus*, *Selenotoca*) scat 3. (Luvarids; genus *Luvaris*) louvar / luvar

**-PŠPŘ-** ‘ACANTHUROID FISH’ III: 1. (Ehippids; several genera) spadefish, batfish 2. (Drepaneids; genus *Drepane*) sicklefish, concertina fish 3. (Zanclids; genus *Zanclus*) Moorish idol

**-PŠPÇ-** ‘PRIACANTHIFORM & CAPROIFORM FISH’ 1. (Priacanthids; several genera) bigeye, bulleye, bullseye, catalufa, glasseye 2. (Cepolids; several genera) bandfish 3. (Caproids; genera *Capros*, *Antigonia*) boarfish

**-PŠPF-** ‘SPARIFORM FISH’ 1. (Sparids; numerous species) sea bream, porgy, picarel, musselcracker, pinfish, oblade, scup, salema, goldline 2. (Nemipterids; several genera) whiptail bream, false snapper, thread-fin bream, monocle bream, whiptail 3. (Lethrinids; several genera) emperor, emperor bream, big-eye-bream, pigface bream, large-eye bream

**-PŠPH-** ‘SERRANID FISH (SEA BASS & GROUPER)’ 1. (Anthiades, Liopropomatines, & Serranines; numerous genera) sea bass, wirrah, koester, seaperch, splitfin, swallowtail, jewelfish, harlequin fish, perchlet, anthias, basslet, goldie, hamlet, comber 2. (Epinephelines; numerous genera) grouper, coral grouper, lyretail, hind, mutton hamlet 3. (Grammistines; several genera) soapfish, podge, skunkfish

**-PSKH-** ‘ZOARCOID FISH’ I 1. (Anarhichadids; genera *Anarhichas*, *Anarrhichthys*) wolffish / sea wolf, wolf eel 2. (Bathymasterids; genera *Bathymaster*, *Rathbunella*, *Ronquilus*) ronquil / ronchil, searcher 3. (Zoarcids; numerous genera) eelpout, pout, fish doctor



**-PSKL-** ‘ZOARCOID FISH’ II 1. (Cryptacanthodids; genus *Cryptacanthodes*) wrymouth 2. (Scytalinids; genus *Scytalina*) graveldiver 3. (Ptilichthyids; genus *Ptilichthys*) quillfish

**-PSKT-** ‘ZOARCOID FISH’ III 1. (Pholids; several genera) gunnel 2. (Stichaeids; numerous genera) prickleback / shanny 3. (Zaprroids; genus *Zaprora*) prowfish

**-PŠTL-** ‘NOTOTHENIOID FISH’ I 1. (Nototheniids; numerous genera) cod icefish / notothen, icedevil, toothfish, notie, rockcod, Antarctic silverfish, southern cod, scalyhead 2. (Bathydraconids; numerous genera) Antarctic dragonfish, ploughfish 3. (Channichthyids; numerous genera) crocodile icefish / white-blooded fish, icefish

**-PŠKL-** ‘NOTOTHENIOID FISH’ II 1. (Pseudaphritids; genus *Pseudaphritis*) congoli / tupong, catadromous icefish 2. (Eleginopsids; genus *Eleginops*) Patagonian blenny / Falkland’s mullet 3. (Bovichtids; several genera) thornfish, bull blenny

**-PŠPL-** ‘NOTOTHENIOID FISH’ III 1. (Harpagiferids; genus *Harpagifer*) spiny plunderfish / plunderfish 2. (Artedidraconids; several genera) barbeled plunderfish

**-PŠTHW-** ‘PEMPHERIFORM FISH’ I 1. (Phempherids; genera *Pempheris*, *Parapriacanthus*) sweeper, bullseye 2. (Symphsanodontids; genus *Symphysanodon*) slopefish 3. (Banjosids; genus *Banjos*) banjofish

**-PŠKHW-** ‘PEMPHERIFORM FISH’ II 1. (Epigonids; several genera) deepwater cardinalfish 2. (Pentacerotids; several genera) armorhead, boarfish 3. (Glaucosomatids; genus *Glaucosoma*) pearl perch, jewfish

**-PŠPHW-** ‘PEMPHERIFORM FISH’ III 1. (Howellids; several genera) oceanic basslet 2. (Bathyclupeids; genera *Bathyclupea*, *Neobathyclupea*) deep-sea herring 3. (Polyprionids; genera *Polyprion*, *Stereolepis*) wreckfish, giant sea bass, bass grouper

**-RPŠK-** ‘MISCELLANEOUS PERCOMORPHARIAN FISH’ I 1. (Gerreids; several genera) mojarra 2. (Chaetodontids; several genera) butterflyfish, coralfish bannerfish, pennantfish, talma, barberfish 3. (Leiognathids; numerous genera) ponyfish, slipmouth, toothpony, slimy

**-RPŠKW-** ‘MISCELLANEOUS PERCOMORPHARIAN FISH’ II 1. (Lateolabracids; genus *Lateolabrax*) Asian seabass 2. (Dinopercids; genera *Dinoperca*, *Centrarchopos*) cavebass, barred seabass, lampfish 3. (Callanthiids; genera *Callantias*, *Grammatonotus*) splendid perch, groppo

**-RPŠKY-** ‘MISCELLANEOUS PERCOMORPHARIAN FISH’ III 1. (Moronids; genera *Morone*, *Dicentrarchus*) temperate bass, white perch 2. (Acropomatids; several genera) lanternbelly / temperate ocean bass, rosy seabass / blackthroat seaperch, seabass, splitfin 3. (Latids; several genera) lates perch, spikey bass, Waigieu seaperch, Waigeo barramundi

**-RPŠKÇ-** ‘MISCELLANEOUS PERCOMORPHARIAN FISH’ IV 1. (Caristiids; several genera) manefish 2. (Polycentrids; genera *Monocirrhus*, *Polycentrus*) leaffish 3. (Pomacanthids; several genera) marine angelfish

**-RPŠKF-** ‘MISCELLANEOUS PERCOMORPHARIAN FISH’ V 1. (Arripids; genus *Arripis*) ruff / Australian herring, Australian salmon, kahawai 2. (Malacanthids; several genera) tilefish, Quakerfish, blanquillo 3. (Zaniolepidids; genus *Zaniolepis*) combfish

**-RPŠKH-** ‘MISCELLANEOUS PERCOMORPHARIAN FISH’ VI 1. (Dinolestids; genus *Dinolestes*) long-finned pike / yellowfin pike 2. (Parascorpidids; genus *Parascorpius*) jutjaw 3. (Sillaginids; several genera) whiting, smelt-whiting, sand borer, sand-smelt, sillago

**-RPŠKL-** ‘MISCELLANEOUS PERCOMORPHARIAN FISH’ VII 1. (Sciaenids; numerous genera) drum, croaker, sheephead, wuss fish, shepherd’s pie, gou, Gasper goo, grinder, meagre, kob, mulloway, weakfish, bahaba, corvina, spot, king fish, curbinata, pacora, drummer, red, queenfish, stardrum, totoaba / totuava 2. (Monodactylids; genera *Monodactylus*, *Schuettea*) moony, mono / Malayan angel, moonyfish, fingerfish, pomfret 3. (Emmelichthyids; several genera) rover, redbait, rubyfish, kali kali

**-RPŠKT-** ‘MISCELLANEOUS PERCOMORPHARIAN FISH’ VIII 1. (Pomatomids; genus *Pomatomus*) bluefish, tailor, elf 2. (Lactariids; genus *Lactarius*) false trevally

### 7.3.1.6 Echinoderms, Hemichordates, and Xenacoelomorphs

- LMZW**- ‘STARFISH / BRITTLE STAR / BASKET STAR’ 1. (Asteroidea; numerous genera) starfish, sea star 2. (Ophiurids; numerous genera) brittle star 3. (Euryalids; several genera) basket star
- LMZY**- ‘SEA URCHIN / SAND DOLLAR’ 1. (all Echinoids except Clypeasteroids and Spatangoids) sea urchin 2. (Clypeasteroids; numerous genera) sand dollar 3. (Spatangoids; several genera) heart urchin
- LMZL**- ‘SEA CUCUMBER’ 1. (Holothuroids other than Molpadiids, Dendrochirodids, and Elasipodids) sea cucumber 2. (Molpadiids; several genera) molpadiid sea cucumber 3. (Dendrochirodids and Elasipodids; numerous genera) tentacled sea cucumber
- LMZR**- ‘SEA FLOWER’ 1. (all Crinoids except Comatulids; several genera) sea lily 2. (Comatulids; several genera) feather star 3. (genus *Xyloplax*) sea daisy
- LMZŘ**- ‘HEMICHORDATE’ 1. (Enteropneusta; numerous genera) acorn worm 2. (genus *Cephalodiscus*) cephalodiscus 3. (genus *Rhabdopleura*) rhabdopleura
- LMZV**- ‘XENACOELOMORPH’ 1. (genus *Xenoturbella*) Xenoturbella 2. (Acoela; numerous genera) acoel 3. (Nemertodermatids; several genera) nemertodermatid acoel

### 7.3.1.7 Protostomes (other than Arthropods)

#### Annelids & Related Animals

- LTPW**- ‘ANNELID’ 1. earthworm 2. leech 3. other annelid / ringed worm / segmented worm
- LTPY**- ‘NEMATODE(-LIKE ANIMAL)’ 1. (Nematoda; numerous genera) nematode/roundworm 2. (Nematomorphs; numerous genera) horsehair worm / Gordian worm 3. (Onychophora; numerous genera) velvet worm
- LTPL**- ‘MICROSCOPIC ECDYSOZOAN’ 1. (Tardigrada; numerous genera) tardigrade / “water bear” 2. (Loricifera; numerous genera) loriciferan 3. (Kinorhyncha; numerous genera) mud dragon / spiny crown worm
- LTPR**- ‘PRIAPULID WORM’ 1. (Priapulids; genera *Priapulus*, *Priapulosis*) priapulid worm (a.k.a. penis worm) 2. (genus *Tubiluchus*) tubiluchid penis worm 3. (genus *Halicryptus*) giant penis worm
- LTPŘ**- ‘ROTIFER’ 1. (Eurotatoria; numerous genera) rotifer 2. (Monogonanta; numerous genera) monogonant rotifer 3. (Seisonids; genera *Seison*, *Paraseison*) seisonid rotifer
- LTPÇ**- ‘GNATHIFER (OTHER THAN ROTIFER)’ 1. (Acanthocephala; numerous genera) thorny-headed worm, spiny-headed worm 2. (Chaetognatha; numerous genera) arrow worm 3. (Cycliophora; genus *Symbion*) symbion
- LTPL**- ‘OTHER SPIRALIA’ 1. (Gnathostomulids; numerous genera) jaw worm 2. (Micrognathozoa; genus *Limnognathia*) limnognathia 3. (Gastrotrocha; numerous genera) gastrotroch / hairyback
- LTPF**- ‘FLATWORM’ 1. (cestodes; numerous genera) tapeworm 2. (trematodes; numerous genera) fluke 3. (non-cestoid, non trematoid platyhelminths; numerous genera) flatworm, planarian
- LTPĤ**- ‘BRYOZOAN / ENTOPROCT’ 1. (Bryozoa/Ectoprocta; numerous genera) moss animal 2. (Entoprocta/Kamptozoa; numerous genera) entoproct / kamptozoan
- LTPS**- ‘ANNELID-RELATED ANIMAL’ I 1. (Phoronida; genera *Phoronis*, *Actinotrocha*) horseshoe worm 2. (Brachiopoda; numerous genera) brachiopod 3. (Sipuncula; numerous genera) peanut worm
- LTPŠ**- ‘ANNELID-RELATED ANIMAL’ II 1. (Nemertea; numerous genera) ribbon worm / proboscis worm 2. (Myzostomida; numerous genera) myzostomid 3. (Dicyemida/Rhombozoa; several genera) dicyemid/rhombozoan

## Molluscs

**Gastropods** [Note: recent genetics-based studies show that gastropod phylogeny and taxonomy bears little relation to the distinctive morphological traits by which the gastropods were traditionally classified. Since laypersons are likely to be familiar only with practical distinctive morphology in distinguishing these creatures, the classificatory scheme below will utilize morphology as its lexico-semantic basis]

-**TPW**- ‘SNAIL’ 1. terrestrial snail 2. sea snail / whelk 3. limpet

-**TPY**- ‘DISTINCTIVE SEA SNAIL’ 1. abalone 2. conch [i.e., sea snail with pointed/spired/horned shell] 3. (Thecosomes; numerous genera) sea butterfly

-**TPL**- ‘SLUG’ 1. slug 2. sea slug / nudibranch 3. (Anaspids; several genera) sea hare

## Bivalves

-**TPR**- ‘CLAM’ 1. clam 2. cockle 3. (Limids; several genera) file shell

-**TPŘ**- ‘MYID / HIATELLID’ 1. (Myids; several genera) soft-shell clam 2. (Hiatellids; several genera) geoduck 3. (genus *Teredo*) shipworm

-**TPÇ**- ‘OYSTER’ 1. (Ostreoids; numerous genera) [true] oyster, foam oyster / honeycomb oyster 2. (Pteroids; numerous genera) hammer oyster, pearl oyster, tree oyster, winged oyster, feather oyster, pulvinitid 3. (Dimyids; several genera) dimyarian oyster

-**TPF**- ‘MUSSEL / SCALLOP’ 1. (Unionoids; numerous genera) freshwater mussel 2. (Mytiloids; numerous genera) saltwater mussel 3. (Pectinids, Propeamussids, Entoliids; numerous genera) scallop, glass scallop, mud scallop

-**TPS**- ‘PTERIOMORPH’ I 1. (Anomiids; several genera) jingle shell / saddle oyster 2. (Placunids; windowpane shell / windowpane oyster 3. (Pinnids; several genera) pen shell

-**TPŠ**- ‘PTERIOMORPH’ II 1. (Arcids; numerous genera) ark shell / ark clam / bittersweet 2. (genus *Plicatula*) kittenpaw 3. (genus *Spondylus*) spiny oyster / thorny oyster

## Cephalopods

-**TPŤ**- ‘OCTOPOD’ 1. (Octopoda; numerous genera) octopus 2. (genus *Vampyroteuthis*) vampire squid 3. (genus *Argonauta*) argonaut / paper nautilus

-**TPĽ**- ‘SQUID / CUTTLEFISH’ 1. (Myopsida, Oegopsida; numerous genera) squid 2. (Sepiolida, Spirulida; numerous genera) bobtail squid, ram’s horn squid 3. (Sepiadariids; numerous genera) cuttlefish

## Other Molluscs

-**TPSS**- ‘CHITON / NAUTILUS / SCAPHOPOD’ 1. (genera *Allonautilus*, *Nautilus*) [chambered] nautilus 2. (Polyplacophorans; numerous genera) chiton / sea cradle 3. (Scaphopods; several genera) tusk shell / tooth shell

-**TPŠŠ**- ‘OTHER MOLLUSC’ 1. (Solenogastres/Neomeniomorphs; numerous genera) solenogaster 2. (Caudofoveata/Chaetodermomorpha; numerous genera) caudofoveate 3. (Monoplacophorans; several genera) monoplacophoran

### 7.3.1.8 Porifera, Ctenophora, Placozoa, and Cnidaria

#### Porifera

-**KFW**- ‘PORIFERA (SPONGE)’ I 1. (Calcarea; numerous genera) calcareous sponge 2. (Hexactinellids; numerous genera) glass sponge 3. (Demosponges; numerous genera) demosponge / coralline sponge

-**KFY**- ‘PORIFERA (SPONGE)’ II 1. (Plakinids; several genera) spiculate sponge 2. (Oscarellids; genera *Oscarella*, *Pseudocortidium*) slime sponge, aspiculate sponge

#### Ctenophora and Placozoa

-**KFM**- ‘CTENOPHORE (COMB JELLY) and PLACOZOAN’ 1. (Tentaculates; numerous genera) comb jelly, Venus girdle 2. (Beroids; genera *Beröe*, *Neis*) beroid / cigar comb jelly 3. (Placozoa; genera *Trichoplax*, *Hoilungia*, *Polyplacotoma*) placozoan

#### Cnidaria

-**KFL**- ‘SEA ANEMONE’ 1. (Actiniaria; numerous genera) sea anemone 2. (Zoanthids; numerous genera) zoanthid / zoanthid coral 3. (Penicillaria and Spirularia; numerous genera) tube-dwelling anemone

-**KFR**- ‘HEXACORALLINE CORAL’ 1. (Scleractinia; numerous genera) stony coral / hard coral 2. (Corallimorpharia; numerous genera) mushroom coral, elephant ear anemone 3. (Antipatharia; numerous genera) black coral / thorn coral

-**KFR**- ‘OCTOCORALLINE CORAL’ 1. (Pennatulacea; numerous genera) sea pen, sea pansy 2. (Alcyonaea; numerous genera) soft coral, sea fan, sea whip, gorgonian 3. (Heliopora; genera *Heliopora*, *Nanipora*) soft coral

-**KFT**- ‘JELLYFISH’ 1. (Coronamedusae and Discomedusae; numerous genera) jellyfish 2. (Cubozoa; numerous genera) box jellyfish 3. (Stauromedusae; several genera) stalked jellyfish

-**KFP**- ‘HYDROZOAN’ 1. (Hydrozoa in hydroid or polypoid stage; numerous genera) hydroid, polyp 2. (Hydrozoa in medusoid stage; numerous genera) hydrozoan jelly 3. (Siphonophorae; numerous genera) siphonophore [colonial hydrozoan] (including Portuguese man o’war)

-**KFN**- ‘PARASITIC CNIDARIA’ 1. (Polypodiids; genus *Polypodium*) polypodium 2. (Myxosporea; numerous genera) myxosporean myxozoan 3. (Malacosporea-Saccosporids; genera *Buddenbrockia*, *Tetracapsuloides*) saccosporid myxozoan

### 7.3.1.9 Arthropods (including Arachnids, Crustaceans, Myriapods, and Insects)

#### Chelicerates

Chelicerates > Euchelicerata > Arachnida > Araneae > Mesothelae (containing single family Liphistiidae)

-**ZÑW**- ‘LIPHISTIID SPIDER (ASIAN TRAPDOOR SPIDER)’ 1. (genera *Heptathela*, *Ryuthela*) Japanese and Ryuku Island trapdoor spider, including kimura spider 2. (genera *Ganthela*, *Sinothela*, *Songthela*, *Vinathela*, *Qionghela*) Chinese and Vietnamese trapdoor spider 3. (genus *Liphistius*) Thai/Malaysian/Burmese/Laotian trapdoor spider

Chelicerates > Euchelicerata > Arachnida > Araneae > Mygalomorphae

Chelicerates > Euchelicerata > Arachnida > Araneae > Mygalomorphae > Atypoidea

**-ZMŘ-** ‘MYGALOMORPHIC ATYPOID SPIDER’ 1. (Antrodiaetids; genera *Aliatypus*, *Antrodiaetus*, *Atypoides*) folding trapdoor spider 2. (Atypids; genera *Atypus*, *Calommata*, *Sphodros*) purseweb spider / atypical tarantula 3. (Mecicobothrids; genera *Hexura*, *Hexurella*, *Mecicobothrium*, *Megahexura*) sheet funnel-web spider / dwarf tarantula

Chelicerates > Euchelicerata > Arachnida > Araneae > Mygalomorphae > Avicularioidea

**-ZMW-** ‘AVICULARIOID SPIDER’ I 1. (Actinopodids; genera *Actinopus*, *Missulena*, *Plesiolenia*) Actinopod spider, including mouse spider 2. (Atracids; genera *Atrax*, *Hadronyche*, *Illawarra*) atracid / Australian funnel-web spider 3. (Hexathelids, Macrothelids, Porrhothelids; several genera) funnel-web tarantula

**-ZMY-** ‘AVICULARIOID SPIDER’ II 1. (Diplurids; numerous genera) curtain-web spider 2. (genus *Macrothele*) macrothelid funnel-web spider 3. (genus *Porrhothele*) porrhothelid curtain-web spider

**-ZML-** ‘AVICULARIOID SPIDER’ III 1. (Ctenizids; genera *Cteniza*, *Cyrtocarenum*, *Stasimopus*) ctenizid / cork-lid trapdoor spider 2. (Halonoproctids; several genera) halonoproctid trapdoor spider 3. (Nemsiids; numerous genera) nemesiid / funnel-web tarantula

**-ZMR-** ‘AVICULARIOID SPIDER’ IV 1. (Cyrtachenids; numerous genera) wafer trapdoor spider 2. (Euctenizids; several genera) euctenizid trapdoor spider 3. (Idiopids; numerous genera) armoured trapdoor spider

**-ZNW-** ‘AVICULARIOID SPIDER’ V 1. (Barychelid; numerous genera) barychelid / brushed trapdoor spider / trapdoor baboon spider 2. (Migids; numerous genera) tree trapdoor spider 3. (Microstigmatids; several genera) microstigmatid spider

**-ZNY-** ‘AVICULARIOID SPIDER’ VI 1. (Theraphosids; numerous genera) tarantula 2. (Paratropidines; genera *Anisaspis*, *Anisaspoides*, *Paratropis*, *Stormtropis*) [paratropidine] baldlegged spider 3. (genus *Melloina*) [glabropelmatine] baldlegged spider

Chelicerates > Euchelicerata > Arachnida > Araneae > Mygalomorphae > Araneomorphae > Hypochilidae, Filistatids, and Synspermiata

**-BZPW-** ‘PRIMITIVE ARANEOMORPHIC SPIDER’ I 1. (Hypochilids; genera *Ectatosticta*, *Hypochilus*) lampshade spider 2. (Filistatids; numerous genera) crevice weaver spider 3. (Austrochilids; genera *Austrochilus*, *Thaïda*) austrochilid spider

**-BZPY-** ‘PRIMITIVE ARANEOMORPHIC SPIDER’ II 1. (Gradungulids; several genera) large-clawed spider 2. (genus *Hickmania*) Tasmanian cave spider 3. (Leptonetids; numerous genera) leptonetid spider

**-BZPL-** ‘SYNSPERMIATIC (HAPLOGYNE) SPIDER’ I 1. (Diguetiids; genera *Diguertia*, *Segestrioides*) coneweb spider 2. (Plectreurids; genera *Kibramoa*, *Plectreuryx*) plectreurid spider 3. (Paculiids; several genera) paculiid spider

**-BZPR-** ‘SYNSPERMIATIC (HAPLOGYNE) SPIDER’ II 1. (Tetrablemmids; numerous genera) armoured spider 2. (Pholcids; numerous genera) daddy long-legs / cellar spider / carpenter spider / vibrating spider / skull spider 3.

**-BZPŘ-** ‘SYNSPERMIATIC (HAPLOGYNE) SPIDER’ III 1. (Dysderids; numerous genera) woodlouse hunter / cell spider / sowbug-eating spider 2. (Segestriids; several genera) tube-dwelling spider / tubeweb spider 3. (Orsolobids; numerous genera) orsolobid spider

**-BZPF-** ‘SYNSPERMIATIC (HAPLOGYNE) SPIDER’ IV 1. (Oonopids; numerous genera) goblin spider / dwarf hunting spider 2. (Ochyroceratids; numerous genera) midget ground weaver spider 3. (Caponiids; numerous genera) caponiid spider

**-BZPL-** ‘SYNSPERMIATIC (HAPLOGYNE) SPIDER’ V 1. (Sicariids; genera *Loxosceles*, *Hexophthalma*, *Sicarius*) recluse spider, violin spider, sand spider 2. (Drymusids; genera *Drymusa*, *Izithunzi*) false violin spider 3. (Periegopids; genus *Periogops*) periogops spider

**-BZPÇ-** ‘SYNSPERMIATIC (HAPLOGYNE) SPIDER’ VI 1. (Scytodids; several genera) spitting spider 2. (Teleמידs; numerous genera) long-legged cave spider 3. (Trogloraptorids; genus *Trogloraptor*) trogloraptor spider

Chelicerates > Euchelicerata > Arachnida > Araneae > Mygalomorphae > Araneomorphae > Palpimanoidea

**-BZPH-** 'PALPIMANOID SPIDER' I 1. (Archaeids; several genera) assassin spider / pelican spider 2. (Stenochilids; genera *Colopea*, *Stenochilus*) stenochild spider 3. (Palpimanids; numerous genera) palp-foot spider

**-BZPHW-** 'PALPIMANOID SPIDER' II 1. (Mecysmaucheniids; several genera) mecysmaucheniid spider 2. (genus *Huttonia*) huttonia spider

Chelicerates > Euchelicerata > Arachnida > Araneae > Mygalomorphae > Araneomorphae > Entelegynae

**-SPW-** 'ENTELEGYNE SPIDER' I 1. (Theridiids; numerous genera) tangle-web spider / cobweb spider / comb-footed spider, common house spider, widow 2. (Araneids; numerous genera) orb-weaver spider 3. (Tetragnathids; numerous genera) long-jawed orb weaver / long jawed spider

**-SPY-** 'ENTELEGYNE SPIDER' II 1. (Mysmenids; numerous genera) spurred orb-weaver spider 2. (Symphytognathids; several genera) dwarf orb-weaver 3. (Arkyids; genera *Arkys*, *Demadiana*) arkyid orb-weaver, triangular spider / ambush spider

**-SPŘ-** 'ENTELEGYNE SPIDER' III 1. (Anapids; numerous genera) anapid spider 2. (Nesticids; numerous genera) scaffold web spider 3. (Linyphiids; numerous genera) sheet weaver spider / money spider / dwarf spider

**-SPF-** 'ENTELEGYNE SPIDER' IV 1. (Theridiosomatids; numerous genera) ray spider 2. (Cyatholipids; numerous genera) cyatholipid spider 3. (Pimoids; several genera) pimoid spider

**-SPT-** 'ENTELEGYNE SPIDER' V 1. (Synaphrids; several genera) synaphrid spider 2. (Synotaxids; genus *Synotaxus*) synotaxus spider 3. (Physoglenids; numerous genera) physoglenid spider

**-SPV-** 'ENTELEGYNE SPIDER' VI 1. (Agelenids; numerous genera) funnel weaver spider 2. (Toxopids; numerous genera) toxopid spider 3. (Amaurobiids; numerous genera) tangled nest spider

**-SPI-** 'ENTELEGYNE SPIDER' VII 1. (Corinnids; numerous genera) corinnid sac spider / dark sac spider 2. (Liocranids; numerous genera) liocranid sac spider 3. (Clubionids; numerous genera) sac spider

**-SPÇ-** 'ENTELEGYNE SPIDER' VIII 1. (Gnaphosids; numerous genera) ground spider / flat-bellied ground spider / long-spinneret ground spider 2. (Lamponids; numerous genera) lamponid spider 3. (Trochanteriids; numerous genera) flat spider

**-SPH-** 'ENTELEGYNE SPIDER' IX 1. (Ammoxenids; several genera) termite hunter spider 2. (Cithaeronids; genera *Cithaeron*, *Inthaeron*) cithaeronid spider 3. (Gallieniellids; several genera) gallieniellid spider

**-SPFW-** 'ENTELEGYNE SPIDER' X 1. (Salticids; numerous genera) jumping spider 2. (Selenopids; several genera) wall spider / wall crab spider / flatty 3. (Anyphaenids; numerous genera) anyphaenid sac spider

**-SPFY-** 'ENTELEGYNE SPIDER' XI 1. (Thomisids; numerous genera) crab spider, flower spider / flower crab spider 2. (Sparassids; numerous genera) huntsman spider / giant crab spider, wood spider, rain spider, wheel spider 3. (Philodromids; numerous genera) running crab spider

**-SPFL-** 'ENTELEGYNE SPIDER' XII 1. (Desids; numerous genera) intertidal spider 2. (Phrurolithids; numerous genera) phrurolithid spider 3. (Trachelids; numerous genera) trachelid spider

**-SPFR-** 'ENTELEGYNE SPIDER' XIII 1. (Dictynids; numerous genera) dictynid spider 2. (Cybaeids; numerous genera) cybaeid spider 3. (Hahniids; numerous genera) dwarf sheet spider

**-SPFŘ-** 'ENTELEGYNE SPIDER' XIV 1. (Eresids; numerous genera) velvet spider 2. (Hersiliids; numerous genera) tree trunk spider 3. (Oecobiids; several genera) disc web spider

**-SPHW-** 'ENTELEGYNE SPIDER' XV 1. (Lycosids; numerous genera) wolf spider 2. (Ctenids; numerous genera) wandering spider / tropical wolf spider 3. (Viridasiids; genera *Viridasius*, *Vulsor*) viridasiid spider

- SPÇW-** ‘ENTELEGYNE SPIDER’ XVI 1. (Oxyopids; several genera) lynx spider 2. (Pisaurids; numerous genera) nursery web spider 3. (Stiphidiids; numerous genera) sheetweb spider
- SPÇÇ-** ‘ENTELEGYNE SPIDER’ XVII 1. (Psechrids; genera *Fecenia*, *Psechrus*) psechrid spider 2. (Senoculids; genus *Senoculus*) senoculus spider 3. (Trechaleids; numerous genera) trechaleid spider
- SPṬW-** ‘ENTELEGYNE SPIDER’ XVIII 1. (Zoropsids; numerous genera) false wolf spider 2. (Udubids; several genera) udubid spider 3. (Penestomids; genus *Penestomus*) penestomus spider
- SPṬY-** ‘ENTELEGYNE SPIDER’ XIX 1. (Malkarids; numerous genera) shield spider 2. (Mimetids; numerous genera) pirate spider 3. (Nicodamids; several genera) nicodamid spider
- SPṬL-** ‘ENTELEGYNE SPIDER’ XX 1. (Phyxelidids; numerous genera) lace web spider 2. (Titanocids; several genera) titanoecid spider 3. (Megadictynids; genera *Forstertyna*, *Megadictyna*) megadictynid spider
- SPṬR-** ‘ENTELEGYNE SPIDER’ XXI 1. (Uloborids; numerous genera) hackled orb weaver 2. (Deinopids; genera *Deinopis*, *Menneus*) net-casting spider 3. (Zodariids; numerous genera) ant spider
- SPṬŘ-** ‘ENTELEGYNE SPIDER’ XXII 1. (Miturgids; numerous genera) long-legged sac spider 2. (Cheiracanthiids; numerous genera) cheiracanthiid spider 3. (Xenoctenids; several genera) xenoctenid sac spider
- SPṬW-** ‘ENTELEGYNE SPIDER’ XXIII 1. (Cycloctenids; several genera) cycloctenid spider 2. (Homalonychids; genus *Homalonychus*) homalonychus spider 3. (Entelegyne spider other than from named family) other entelegyne spider

Chelicerates > Euchelicerata > Arachnida > Scorpiones

- GGZ-** ‘SCORPION’ I 1. (Buthida; numerous genera) thick-tailed scorpion, fat-tailed scorpion, bark scorpion 2. (Hemiscorpiidae; genus *Hemiscorpius*) rock scorpion / creeping scorpion / tree scorpion 3. (Euscorpiidae; several genera) wood-scorpion
- GGV-** ‘SCORPION’ II 1. (Scorpionidae; numerous genera) giant forest scorpion, emperor scorpion, burrowing scorpion / hissing scorpion / serkets, pale-legged scorpion 2. (Vaejovidae; numerous genera) striptailed scorpion, sand scorpion, slendertailed scorpion, northern scorpion, dune scorpion, unstriped scorpion, devil scorpion 3. (Caraboctonidae; genus *Hadrurus*) giant desert hairy scorpion, black-back scorpion
- GGD-** ‘SCORPION’ III 1. (Pseudochactida; three genera) pseudochactid cave-dwelling scorpion 2. (Chaerilida, Bothriuridae, Iuridae, Superstitioniidae, Chactidae; numerous genera) other scorpion

Chelicerates > Euchelicerata > Arachnida > remaining families

- ZFW-** ‘METASTIGMA (TICK)’ 1. (Ixodids; numerous genera) hard tick 2. (Argasids; numerous genera) soft tick 3. (Nuttalliellids; genus *Nuttalliella*) nuttalliella tick
- ZFY-** ‘MITE’ 1. (Sarcoptiformes; numerous genera) sarcoptiform mite (i.e., astigmatine or oribatid mite) 2. (Trombidiformes; numerous genera) trombidiform mite (i.e., prostigmatid or sphaerolichid mite) 3. (Holothyrids and Mesostigma; numerous genera) parasitiform mite
- ZFL-** ‘OTHER ARACHNID’ I 1. (Opiliones; numerous genera) harvestman / harvester / shepherd spider 2. (Pseudoscorpiones; numerous genera) pseudoscorpion / false scorpion / book scorpion 3. (Solifugae; numerous genera) solifuge / sun spider / camel spider / wind scorpion
- ZFR-** ‘OTHER ARACHNID’ II 1. (Amblypygids; numerous genera) whip spider / tailless whip scorpion 2. (Shizomids; numerous genera) shorttailed whipsorpion 3. (Thelyphonids; numerous genera) whip scorpion / vinegaroon
- ZFR-** ‘OTHER ARACHNID’ III 1. (Palpigradids; numerous genera) palpigrade / microwhip scorpion 2. (Ricinuleids; genera *Cryptocellus*, *Pseudocellus*, *Ricinoides*) hooded tickspider

Chelicerates > non-arachnids

**-SPLL-** ‘NON-ARACHNID CHELICERATE’ 1. (Xiphosura; genera *Tachypleus*, *Limulus*, *Carcinoscorpius*) horseshoe crab 2. (Pycnogonid; numerous genera) sea spider

## Crustaceans

Crustaceans > branchiopods (brine shrimp)

**-KTKW-** ‘BRANCHIOPOD’ I 1. (Anostraca; numerous genera) fairy shrimp, brine shrimp 2. (Notostraca; genera Triops, Lepidurus) tadpole shrimp / shield shrimp 3. (Cladocera; numerous genera) water flea

**-KTKY-** ‘BRANCHIOPOD’ II (CLAM SHRIMP) 1. (Laevicaudata; genera Lynceiopsis, Lynceus, Paralimnetes) [laevicaudate] clam shrimp 2. (Cyclestherida; genera Cyclestheria, Paracyclsthereia) [cyclestherid] clam shrimp 3. (Spinicaudata; numerous genera) [spinicaudate] clam shrimp

**-KTKÇ-** ‘OTHER SMALL CRUSTACEAN’ 1. (Cephalocarids; several genera) horseshoe shrimp 2. (Ostracods; numerous genera) seed shrimp 3. (Remipedia; several genera) remipede

Crustaceans > maxillopods (barnacles, copepods, fish lice, etc.)

**-KTKL-** ‘COPEPOD & MYSTACOCARID’ 1. (Calanoids, Cyclopoids, Poecilostomatoids, Monstrilloids, Mormonillids, Platycopiids, Siphonostomatoids; numerous genera) [primarily] planktonic marine or freshwater copepod 2. (Harpacticoids, Speleophriids; numerous genera, plus Gelyellids; genus *Gelyella*) sea-floor -dwelling or cave-dwelling copepod 3. (Mystacocarids; genera *Derocheilocaris*, *Ctenocheilocharis*) mystacocarid

**-KTKR-** ‘THECOSTRACA (BARNACLE & BARNACLE-LIKE CREATURE)’ 1. (Thoracica; numerous genera) [common] barnacle 2. (Rhizocephala; numerous genera) parasitic barnacle 3. (Acrothoracica, Ascothoracids, Facetotecta; several genera) acrothoracic (i.e., calcareous material-boring) barnacle, ascothoracid parasite, facetotectid / Hansenocaris

**-KTKŘ-** ‘SMALL PARASITIC MAXILLOPOD CRUSTACEAN’ 1. (Branchiura; several genera) fish louse, carp louse 2. (Pentastomids; numerous genera) tongue worm 3. (Tantulocarids; numerous genera) tantulocarid

Crustaceans > Malacostraca (lobsters, crabs, shrimp, etc.)

Crustaceans > Malacostraca > Eumalacostraca > Peracarida

**-KTMW-** ‘AMPHIPOD (SCUD / SIDESWIMMER)’ 1. (Gammarids and Senticaudates; numerous genera) shrimp-like amphipod / scud / sideswimmer 2. (Ingolfiellids; several genera) worm-like amphipod 3. (Hyperiid; numerous genera) marine parasitic/predatory amphipod

**-KTTY-** ‘ISOPOD (WOOD LOUSE / PILL BUG & SIMILAR)’ 1. (Oniscidea; numerous genera) wood louse / pill bug / armadillo bug / roly-poly / potato bug / sow bug 2. (Asselotes, Calabazoids, Cymothoids, Limmoriids, Phorotopids, Phreatoicids, Sphaeromatids, Tainisopids, Valviferids; numerous genera) marine or freshwater isopod 3. (Microcerberids; several genera) tiny worm-like isopod

**-KTNW-** ‘PERACARID (BROOD-POUCH BEARING SHRIMP)’ I 1. (Cumacea; numerous genera) hooded shrimp / comma shrimp 2. (Mysida; numerous genera) opossum shrimp 3. (Tanaidacea; numerous genera) tanaid

**-KTTY-** ‘PERACARID (BROOD-POUCH BEARING SHRIMP)’ II 1. (Mictacea, Lophogastrids; several genera) mictacean or lophogastrid crustacean 2. (Spelaeogriphacea; several genera) spelaeogriphacean (cave-dwelling) crustacean 3. (Thermosbaenacea; several genera) thermosbaenacean (thermal spring-dwelling) crustacean



Crustaceans > Malacostraca > Eumalacostraca > Eucarida

Crustaceans > Malacostraca > Eumalacostraca > Eucarida > Euphausiacea

**-KTPW-** ‘NON-DECAPOD EUCARID’ 1. (Euphausiids; several genera) krill 2. (Bentheuphausiids; genus *Bentheuphausia*) deep sea krill 3. (Amphionidacea; genus *Amphionides*) amphionides

Crustaceans > Malacostraca > Eumalacostraca > Eucarida > Decapoda

Crustaceans > Malacostraca > Eumalacostraca > Eucarida > Decapoda > Dendrobranchiata

**-KTPY-** ‘DENDROBRANCHIATE (PRAWN)’ 1. (Aristeids; several genera) gamba prawn / deep-sea shrimp 2. (Penaeoids other than Aristeids; numerous genera) [benthescymid, penaeid, sicyonid, or solenocerid] prawn 3. (Sergestoids; several genera) [luciferid or sergestid] prawn

Crustaceans > Malacostraca > Eumalacostraca > Eucarida > Decapoda > Caridea

**-KTPL-** ‘CARIDEAN SHRIMP’ I 1. (Alpheoids; numerous genera) snapping shrimp / pistol shrimp / alpheid shrimp, cleaner shrimp, broken-back shrimp / anemone shrimp 2. (Crangonoids; numerous genera) crangonoid shrimp 3. (Pandalids; numerous genera) pandalid shrimp

**-KTPR-** ‘CARIDEAN SHRIMP’ II 1. (Atyids; numerous genera) atyid shrimp 2. (Campylonotoids; several genera) compylonotoid shrimp 3. (Palaemonoids; numerous genera) palaemonoid shrimp

**-KTPR̂-** ‘CARIDEAN SHRIMP’ III 1. (Nematocarcinoids; several genera) nematocarcinoid shrimp 2. (Pasiphaeids; several genera) pasiphaeid shrimp 3. (Processoids; several genera) processoid shrimp

**-KTPH-** ‘CARIDEAN SHRIMP’ IV 1. (Stylodactyloids; several genera) stylodactyloid shrimp 2. (Oplophorids; several genera) oplophorid shrimp 3. (Bresilioids; numerous genera) bresilioid shrimp

**-KTPĊ-** ‘RARE CARIDEAN SHRIMP’ 1. (Psalidopodoids; genus *Psalidopus*) psalidopus shrimp 2. (Physetocaridoids; genus *Physetocaris*) physetocaris shrimp 3. (Galatheacaridoids; genus *Galatheacaris*) galatheacaris shrimp

**-KT̂L-** ‘LOBSTER’ 1. (genus *Nephrops*) Norway lobster, Dublin Bay prawn, langoustine, scampi 2. (genus *Homarus*) American lobster / Maine lobster / Atlantic lobster / true lobster, European lobster / common lobster 3. (all other genera) Japanese lobster, China lobster, Australian scampi, New Zealand scampi, Bight lobster, Caribbean lobster, Cape lobster, etc.

**-KTR-** ‘ACHELATE LOBSTER’ 1. (Palinurids; several genera) spiny lobster 2. (Synaxids; genera *Palinurellus*, *Palibythus*) furry lobster, mole lobster 3. (Scyllarids; numerous genera) slipper lobster / shovel-nose lobster / locust lobster

**-KT̂R̂-** ‘LOBSTER-LIKE CREATURE’ 1. (Glypheidea; genera *Neoglyphea*, *Laurentaeglyphea*) glypheid lobster 2. (Polychelids; several genera) polychelid lobster 3. (Enoplometopids; genus *Enoplometopus*) reef lobster

**-KTF-** ‘CRAYFISH’ 1. (Astacids; genera *Astacus*, *Austropotamobius*, *Pacifastacus*) European or Western N. American crayfish 2. (Cambarids; numerous genera) Eastern N. American & Central American crayfish 3. (Parastacids; numerous genera) Southern Hemisphere crayfish

**-KT̂T-** ‘CRAB’ 1. (Eubrachyura; numerous genera) crab 2. (Raninids; several genera) frog crab 3. (Dromiaceans and Cyclodorippoids; numerous genera) podotremate crab

**-KT̂TW-** ‘CRAB-LIKE CREATURE’ I 1. (Paguroids; numerous genera) hermit crab, coconut crab / robber crab 2. (Lithodoids; numerous genera) king crab 3. (Hippoids; several genera) sand crab / mole crab

**-KṬṬY-** ‘CRAB-LIKE CREATURE’ II 1. (Galatheoids, Chirostyloids; numerous genera ) squat lobster, porcelain crab 2. (Aeglids; genus *Aegla*) aegla crab 3. (Lomisids; genus *Lomis*) hairy stone crab

**-KṬṆ-** ‘OTHER DECAPOD’ 1. (Stenopodidea; numerous genera) stenopod crustacean, glass sponge shrimp 2. (Procarididea; genera *Procaris*, *Vetericaris*) procarid shrimp 3. (Axiids and Gebiids; numerous genera) mud shrimp / mud lobster, ghost shrimp, burrowing shrimp

**-KṬṆW-** ‘OTHER CRUSTACEAN’ 1. (Stomatopods; numerous genera) mantis shrimp 2. (Leptostraca; several genera) leptostracan 3. (Syncarids; numerous genera) syncarid crustacean, anaspid crustacean

### Myriapods

**-BḌL-** ‘CHILOPOD (CENTIPEDE)’ 1. (Scutigermorphs; numerous genera) house centipede 2. (Lithobiomorphs; numerous genera) stone centipede 3. (Geophilomorphs, Scolopendromorphs, Craterostigmomorphs; numerous genera) soil centipede, tropical centipede, craterostigmus centipede

Myriapods > Diplopods (millipedes)

**-BḌR-** ‘DIPLOPOD (MILLIPEDE)’ 1. (Helminthomorphs; numerous genera) worm-like millipede 2. (Pentazonids; numerous genera) short-bodied pill millipede 3. (Penicillates; numerous genera) bristle millipede / bristly millipede / pincushion millipede

**-BḌṚ-** ‘OTHER MYRIAPOD’ 1. (Pauropod; numerous genera) pauropod 2. (Symphyla; several genera) symphylan / garden centipede / pseudocentipede

### Hexapods

Hexapods > Entognatha

**-CDW-** ‘ENTOGNATHID’ 1. (Collembola; numerous genera) springtail 2. (Diplura; numerous genera) dipluran / two-pronged bristletail 3. (Protrura; numerous genera) protruran / conehead

Hexapods > Insects

**-CDY-** ‘SILVERFISH / JUMPING BRISTLETAIL’ 1. (Zygentoma; numerous genera except *Thermobia domestica*) silverfish / fishmoth 2. (*Thermobia domestica*) firebrat 3. (Archaeognatha; numerous genera) jumping bristletail

**-CDL-** ‘DRAGONFLY’ 1. (Aeshnoids and Epiophlebiids; numerous genera) aeshnid / hawker / darner dragonfly, petaltail dragonfly, clubtail dragonfly, Himalayan relict dragonfly 2. (Cordulegastrids; numerous genera) spiketail / biddie / flying addie dragonfly, neopetalia 3. (Libelluloids; numerous genera) emerald, skimmer / percher, pennant, dasher, sylph, dragonlet, pondhawk, setwing, pintail, forestwatcher, rainpool glider, amberwing, meadowhawk / darter, saddlebag, whiteface, dropwing dragonfly

**-CDR-** ‘DAMSELFLY’ 1. (Hemiphlebiids and Coenagrionoids; numerous genera) ancient greenling, pond, narrow-wing, white-legged, shadowdamsel, threadtail, forest giant damselfly 2. (Lestoids; numerous genera) spreadwing, bluestrak, flatwing, shortwing, sylph damselfly 3. (Calopterygoids; numerous genera) relict, demoiselle, jewel, bareleg, odalisque, bannerwing damselfly

**-CDṚ-** ‘MAYFLY (a.k.a. SHADFLY / FISHFLY / UP-WINGED FLY)’ 1. (Pannota; numerous genera) pannotic mayfly, including spiny crawler mayfly, armored mayfly 2. (Schistonota; numerous genera) schistonotic mayfly, including brushlegged mayfly, minnow mayfly, flat-headed mayfly / stream mayfly, spiny-headed burrowing mayfly 3. (Leptophlebiids; numerous genera) leptophlebiid / prong-gilled mayfly

**-CDV-** ‘DERMAPTERAN / ZORAPTERAN’ 1. (Dermaptera [except Labiids and Spongiphorids]; numerous genera) earwig 2. (Labiids, Spongiphorids; numerous genera) little earwig 3. (Zoraptera; numerous genera) angel insect

Hexapods > Insects > Orthoptera (crickets, grasshoppers, katydids, etc.)

-**XFW**- ‘CRICKET’ 1. (Grylloids; numerous genera) cricket, scaly cricket 2. (Gryllotalpids; several genera) mole cricket 3. (Myrmecophilids; several genera) ant cricket / ant-loving cricket

-**XFY**- ‘CRICKET-LIKE CREATURE’ I 1. (Tettigoniids; numerous genera) katydid / bush cricket 2. (Hagloids; several genera) grig 3. (Stenopelmatids; several genera) stenopelmatid, Jerusalem cricket

-**XFL**- ‘CRICKET-LIKE CREATURE’ II 1. (Anostomatids; numerous genera) weta [except cave weta] / king cricket 2. (Gryllacridids; numerous genera) leaf-rolling cricket / raspy cricket 3. (Cooloolids; genus *Cooloola*) Cooloola monster, dingo monster, Pearson’s monster, sugarcane monster

-**XFR**- ‘CRICKET-LIKE CREATURE’ III 1. (Rhaphidophorids; numerous genera) cave weta / cave cricket, camleback cricket / camel cricket, spider cricket, sand treader 2. (Schizodactylids; genera *Comicus*, *Schizodactylus*) dune cricket / splay-footed cricket

-**XFM**- ‘GRASSHOPPER’ 1. (Acridoidea, Pyrgomorphae; numerous genera) grasshopper 2. (Pneumorids; several genera) bladder grasshopper 3. (Trigonopterygoidea; several genera) leaf grasshopper

-**XFN**- ‘GRASSHOPPER-LIKE CREATURE’ 1. (Eumastacids; numerous genera) monkey grasshopper / matchstick grasshopper 2. (Proscopiids; numerous genera) stick grasshopper / jumping stick 3. (Tetrigids; several genera) groundhopper / pygmy grasshopper / pygmy devil

-**XFR**- ‘TRIDACTYLOID’ 1. (Cylindrachetids; several genera) sandgroper 2. (Ripterygids; genera *Mirhipipteryx*, *Ripteryx*) mud cricket 3. (Tridactylids; several genera) pygmy mole cricket

-**XTW**- ‘NOTOPTERA & EMBIOPTERA’ 1. (Grylloblattids; several genera) ice bug, ice-crawler 2. (Mantophasmatids; numerous genera) gladiator / rock crawler / heelwalker 3. (Embioptera; numerous genera) webspinner

-**XTY**- ‘PHASMATODE (WALKING STICK / WALKING LEAF)’ 1. (Verophasmatodes [other than Phylliids] and Timematids; numerous genera) walking stick / stick-bug / bug stick 2. (Phylliids; several genera) walking leaf / leaf insect 3. (Agathemerids; genus *Agathemera*) agathemera

Hexapods > Insects > Mantodea (mantises)

-**XTL**- ‘MANTIS’ 1. (Mantids; numerous genera) praying mantis 2. ([various genera and species]) flower mantis 3. ([numerous genera]) mantis (other than Mantids and flower mantises) mantis

Hexapods > Insects > Blattodea (cockroaches and termites)

-**ČN**- ‘COCKROACH’ 1. (Blattoids; numerous genera) Oriental, American, Australian, Brown, Smokbrown, Florida woods, Botany Bay, common shining, wood roach / brown-hooded cockroach 2. (Blaberoids; numerous genera) blaberid, giant cockroach, death’s head, false death’s head / drummer / discoid, speckled / lobster, greenhouse / Surinam, hissing, Dubia / orange-spotted, giant burrowing, Asian, brown-banded, European native, fulvous wood, German, Pennsylvania wood, Virginia wood, small yellow cockroach 3. (Corydioids; numerous genera) sand cockroach, cave cockroach

-**ČNW**- ‘TERMITE’ 1. (Neoisopterans; numerous genera) [higher/newer] termite 2. (Euisopterans; numerous genera) dampwood termite, harvester termite, drywood termite 3. (Mastotermitids; *Mastotermes darwiniensis*) giant northern termite / Darwin termite

-**CXM**- ‘APHID’ 1. (Aphidids; numerous genera) aphid 2. (Adelgids; several genera) pine aphid, spruce aphid, wooly aphid 3. (Phylloxerids; several genera) phylloxeran

-**CXL**- ‘PARANEOPTERAN BUG’ I 1. (Phthiraptera; numerous genera) louse 2. (Liposcelids; numerous genera) booklouse 3. (Thysanoptera; numerous genera) thrip

**-CXR-** 'PARANEOPTERAN BUG' II 1. (Fulgoroids; numerous genera) planthopper 2. (Psocoptera [except Liposcelidids]; numerous genera) barklouse / barkfly / psocid

Hexapods > Insects > Hemiptera (true bug)

**-NLT-** 'CICADOMORPHIC BUG' 1. (Cicadoids; numerous genera) cicada 2. (Cercopoids; numerous genera) froghopper / spittlebug 3. (Membracoids; numerous genera) treehopper / thorn bug

**-NLTW-** 'REDUVIID (ASSASSIN BUG)' I 1. (Triatomines; numerous genera) kissing bug / conenose bug / cone-headed bug / vampire bug 2. (Peiratines; numerous genera) corsair 3. (remaining Reduviid families or sub-families) assassin bug, wheel bug

**-NLTY-** 'REDUVIID (ASSASSIN BUG)' II 1. (Phymatines; numerous genera) ambush bug 2. (Emesines; numerous genera) three-legged bug 3. (Holoitilines; several genera) feather-legged bug / ant wolf

**-NLTR-** 'STERNORRHYNCHAN BUG' 1. (Psylloids; numerous genera) jumping plant lice 2. (Aleyrodids; numerous genera) whitefly 3. (Coccoids; numerous genera) scale insect, mealybug, cochineal, ground pearl

**-NLTF-** 'COREOID BUG' 1. (Alydids; numerous genera) broad-headed bug 2. (Coreids; numerous genera) leaf-footed bug, squash bug 3. (Rhopalids; numerous genera) scentless plant bug, soapberry bug

**-NLTL-** 'PENTATOMOMORPHIC BUG' I 1. (Pentatomoids; numerous genera) shield bug, stink bug, burrowing bug, jewel bug, ebony bug, chust bug, giant shield bug 2. (Lygaeoids; numerous genera) seed bug, stilt bug, big-eyed bug, dirt-colored seed bug, ash-gray leaf bug 3. (Pyrrhocoroids; numerous genera) red bug, cotton stainer, bordered plant bug

**-NLTR-** 'PENTATOMOMORPHIC BUG' II 1. (Hyocephalids; genera *Hyocephalus*, *Maevius*) hyocephalid bug 2. (Stenocephalids; genus *Dicranocephalus*) dicranocephalus 3. (Termitaphidid; Termitaphis, Termitaradus) termite bug

**-NLIC-** 'CIMICOMORPHIC BUG' I 1. (Cimicids; numerous genera) cimicid, bed bug 2. (Anthocorids, Lasiochilids, Lyctocorids; numerous genera) minute pirate bug / flower bug 3. (Microphysids; several genera) minute bladder bug

**-NLICW-** 'CIMICOMORPHIC BUG' II 1. (Mirids; numerous genera) capsid bug / mirid bug / plant bug / leaf bug / grass bug, lygus bug, apple dimpling bug, mosquito bug, honeylucust plant bug, green mind, potato mind 2. (Nabids; numerous genera) damsel bug 3. (Aradids; numerous genera) flat bug

**-NLIC-** 'CIMICOMORPHIC BUG' III 1. (Tingids; numerous genera) lace bug 2. (Thaumastocorids; several genera) royal palm bug 3. (Polycitenid; several genera) Old World bat bug / polycitenid bat bug

**-NLICW-** 'CIMICOMORPHIC BUG' IV 1. (Velocipedids; several genera) velocipedid bug 2. (Joppeicids; genus *Joppeicus*) joppeicus bug 3. (Curaliids; genus *Curalium*) curalium bug

**-NLITV-** 'CIMICOMORPHIC BUG' V 1. (Plokiophilids; several genera) plokiophilid bug 2. (Medocostids; genus *Medocostes*) medocostes bug 3. (Pachynomids; several genera) pachynomid bug

**-NLIF-** 'GERROID (SEMI-AQUATIC) BUG' 1. (Gerrids; numerous genera) water strider / water skeeter / pond skater / water skipper / Jesus bug 2. (Veliids; numerous genera) riffle bug / broad-shouldered water strider 3. (Hermatobatids; genus *Hermatobates*) coral-treader

**-NLIFW-** 'GERROMORPHIC (SEMI-AQUATIC) BUG' 1. (Hydrometroids; several genera) water measurer / marsh treader 2. (Hebroids; several genera) velvet water bug 3. (Mesovelioids; numerous genera) water treader

**-NLIFY-** 'DIPSOCOROMORPHIC BUG (LITTER BUG)' 1. (Ceratocombids; several genera) litter bug 2. (Schizopterids and Hypsipterygids; numerous genera) jumping soil bug 3. (Stemmocryptid; genus *Stemmocrypta*) stemmocrypta bug

**-NLIFL-** 'NEPOMORPHIC BUG' I 1. (Belostomatids; numerous genera) giant water bug / toe-biter / electric-light bug / alligator tick / alligator flea 2. (Nepids; numerous genera) water scorpion, needle bug, water stick insect 3. (Corixids; numerous genera) water boatman

**-NĹFR-** ‘NEPOMORPHIC BUG’ II 1. (Gelastocorids; genera *Gelastocoris*, *Nerthra*) toad bug 2. (Ochterids; several genera) velvety shore bug 3. (Naucorids; numerous genera) creeping water bug / saucer bug

**-NĹFR̃-** ‘NEPOMORPHIC BUG’ III 1. (Notonectids and Pleoids; numerous genera) backswimmer, pygmy backswimmer 2. (Aphelocheirids; genus *Aphelocheirus*) aphelocheirus bug 3. (Potamocorids; genera *Potamocoris*, *Coleopterocoris*) potamocorid bug

**-NĹV-** ‘HETEROPTERAN BUG’ 1. (Peloridiids; numerous genera) moss bug / beetle bug 2. (Enicocephalomorphs; numerous genera) gnat bug, unique-headed bug, aenictophecheid 3. (Leptopodomorphs; numerous genera) shore bug, spiny shore bug

Hexapods > Insects > Hymenoptera

Hexapods > Insects > Hymenoptera > Apoidea (bees and sphecoid wasp)

**-BZZ-** ‘APID BEE (CORBICULATE)’ 1. (Apini [genus *Apis*] and Meliponini; numerous genera) honey bee, stingless honey bee 2. (Bombini; genus *Bombus*) bumblebee 3. (Euglossini; several genera) orchid bee

**-BZZW-** ‘APID BEE (NON-CORBICULATE)’ 1. (Non-corbiculate Apines; numerous genera) digger bee, long-horned bee, non-corbiculate apine bee 2. (Nomadines; numerous genera) cuckoo bee 3. (Xylocopines; numerous genera) carpenter bee

**-BZZY-** ‘NON-APID BEE’ 1. (Megachilids; numerous genera) mason bee, leafcutter bee, carder bee 2. (Colletids; numerous genera) plasterer bee / polyester bee, yellow-faced bee 3. (Andrenids, Halictids, Melittids, Stenotritids; numerous genera) non-apid bee, sweat bee, mining bee

**-BZZL-** ‘SPHECID (THREAD-WAISTED) WASP’ 1. (Sceliphines; several genera) mud wasp, mud dauber 2. (Chloriontines; genus *Chlorion*) cricket-hunter wasp 3. (Ammophilines and Sphecines) thread-waisted wasp, sand wasp

**-BZZR-** ‘SPHECOID WASP’ 1. (Ampulicids; ) cockroach wasp 2. (Philanthines; several genera) predatory wasp, bee-hunter, bee-killer wasp, ant-queen kidnapping wasp 3. (Pemphredonids, Psenids, Ammoplanids; numerous genera ) aphid wasp

**-BZZŘ-** ‘BEMBICINE WASP’ 1. (Bembicini; numerous genera) sand wasp 2. (Nyssonini; numerous genera) kleptoparasitic bembicine wasp 3. (Astatines and Heterogynoids; several genera) bembicine wasp

**-BZZV-** ‘CABRONID WASP’ 1. (Cabronines; numerous genera) digger wasp, square-headed wasp 2. (Mellinines; genera *Mellinus*, *Xenosphex*) mellinine wasp

Hexapods > Insects Hymenoptera > Vespoidea & Chrysidoidea

**-BZZX-** ‘Genus VESPA (HORNET)’ 1. (*Vespa crabro*) common European hornet 2. (*V. mandarinia*) Asian giant hornet / murder hornet 3. (all other *Vespa* species) other hornet

**-BZZM-** ‘VESPINE WASP’ 1. (genera *Vespula*) common wasp, red cuckoo wasp, red wasp, oriental hornet 2. (genus *Dolichovespula*) yellowjacket, tree wasp, Saxon wasp, Norwegian wasp, bald-face hornet 3. (genus *Provespa*) night wasp / night hornet

**-BZZN-** ‘VESPID WASP’ 1. (Eumenines and Zethines; numerous genera) potter wasp 2. (Polistines; numerous genera) paper wasp 3. (Stenogastrines; several genera) hover wasp

**-BZZŇ-** ‘CHRYSIDOID / VESPOID WASP’ I 1. (Chrysidids; numerous genera) cuckoo wasp, emerald wasp, jewel wasp, gold wasp, ruby wasp 2. (Chrysidoids other than Chrysidids [i.e., Bethyids, Dryinids, Embolemids, Plumariids, Sclerogibbids, Scolebythids]; numerous genera) chrysidoid wasp 3. (Massarines, Euparagiines, Gayellines; numerous genera) pollen wasp

**-BZZD-** ‘CHRYSIDOID / VESPOID WASP’ II 1. (Mutillids; numerous genera) velvet wasp / velvet ant 2. (Pompilids; numerous genera) spider wasp / spider-hunting wasp, tarantula hawk 3. (Vespoidea other than Mutillids, Pompilids, and Vespids [i.e., Bradynobaenids, Rhopalosomatids, Sapygids, Scoliids, Sierolomorphids, Tiphids]; numerous genera) vespid wasp

Hexapods > Insects Hymenoptera > Parasitoid [i.e., non-aculeate] wasps

**-BZZB-** ‘CHALCID WASP’ 1. (Agaonids; numerous genera) fig wasp 2. (Chalcidids; numerous genera) chalcid wasp 3. (Eurytomids; numerous genera) seed chalcid wasp

**-BZZD-** ‘PARASITOID [NON-ACULEATE] WASP’ I 1. (Mymarids; numerous genera) fairy wasp / fairyfly 2. (Aphelinids, Encyrtids, Eucharitids; Eulophids, Eupelmids, Leucospids, Ormyrids, Perilampids, Pteromalids, Rotoitids, Signiphorids, Tanaostigmatids, Tetracampids, Torymids, Trichogrammatids; numerous genera) chalcidoid wasp 3. (Ceraphronids and Megaspilids; numerous genera) ceraphronoid wasp

**-BZZG-** ‘PARASITOID [NON-ACULEATE] WASP’ II 1. (Cynipids; numerous genera) gall wasp / gallfly 2. (Figitids, Ibaliids, Lipterids, Austrocynipids) cynipoid wasp 3. (Diapriids, Maamingids, Monomachids, Austroniids) diaprioid wasp

**-BZZP-** ‘PARASITOID [NON-ACULEATE] WASP’ III 1. (Evaniids; numerous genera) ensign wasp / nightshade wasp / hatchet wasp 2. (Aulacids, Gasteruptiids, Trigonaloids; numerous genera) evanioid wasp, trigonaloid wasp 3. (Megalyrids; several genera) megalyrid wasp

**-BZZT-** ‘PARASITOID [NON-ACULEATE] WASP’ IV 1. (Ichneumonids; numerous genera) ichneumon wasp, scorpion wasp 2. (Braconids; numerous genera) braconid wasp [including the mummy-wasp] 3. (Mymaromatids; several genera) false fairy wasp

**-BZZK-** ‘PARASITOID [NON-ACULEATE] WASP’ V 1. (Sephanids; several genera) crown wasp 2. (Helorids, Plelcinids, Peradeniids, Proctorenyxids, Proctotrupids, Roproniids, Vanhorniids; numerous genera) proctotrupoid wasp 3. (Platygastrids, Scelionids; numerous genera) platygastroid wasp

Hexapods > Insects Hymenoptera > Formicidae (ants)

**-MZZK-** ‘FORMICINE ANT’ I 1. (genus *Formica*) wood ant, mound ant, thatching ant, field ant, meadow ant, horse ant 2. (genus *Cataglyphis*) desert ant 3. (genus *Dinomyrmex*) giant forest ant

**-MZZW-** ‘FORMICINE ANT’ II 1. (genus *Camponotus*) carpenter ant 2. (genus *Oecophylla*) weaver ant 3. (genus *Polyergus*) Amazon ant

**-MZZY-** ‘FORMICINE ANT’ III 1. (genus *Brachymyrmex*) rover ant 2. (genus *Gigantiops*) Gigantiops jumping ant 3. (all other Formicine genera) formicine ant

**-MZZL-** ‘MYRMICINE ANT’ I 1. (genus *Solenopsis*) fire ant, ginger ant, tropical fire ant 2. (genus *Monomorium*) monomorium ant, flower ant, pharaoh ant 3. (genus *Pogonomyrmex*) harvester ant, Maricopan harvester ant

**-MZZR-** ‘MYRMICINE ANT’ II 1. (genus *Cremtogaster*) Saint Valentine ant / cocktail ant / acrobat ant 2. (genus *Cephalotes*) turtle ant 3. (all other Myrmicine genera) myrmicine ant

**-MZZR̂-** ‘MYRMECIINE ANT’ 1. (genus *Myrmecia*) jack jumper ant / bulldog ant / bull ant 2. (genus *Nothomyrmecia*) dinosaur ant / dawn ant 3. (Pseudomyrmecines; genera *Pseudomyrmex*, *Myrccridis*, *Tetraponera*) pseudomyrmecine ant, slender ant

**-MZZF-** ‘DOLICHODERINE ANT’ I 1. (genus *Linepithema*) Argentine ant 2. (genus *Iridomyrmex*) rainbow ant 3. (genus *Dorymyrex*) cone ant

**-MZZT-** ‘DOLICHODERINE ANT’ II 1. (*Tapinoma erraticum*) erratic ant 2. (*Tapinoma sessile*) stink ant / odorous house ant / sugar ant / coconut ant 3. (all other Dolichoderine genera) dolichoderine ant

**-MZZV-** ‘OTHER ANT’ 1. (Ectatommines, Heteroponerines, Amblyoponines, Paraponerines, Ponerines, Proceratiines); numerous genera ) poneromorph ant 2. (Aneuretines, Martialines, Agroecomyrmecines; several genera) other non-poneromorph ant

Hexapods > Insects Hymenoptera > Symphyta (sawflies)

**-ZZMW-** ‘SYMPHYTE (SAWFLY)’ I 1. (Tenthredinids; numerous genera) common sawfly 2. (Diprionids; numerous genera) conifer sawfly / pine sawfly 3. (Argids, Blasticotomids, Cimbicids, Pergids; numerous genera) tenthredinoid sawfly

**-ZZMY-** ‘SYMPHYTE (SAWFLY)’ II 1. (Xyelids; several genera) xyelid sawfly 2. (Pamphiliids; several genera) leaf-rolling sawfly / web-spinning sawfly 3. (Megalodontesids; several genera) megalodontesid sawfly

**-ZZML-** ‘SYMPHYTE (SAWFLY)’ III 1. (Cephoids; numerous genera) stem sawfly 2. (Siricids; several genera) horntail 3. (Anaxyelids; genus *Syntexis*) cedar wood wasp

**-ZZMR-** ‘WOOD WASP’ 1. (Xyphydriids; numerous genera) wood wasp 2. (Orussids; numerous genera) parasitic wood wasp

Hexapods > Insects > Neuropterids (net-winged insects: lacewings, mantidflies, antlions, etc.)

**-ZGW-** ‘PRIMITIVE FLY’ 1. (Plecoptera; numerous genera) stonefly 2. (Raphidoptera; numerous genera) snakefly 3. (Nevrorthids; genera *Nevrorthus*, *Austroneurorthus*, *Nipponeurorthus*) nevrorthid lacewing

**-ZGY-** ‘MEGALOPTERA’ 1. (Sialids; numerous genera) alderfly 2. (Chauliodines; numerous genera) fishfly 3. (Corydalines; several genera) dobsonfly

**-ZBW-** ‘NEUROPTERID (LACEWING)’ I 1. (Osmylids; numerous genera) giant lacewing 2. (Ithonids; several genera) moth lacewing 3. (Chrysopids; numerous genera) green lacewing, stinkfly

**-ZBY-** ‘NEUROPTERID (LACEWING)’ II 1. (Hemerobiids; numerous genera) brown lacewing 2. (Coniopterygids; numerous genera) dustywing 3. (Dilarids; several genera) pleasing lacewing

**-ZBL-** ‘NEUROPTERID (LACEWING)’ III 1. (Mantispids; numerous genera) mantidfly / mantisfly 2. (Rhachiberothids; several genera) thorny lacewing 3. (Berothids; several genera) beaded lacewing

**-ZBR-** ‘NEUROPTERID (LACEWING)’ IV 1. (Nymphids; several genera) split-footed lacewing 2. (Nemopterids; numerous genera) spoonwing, thread-winged 3. (Sisyrids; several genera) spongillafly

**-ZBŘ-** ‘NEUROPTERID (LACEWING)’ V 1. (Psychopsids; several genera) silky lacewing 2. (Myrmeleontids; numerous genera) antlion 3. (Ascalaphids; numerous genera) owlfly

Hexapods > Insects > Coleoptera (beetles)

Hexapods > Insects > Coleoptera > Adephaga

**-FBW-** ‘ADEGPHAGAN BEETLE’ I 1. (Carabids; numerous genera) ground beetle, bombardier beetle, ant nest beetle / paussine, sand beetle, tiger beetle, harp beetle, violin beetle 2. (Rhysodids; numerous genera) wrinkled bark beetle 3. (Trachypachids; genera *Trachypachus*, *Systolosoma*) false ground beetle

**-FBY-** ‘ADEGPHAGAN BEETLE’ II 1. (Dystiscids; numerous genera) predacious diving beetle 2. (Halipilids; several genera) crawling water beetle, halipilid 3. (Noterids; numerous genera) burrowing water beetle

**-FBL-** ‘ADEGPHAGAN BEETLE’ III 1. (Amphizoans; genus *Amphizoa*) troutstream beetle 2. (Gyrinids; numerous genera) whirligig beetle 3. (Hygrobiids; genus *Hygrobia*) squeak beetle / screech-beetle

**-FBR-** ‘ADEGPHAGAN BEETLE’ IV 1. (Aspidytids; genus *Aspidytes*) aspidytes beetle 2. (Meruids; genus *Meru*) meru beetle

Hexapods > Insects > Coleoptera > Polyphaga

Hexapods > Insects > Coleoptera > Polyphaga > Cucujiformia

**-RÇK-** ‘CUCUJOID BEETLE’ I 1. (Coccinellids; numerous genera) ladybug / ladybird / lady beetle 2. (Discolomatids; numerous genera) Mexican hat beetle 3. (Phalacrids; numerous genera) shining flower beetle

**-RÇKW-** ‘CUCUJOID BEETLE’ II 1. (Endomychids; numerous genera) handsome fungus beetle 2. (Erotylids; numerous genera) pleasing fungus beetle 3. (Cryptophagids; numerous genera) silken fungus beetle

- RÇKY**- ‘CUCUJOID BEETLE’ III 1. (Cucujids; several genera) flat bark beetle 2. (Bothriderids; numerous genera) dry bark beetle / cocoon-forming beetle 3. (Cerylonids; numerous genera) minute bark beetle
- RÇKL**- ‘CUCUJOID BEETLE’ IV 1. (Sylvanids; numerous genera) sylvan flat bark beetle 2. (Laemophloeids; numerous genera) lined flat bark beetle 3. (Passandrids; several genera) parasitic flat bark beetle
- RÇKR**- ‘CUCUJOID BEETLE’ V 1. (Nitidulids; numerous genera) sap beetle, picnic beetle / beer bug, small hive beetle 2. (Kateritids; several genera) short-winged flower beetle 3. (Latriidiids; numerous genera) minute brown scavenger beetle / fungus beetle
- RÇKŘ**- ‘CUCUJOID BEETLE’ VI 1. (Monotomids; numerous genera) root-eating beetle 2. (Corylophids; numerous genera) minute hooded beetle / minute fungus beetle 3. (Smicripids; genus *Smicrips*) palmetto beetle
- RÇKÇ**- ‘CUCUJOID BEETLE’ VII 1. (Sphindids; several genera) cryptic slime mold beetle 2. (Phloeostichids, Priasilphids, Propalticids, Protocucujids, Lamingtoniids, Helotids, Boganiids, Alexiids, Akalyptoischion; numerous genera) other cucujoid beetle 3. (Myraboliids, Tasmosalpingids, Hobartiids, Cyclaxyrids, Agapythids; several genera) Australasian cucujoid beetle
- RÇKF**- ‘CURCULIONOID BEETLE (i.e., WEEVIL) I 1. (Curculionids; numerous genera) true weevil / snout beetle, flower weevil, acorn weevil, nut weevil, broad-nosed weevil, ambrosia beetle / pinhole borer, bark beetle 2. (Brentids; numerous genera) straight-snouted weevil 3. (Attelabids; several genera) leaf-rolling weevil
- RÇKT**- ‘CURCULIONOID BEETLE (i.e., WEEVIL) II 1. (Nemonychids; numerous genera) pine flower weevil 2. (Anthribids; numerous genera) fungus weevil 3. (Belids and Carids; numerous genera) primitive weevil, belid, cycad weevil, carid weevil
- RÇKH**- ‘CLEROID BEETLE’ I 1. (Clerids; numerous genera) checkered beetle, ant beetle, steely blue beetle, ham beetle, yellow-horned clerid 2. (Melyrids; numerous genera) soft-winged flower beetle 3. (Biphyllids; several genera) false skin beetle
- RÇKHW**- ‘CLEROID BEETLE’ II 1. (Byturids; several genera) fruitworm beetle 2. (Trogossitids; numerous genera) bark-gnawing beetle 3. (Chaetosomatids, Lophocaterids, Acanthocnemids, Mauroniscids, Peltids, Phloiophilids, Phycosecids, Prionocerids, Thaneroclerids, Protopeltids, Rentoniids, Rhadalids, Thymalids; numerous genera) other cleroid beetle
- RÇKL**- ‘CHRYSOMELOID & LYMEXILID BEETLE’ 1. (Chrysomelids, Megalopodids, Orsodacnids; numerous genera) leaf beetle, Colorado potato beetle / ten-striped spearman 2. (Cerambycids, Disteniids, Oxypeltids, Vesperids; numerous genera) long-horned beetle / longicorn, titan beetle, red milkweed beetle, huhu beetle, harlequin beetle 3. (Lymexilids; several genera) ship-timber beetle, timberworm beetle
- RÇG**- ‘TENEBRIONOID BEETLE’ I 1. (Aderids; numerous genera) ant-like leaf beetle 2. (Ciids; numerous genera) minute tree-fungus beetle 3. (Mycetophagids; several genera) hairy fungus beetle
- RÇGW**- ‘TENEBRIONOID BEETLE’ II 1. (Mordellids; numerous genera) tumbling flower beetle / pintail beetle 2. (Anthicids; numerous genera) ant-like flower beetle 3. (Scaptiids; numerous genera) false flower beetle
- RÇGY**- ‘TENEBRIONOID BEETLE’ III 1. (Zopherids other than Colydiines; several genera) ironclad beetle 2. (Colydiines; numerous genera) cylindrical bark beetle 3. (Salpingids; numerous genera) narrow-waisted bark beetle
- RÇGL**- ‘TENEBRIONOID BEETLE’ IV 1. (Meloids; numerous genera) blister beetle 2. (Oedemerids; numerous genera) false blister beetle / pollen-feeding beetle 3. (Pyrochroids; numerous genera) fire-colored beetle
- RÇGR**- ‘TENEBRIONOID BEETLE’ V 1. (Stenotrachelids; several genera) false long-horned beetle 2. (Prostomids; two genera) jugular-horned beetle 3. (Ripiphorids; numerous genera) wedge-shaped beetle
- RÇGŘ**- ‘TENEBRIONOID BEETLE’ VI 1. (Tenebrionids; numerous genera) darkling beetle, flour beetle 2. (Melandryids; numerous genera) false darkling beetle 3. (Archeocrypticids, Borids, Chalcodryids, Mycterids, Perimylopids, Pterogeniids, Pythids, Synchronoids, Tetratomids, Trachelostenids, Trictenotomids, Ulodids; numerous genera) other tenebrionoid beetle



## Hexapods &gt; Insects &gt; Coleoptera &gt; Polyphaga &gt; Scarabaeoidea

**-RBK-** ‘SCARABAEID (SCARAB) BEETLE’ I 1. (Scarabaeines; numerous genera) true dung beetle 2. (Aphodiines; numerous genera) small dung beetle 3. (Cetoniines; numerous genera) flower chafer, flower scarab

**-RBKW-** ‘SCARABAEID (SCARAB) BEETLE’ II 1. (Dynastines; numerous genera) rhinoceros beetle / unicorn beetle / horn beetle, Atlas beetle, Hercules beetle, Neptune beetle, Caucasus beetle, rabbit beetle, Siamese beetle, Mars beetle, elephant beetle, actaeon beetle, ox beetle 2. (Rutelines; numerous genera) shining leaf chafer, Japanese beetle 3. (Melolonthines; numerous genera) May beetle, May bug, Junebug, cockchafer, monkey beetle, white-grub beetle

**-RBKY-** ‘SCARABAEID (SCARAB) BEETLE’ III 1. (Euchirines; several genera) long-armed scarab 2. (Aclopinines, Aegialiines, Allidiostomatines, Chironines, Dynamopodines, Aulonocnemines, Eremazines, Phaenomeridines, Orphnines, Temitotrogines; numerous genera) other scarab beetle

**-RBKL-** ‘SCARABAEID BEETLE’ I 1. (Hybosorids; numerous genera) scavenger scarab beetle 2. (Ceratocanthids; numerous genera) pill scarab beetle 3. (Ochodaeids; numerous genera) sand-loving scarab beetle

**-RBKR-** ‘SCARABAEID BEETLE’ II 1. (Lucanids; numerous genera) stag beetle 2. (Diphyllostomatids; genus *Diphyllostoma*) false stage beetle 3. (Passalids; numerous genera) bess beetle / bessbug / betsy beetle / horned passalus beetle

**-RBKŘ-** ‘SCARABAEID BEETLE’ III 1. (Pleocomids; genus *Pleocoma*) rain beetle 2. (Trogids and; several genera) hide beetle 3. (Glareresids; genus *Glaresis*) enigmatic scarab beetle

**-RBKÇ-** ‘SCARABAEID BEETLE’ IV 1. (Geotrupids; numerous genera) earth-boring dung beetle 2. (Glaphyrids; several genera) bumble bee scarab beetle 3. (Belohinids; genus *Belohina*) belohina beetle

## Hexapods &gt; Insects &gt; Coleoptera &gt; Polyphaga &gt; Staphyliniformia

**-RBKF-** ‘STAPHYLINOID BEETLE’ I 1. (Silphids; numerous genera) carrion beetle / burying beetle 2. (Agyrtids; numerous genera) primitive carrion beetle 3. (Staphylinids; numerous genera) rove beetle, ant-like stone beetle, crab-like rove beetle

**-RBKV-** ‘STAPHYLINOID BEETLE’ II 1. (Leiodids; numerous genera) round fungus beetle, mammal-nest beetle 2. (Ptiliids; numerous genera) featherwing beetle 3. (Hydraenids; numerous genera) minute moss beetle

**-RBKT-** ‘STAPHYLINIFORM BEETLE’ 1. (Hydrophiloids; numerous genera) water scavenger beetle, minute mud-loving beetle 2. (Histerids and Sphaeritids; numerous genera) clown beetle, false clown beetle 3. (Synteliids; genus *Syntelia*) syntelia beetle

## Hexapods &gt; Insects &gt; Coleoptera &gt; Polyphaga &gt; Elateriformia

## Hexapods &gt; Insects &gt; Coleoptera &gt; Polyphaga &gt; Elateriformia&gt;Elateroidea

**-RBD-** ‘ELATEROID BEETLE’ I 1. (Elaterids; numerous genera) click beetle / snapping beetle / spring beetle / elater / skipjack, false firefly 2. (Eucnemids; numerous genera) false click beetle 3. (Cerophytids; several genera) rare click beetle

**-RBDW-** ‘ELATEROID BEETLE’ II 1. (Cantharids; numerous genera) soldier beetle / leatherwing 2. (Omethids; several genera) false soldier beetles, long-lipped beetle 3. (Lycids; numerous genera) net-winged beetle

**-RBDY-** ‘ELATEROID BEETLE’ III 1. (Lampyrids; numerous genera) firefly / lightning bug 2. (Phengodids, Rhagophthalmids, Osmalisids; numerous genera) glowworm beetle 3. (Throscids; several genera) false metallic wood-boring beetle

**-RBDL-** ‘ELATEROID BEETLE’ IV 1. (Brachypsectrids; genus *Brachypsectra*) Texas beetle 2. (Artematopodids; several genera) soft-bodied plant beetle 3. (Jurasids, Podabrocephalids, Rhinorhipids; several genera) other elateriform beetle

Hexapods > Insects > Coleoptera > Polyphaga > Elateriformia>Buprestoidea

**-RBDR-** ‘BUPRESTOID BEETLE’ 1. (Buprestids; numerous genera) jewel beetle / metallic wood-boring beetle 2. (Schizopodids; several genera) false jewel beetle

Hexapods > Insects > Coleoptera > Polyphaga > Elateriformia>Dascilloidea

**-RBDV-** ‘DASCILLOID BEETLE’ 1. (Dascillids; several genera) soft-bodied plant beetle 2. (Rhipicerids; several genera) cicada parasite beetle

Hexapods > Insects > Coleoptera > Polyphaga > Elateriformia>Scirtoidea

**-RBDŘ-** ‘SCIRTOID BEETLE’ 1. (Scirtids; numerous genera) marsh beetle 2. (Clambids; several genera) minute beetle / fringe-winged beetle 3. (Eucinetids and Decliniids; several genera) plate-thigh beetle, declinia beetle

Hexapods > Insects > Coleoptera > Polyphaga > Elateriformia>Byrrhoidea

**-RBC-** ‘BYRRHOID BEETLE’ I 1. (Byrrhids; numerous genera) pill beetle 2. (Callirhipids; several genera) cedar beetle 3. (Chelonariids; several genera) turtle beetle

**-RBČ-** ‘BYRRHOID BEETLE’ II 1. (Limnichids; numerous genera) minute mud beetle / minute marsh-loving beetle 2. (Heterocerids; numerous genera) variegated mud-loving beetle 3. (Psephenids; numerous genera) water-penny beetle

**-RBZ-** ‘BYRRHOID BEETLE’ III 1. (Eulichadids; several genera) forest stream beetle 2. (Elmids; numerous genera) riffle beetle 3. (Dryopids; numerous genera) long-toed water beetle

**-RBJ-** ‘BYRRHOID BEETLE’ IV 1. (Ptilodactylids; several genera) toe-winged beetle 2. (Lutrochids; genus *Lutrochus*) travertine beetle 3. (Cneoglossids; genus *Cneoglossa*) cneoglossa beetle

Hexapods > Insects > Coleoptera > Polyphaga > Bostrichiformia

**-RBVM-** ‘BOSTRICHIFORM BEETLE’ I 1. (Bostrichids; numerous genera) horned powderpost beetle, false powderpost beetle, auger beetle 2. (Dermestids; numerous genera) carpet beetle, skin beetle, larder beetle, hide beetle / leather beetle, museum beetle, warehouse beetle, cabinet beetle, Khapra beetle / buscuit beetle 3. (Ptinids; numerous genera) death-watch beetle, spider beetle, common furniture beetle

**-RBVN-** ‘BOSTRICHIFORM BEETLE’ II 1. (Endecatomids; genus *Endecatomus*) endecatomus beetle 2. (Derontids; several genera) tooth-necked fungus beetle 3. (Nosedendrids, Jacobsoniids; several genera) wounded-tree beetle, slime flux beetle, Jacobson’s beetle

Hexapods > Insects > Coleoptera > remaining families

**-RBKH-** ‘OTHER COLEOPTEROID’ 1. (Myxophagans; several genera) myxophagan beetle, skiff beetle 2. (Archostematans; several genera) reticulated beetle, telephone-pole beetle, other archostematid beetle 3. (Strepsiptera; numerous genera) twisted-winged parasite / twisted-wing insect / stylops

Hexapods > Insects > Amphiesmenoptera (butterflies, moths, and caddisflies)

Hexapods > Insects > Amphiesmenoptera > Lepidoptera (butterfly, moth)

**-LSP-** ‘PRIMITIVE MOTH’ I 1. (Aglossata [Agathiphagids]; genus *Agathiphaga*) kauri moth 2. (Heterobathmiids; genus *Heterobathmia*) heterobathmiid moth, southern beech moth 3. (Zeugloptera [Micropterigids]; numerous genera) mandibulate archaic moth / small primitive metallic moth

**-LSPW-** ‘PRIMITIVE MOTH’ II 1. (Dacnonypha [Eriocraniids]; several genera) eriocraniid metallic moth 2. (Acanthopteroctetids; genera *Acanthopteroctetes*, *Catapterix*) archaic sun moth 3. (Lophocoronids; genus *Lophocorona*) lophocorona moth

**-LSPY-** ‘PRIMITIVE MOTH’ III 1. (Neopseustids; several genera) archaic bell moth 2. (Aenigmatineids; genus *Aenigmatinea*) enigma moth 3. (Exoporia; several genera) swift moth, ghost moth, New Zealand primitive moth

Hexapods > Insects > Amphiesmenoptera > Lepidoptera > Monotrysia (monotrysiic moths)

**-LSPL-** ‘ADELOID MOTH’ 1. (Adelids; several genera) fairy longhorn moth 2. (Prodoxids; several genera) prodoxid moth, currant shoot borer, yucca moth, bogus yucca moth 3. (Cecidosids, Heliozelids, Incurvariids; numerous genera) adeloid leaf-miner moth

**-LSPR-** ‘NEPTICULOID MOTH’ 1. (Nepticulines; several genera) pigmy moth / midget moth 2. (Pectinivalvines; genera *Pectinivalva*, *Roscidotoga*) Australian pigmy/midget moth 3. (Opotegids; several genera) white eyecap moth

**-LSPŘ-** ‘MONOTRYSIAN MOTH’ 1. (Andesianids; genus *Andesiana*) Andean endemic moth 2. (Palaephatids; several genera) Gondwanaland moth 3. (Tischerioids; several genera) trumpet leaf miner moth

Hexapods > Insects > Amphiesmenoptera > Lepidoptera > Dytrysia

**-LSPF-** ‘TINEOID MOTH’ 1. (Tineids; numerous genera) clothes moth, carpet moth, fungus moth, tineid moth 2. (Psychids; numerous genera) bagworm moth / bagworm / bagmoth / case moth 3. (Acrolophids; several genera) burrowing webworm moth

**-LSPV-** ‘OTHER TINEOID MOTH & MILLIERIID MOTH’ 1. (Eriocottids; several genera) Old World spiny-winged moth 2. (Arrhenophanids; several genera) arrhenophanid moth 3. (Millieriids; genera *Millieria*, *Phormoestes*, *Nyx*) millieriid moth

**-LSPĹ-** ‘GRACILLARIOID MOTH’ 1. (Bucculatricids; genus *Buculatrix*) ribbed cocoon maker / bucculatricid moth 2. (genus *Ogmograptis*) scribbly gum moth 3. (Gracillariids and Roeslerstammids; numerous genera) gracillarioid moth

**-LSPÇ-** ‘YPONOMEUTOID MOTH’ I 1. (Yponomeutids; numerous genera) ermine moth, 2. (Argyresthiids; several genera) shiny head-standing moth 3. (Praydids; several genera) false ermine moth

**-LSPH-** ‘YPONOMEUTOID MOTH’ II 1. (Plutellids; numerous genera) diamondback moth 2. (Acrolepiids; several genera) false diamondback moth 3. (Glyphipterigids; numerous genera) sedge moth

**-LSPÇW-** ‘YPONOMEUTOID MOTH’ III 1. (Heliodinids; numerous genera) sun moth 2. (Bedelliids; genus *Bedellia*) bedelliid moth, sweet potato leaf miner moth 3. (Lyonetiids; numerous genera) lyonetiid moth

**-LSPHW-** ‘YPONOMEUTOID MOTH’ IV 1. (Ypsolophids; several genera) ypsolophid moth 2. (Attevids; genus *Atteva*) atteva moth

Hexapods > Insects > Amphiesmenoptera > Lepidoptera > Apoditrysia

**-LFP-** ‘PTEROPHORID & ALUCITOID MOTH’ 1. (Pterophorids; numerous genera) plume moth 2. (Alucitids; several genera) many-plumed moth 3. (Tineodids; numerous genera) false plume moth

**-LFPW-** ‘TORTRICID (a.k.a. TORTRIX or LEAFROLLER) MOTH’ I 1. (Tortricids; numerous genera) leafroller moth / tortrix moth 2. ((genus *Cydia*) cydia tortrix, rusty oak moth, slash pine seedworm moth, hickory shuckworm moth, filbertworm moth, tea flush worm moth, alfalfa moth, larch gall moth, pea moth, jumping bean moth, spruce bark tortrix, ponderosa pine seedworm moth, codling moth, pear fruit moth / pear fruit tortricid, chestnut tortrix / acorn moth, spruce seed moth, beech moth, longleaf seedworm moth, nut fruit tortrix, larch bark moth, eastern pine seedworm moth 3. (genus *Grapholita*) grapholita tortrix, hemp moth / hemp borer, oriental fruit moth, cherry fruitworm moth, clover seed moth, hawthorn leafroller, peach moth, appleseed moth / small fruit tortrix, three-lined grapholita moth, grapholitha roseticolana / deep-brown piercer / rose-hip tortricid / briar moth

**-LFPY-** ‘TORTRICID (a.k.a. TORTRIX or LEAFROLLER) MOTH’ II 1. (genus *Archips*) fruit-tree leafroller moth, ugly-nest caterpillar moth, brown oak tortrix, oak webworm moth, baldcypress leafroller, black shield leafroller / gray archips moth, larger boxelder leafroller, large fruit tree tortrix, rose tortrix / rose leaf roller, oak leafroller, apple leafroller, variegated golden tortrix, striated tortrix moth / striated leafroller, southern ugly-nest caterpillar moth, spring spruce needle moth / spruce needleworm moth, omnivorous leafroller, dusky-back leafroller, smoked leafroller / hickory webworm moth, Georgia archips moth, exotic leafroller moth / apple tortrix, boldly-marked archips moth, Asiatic leafroller, groundnut leafroller 2. (genus *Tortrix*) green oak tortrix / green oak moth / European oak leafroller, Japanese oak leafroller 3. (genus *Sparganothis*) sparganothis fruitworm moth / blueberry leafroller, aproned sparganothis / beautiful sparganothis, aproned ceopis moth, white-tailed fruitworm moth, distinct sparganothis moth, chokecherry leafroller moth, spring dead-leaf roller, gray sparganothis moth, three-streaked sparganothis moth, one-lined sparganothis moth, mosaic sparganothis moth, long-palped tortrix / vine leaf roller

**-LFPL-** ‘TORTRICID (a.k.a. TORTRIX or LEAFROLLER) MOTH’ III 1. (genus *Choristoneura*) broken-banded leafroller / dark-banded fireworm moth, large aspen tortrix, two-year cycle budworm moth, spruce budworm moth, western spruce budworm moth, eastern spruce budworm moth, mountain-ash tortricid, strawberry leafroller, sugar pine tortrix, parallel-banded leafroller moth, jack pine budworm moth, oblique banded leaf roller / rosaceous leaf roller, zapulata moth 2. (genus *Argyrotaenia*) white-spotted leafroller, pondapple leafroller moth, orange tortrix / apple skinworm moth, Ivana leafroller moth, hickory leafroller moth, Kimball’s leafroller moth, fall spruce needle moth, gray-banded leafroller moth, pine tube moth, yellow-winged oak leafroller moth, four-lined leafroller / four-banded leafroller / lesser all-green leafroller, jack pine tube moth / lodgpole needletier moth, red-banded leafroller moth 3. (genus *Pandemis*) chequered fruit-tree tortrix / hazel tortrix moth / filbert tortricid / barred fruit tree moth, barred fruit-tree tortrix, green aspen leaftier, dark fruit-tree tortrix / apple brown tortrix, woodgrain leafroller moth, three-lined leafroller, apple pandemis / pandemis leafroller moth

**-LFPR-** ‘TORTRICID (a.k.a. TORTRIX or LEAFROLLER) MOTH’ IV 1. (genus *Spilonota*) bud moth, white fruit moth / larger apple fruit moth / eye-spotted bud moth, larch leafroller, apple fruit lick 2. (genus *Thaumatotibia*) cacao husk borer, false codling moth / orange moth / citrus codling moth / orange codling moth 3. (genus *Spilonota*) white fruit moth / larger apple fruit moth / eye-spotted bud moth, larch leafroller, apple fruit lick, bud moth

**-LFPR-** ‘TORTRICID (a.k.a. TORTRIX or LEAFROLLER) MOTH’ V 1. (genus *Adoxophyes*) appleleaf-curling moth, summer fruit tortrix moth, shimmering adoxophyes moth, bell moth / orange tip moth 2. (genus *Lobesia*) European grapevine moth 3. (genus *Paralobesia*) tulip-tree leaftier moth, grape berry moth

**-LFPF-** ‘TORTRICID (a.k.a. TORTRIX or LEAFROLLER) MOTH’ VI 1. (genus *Taniva*) spruce needleminer moth 2. (genus *Synnoma*) rabbitbrush webbing moth 3. (genus *Pammene*) chestnut leafroller, pygmy piercer moth

**-LFPV-** ‘COSSOID MOTH’ 1. (Cossids, Dudgeoneids, Metarbelids; numerous genera) carpenter moth / carpenter miller / cossid miller / goat moth / wood moth 2. (genus *Coryphodema*) quince borer / sad goat moth / apple-trunk borer moth 3. (genus *Prionoxystus*) carpenterworm moth / locust borer moth

**-LFPT-** ‘SESSOID MOTH’ 1. (Brachodids; numerous genera) little bear moth 3. (Castniids; numerous genera) giant butterfly-moth, sun moth 3. (Sessiids; numerous genera) clearwing moth

**-LFPS-** ‘ZYGAENOID MOTH’ I 1. (Zygaenids; numerous genera) burnet moth, forester moth, smoky moth, skeltonizer moth, vine bud moth 2. (Megalopygids; numerous genera) flannel moth / crinkled flannel moth 3. (Epipyropids and Cyclotornids; numerous genera) planthopper parasite moth

**-LFPS-** ‘ZYGAENOID MOTH’ II 1. (Dalcerids, Limacodids; numerous genera) slug moth / cup moth, jewel caterpillar moth 2. (Heterogynids, Lacturids, Phaudids, Aids, Anomoeotids, Somabrachyids, Himantopterids; numerous genera) other zygaenoid moth

**-LFPL-** ‘GELECHIOID MOTH’ I 1. (Gelechioids other than Gelechiids; numerous genera) gelechioid moth / curved-horn moth 2. (Coleophorids; numerous genera) case-bearer moth / casebearing moth / case moth 3. (Cosmopterigids; numerous genera) cosmet moth

**-LFPLW-**

‘GELECHIOID MOTH’ II 1. (Elachistids; numerous genera) grass-miner moth 2. (Argonoxenines and Blastodacnids; numerous genera) palm moth 3. (Lecithocerids; numerous genera) long-horned moth

**-LFPH-** ‘GELECHIOID MOTH’ III 1. (Mompids, numerous genera) mompha moth 2. (Oecophorids; numerous genera) concealer moth 3. (Schistonoeids; genus *Schistonoea*) scavenger moth

**-LFPHW-** ‘GELECHIOID MOTH’ IV 1. (Scythridids; numerous genera) flower moth 2. (Xyloryctids; numerous genera) hermit moth / timber moth 3. (Austostichids, Batrachedrids, Blastobasids, Chimabachids, Pterolonchids, Epimarptids, Lypusids, Depressariids, Peleopodids, Stathmopodids, Syringopids; numerous genera) other gelechioid moth

**-LFPSW-** ‘GELECHIID (TWIRLER) MOTH’ 1. (Gelechiids; numerous genera) twirler moth 2. (genera *Anarsia*, *Aproaerema*, *Keiferia*, *Phthorimaea*, *Sitotraga*, *Tecia*, *Tuta*) gelechiid twig, groundnut, tuber, grain, or tomato pest 3. (genus *Pectinophora*) pink bollworm moth

**-LFPC-** ‘APODITRYSIAN MOTH’ I 1. (Carposinids; numerous genera) fruitworm moth 2. (Copromorphids; numerous genera) tropical fruitworm moth 3. (Immids; numerous genera) immid moth

**-LFPÇW-** ‘APODITRYSIAN MOTH’ II 1. (Epermeniids; numerous genera) fringe-tufted moth 2. (Schreckensteiniids; several genera) bristle-legged moth 3. (Simaethistids; genera *Simaethistis*, *Metaprotus*) simaethistid moth

**-LFPSW-** ‘APODITRYSIAN MOTH’ III 1. (Choreutids; numerous genera) metalmark moth 2. (Urodids; several genera) false burnet moth 3. (Galacticids; several genera) galacticid moth

**-LFPSY-** ‘APODITRYSIAN MOTH’ IV 1. (Prodidactid; genus *Prodidactis*) prodidactis moth 2. (Douglassiids; genera *Tinagma*, *Klimeschia*, *Protonyctia*) Douglas moth

Hexapods > Insects > Amphiesmenoptera > Lepidoptera > Obtectomera

**-LKW-** ‘PAPILIONID (SWALLOWTAIL) BUTTERFLY’ I 1. (Parnassiines; several genera) snow Apollo, mountain Apollo, false Apollo, souther festoon, eastern festoon, Spanish festoon, Bhutan glory, luehdorfina 2. (Papilionines; numerous genera) swallowtail, swordtail, kite swallowtail, bluebottle, triangle, jay, graphium, white-lady, zebra, dragontail, gorgon, Kaiser-i-hind, golden Kaiser-i-hind, batwing, windmill, clubtail, rose, clearwing swallowtail / big greasy, birdwing, cattleheart 3. (Baronines; genus *Baronia*) short-horned baronia

**-LKY-** ‘HESPERIID (SKIPPER) BUTTERFLY’ I 1. (Coeliadines; several genera) awl, awlet, policeman, African giant skipper 2. (Euschemonines; genus *Euschemon*) regent skipper 3. (Eudamines; numerous genera) dicot skipper

**-LKL-** ‘HESPERIID (SKIPPER) BUTTERFLY’ II 1. (Pyrgines; numerous genera) spread-winged skipper, firetail skipper 2. (Heteropterines; numerous genera) skipperling 3. (Hesperines; numerous genera) grass skipper / banded skipper

**-LKR-** ‘HESPERIID (SKIPPER) BUTTERFLY’ III 1. (Megathymines; several genera) giant skipper 2. (Trapezitines; numerous genera) Australian/New Guinea skipper

**-LKŘ-** ‘PIERID BUTTERFLY’ I 1. (Pierines; numerous genera) white butterfly, orange tip, marble, yellow tip, black-tip, sulphur, sawtooth, dotted border, Jezebel, gull, puffin, albatross, blackvein, caper white, Arab, vagrant 2. (Coliadines; numerous genera) yellow butterfly, dogface, sulphur, emigrant 3. (Dismorphiines and Pseudopontiines; several genera) mimic sulphur, mimic white butterfly, pseudopontia

**-LKÇ-** ‘LYCAENID (GOSSAMER-WINGED) BUTTERFLY’ I 1. (Lycaenines; numerous genera) copper butterfly, sapphire butterfly 2. (Curetines; genus *Curetis*) sunbeam butterfly 3. (Polyommattines; numerous genera) blue, hairtail, Pierrot, argus, cerulean, azure, tailed-blue, cupid butterfly

**-LKF-** ‘LYCAENID (GOSSAMER-WINGED) BUTTERFLY’ II 1. (Miletines; numerous genera) harvester, wooly legs, moth butterfly 2. (Theclines; numerous genera) hairstreak, elfin, posy, imperial, oakblue, Atala 3. (Aphnaeines; numerous genera) opal, Roger’s gem, silver spot, silver-spotted copper, highflyer, scarce scarlet / golden flash, daisy copper, king copper

**-LKT-** ‘RIODINID & OTHER LYCAENID BUTTERFLY’ 1. (Riodinids; numerous genera) metalmark butterfly, Duke of Burgundy, orange harlequin, columbine, punch, punchinello 2. (Poritiines; numerous genera) poritiine, zulu, pentila, buff, glasswing / white mimic, tiger mimic, acraea mimic, harlequin, dot, acraea blue, epitola

**-LKM-** ‘NYMPHALID (FOUR-FOOTED / BRUSH-FOOTED) BUTTERFLY’ I 1. (Nymphalines; numerous genera) tortoiseshell, admiral, mapwing, anglewing, comma, jester, painted lady, tiger beauty, pirate, eggfly, diadem, oakleaf, leaf, malachite, peacock, Fatima, pansy, commodore, blue beauty, buckeye, meadow argus, northern argus, mother-of-pearl butterfly 2. (Melitaeines; numerous genera) checkerspot, patch, crescent / crescent spot, fritillary, European peacock butterfly 3. (other Nymphalids; genera *Rhinopalpa*, *Kallimoides*, *Vanessula*) wizard, African leaf, black and orange / lady’s maid butterfly

**-LKN-** ‘NYMPHALID (FOUR-FOOTED / BRUSH-FOOTED) BUTTERFLY’ II 1. (Cyrestines; genera *Cyrestis*, *Chersonesia*, *Marpesia*) map, maplet, daggerwing butterfly 2. (Biblidines; numerous genera) tropical brushfoot, eighty-eight, numberwing, Pericloud, sailor, greenwing, asterope, glory, banner, cracker, calico, beauty, red flasher, firewing, catone, shoemaker, olivewing, bluewing, tree nymph, purplewing, red rim / crimson-banded black, castor, piper, sailor, Drury’s delight, joker, mestra, azeca banner 3. (Apaturines; numerous genera) emperor, empress, hackberry, courtesan, pasha, sorcerer, circe, siren, prince, courtier

**-LKV-** ‘NYMPHALID (FOUR-FOOTED / BRUSH-FOOTED) BUTTERFLY’ III 1. (Heliconiines; numerous genera) acraea, legionnaire, tawny coster, actinote, altinote, bematistes, lacewing, gulf fritillary / passion butterfly, longwing, postman, banded orange / orange tiger, Julia / flame / flambeau, Juliette, scarce bamboo page / longwing dido, leopard, spotted rustic, blotched leopard, cruiser, yeoman, royal Assyrian, rustic, vagrant, fritillary, polka dot 2. (Limenitidines; numerous genera) clipper, marquise, duke, archduke, count, earl, viscount, forest-glade nymph, pathfinder, brilliant nymph, forester, figeater, commander, guineafowl, false fritillary, false sergeant, sister, admiral, commodore, lascar, aeroplane, glider, knight, false acraea, blue sailer / blue sergeant 3. (Libytheines; genera *Libythea*, *Libytheana*) beak / snout butterfly

**-LKL-** ‘NYMPHALID (FOUR-FOOTED / BRUSH-FOOTED) BUTTERFLY’ IV 1. (Danaini; several genera) cleric, monarch, queen, tiger, glassy tiger, tree-nymph, wood-nymph, Schneider’s surprise, blue tiger, crow, paper, mimic queen, magpie butterfly 2. (Ithomiines; numerous genera) clearwing, tigerwing, clapping ticlear, glasswing butterfly 3. (Tellervini; genus *Tellervo*) tellervo butterfly

**-LKH-** ‘NYMPHALID (FOUR-FOOTED / BRUSH-FOOTED) BUTTERFLY’ V 1. (Calinagines; genus *Calinaga*) freak butterfly 2. (Charaxines; numerous genera) leafwing, nawab, rajah, pasha, begum, palla, forest queen, prepona, Nemesis 3. (Morphines; numerous genera) dryad, palmking, koh-i-noor, duffer, caliph jungle queen, jungleking, jungle glory, owl, giant owl, morpho

**-LKŠ-** ‘SATYRID BUTTERFLY’ 1. (Satyrini; numerous genera) brown, satyrid, satyr, grayling, ringlet, false grayling, wood-nymph, meadowbrown, xenica, alpine, widow, heath 2. (Elymniini; numerous genera) palmfly, diqadem, white owl, pearly-eye, wall, wallbrown, treebrown, woodbrown, bushbrown, labyrinth, goldenfork, silverstripe, lilacfork, silverfork, mystic 3. (Melanitini, Eritini, Haeterini, Ragadiini; numerous genera) mountain pride / Table Mountain beauty, bush beauty / forest pride, brown

**-LKHW-** ‘BUTTERFLY- MOTH / MOTH-BUTTERFLY’ 1. (Callidulids; several genera) Old World butterfly-moth 2. (Hedylids; genus *Macrosoma*) American moth-butterfly

**-LKÇW-** ‘OBTECTOMERAN MOTH’ I 1. (Thyridids; numerous genera) picture-winged leaf moth 2. (Hyblaeids; genera *Hyblaea*, *Erythrochrus*) teak moth 3. (Whalleyanids; genus *Whalleyana*) whalleyana moth

**-LKS-** ‘OBTECTOMERAN MOTH’ II 1. (Crambids; numerous genera) grass moth, European corn boere / European corn worm moth / European high-flyer, sod grass webworm moth, rice stem borer 2. (Pyralids; numerous genera) snout moth / pyralid moth, Indian meal moth / weevil moth / pantry moth / flour moth / grain moth, coconut spike moth / oil palm bunch moth, cacao moth / tobacco moth / warehouse moth, Mediterranean flour moth / mill moth, wax moth, rice moth 3. (Mimallonids; numerous genera) mimallonid moth / sack-bearer moth

Hexapods > Insects > Amphiesmenoptera > Lepidoptera > Macroheterocera

**-ŘZB-** ‘BOMBYCOID MOTH’ I 1. (Bombycids; numerous genera) silk moth, emperor moth, sphinx moth, silkworm moth, Brahmin moth, true silkmoth / mulberry silkmoth 2. (Drepanoids; numerous genera) hook-tip moth, false owlet, gold moth, doid moth, drepanid moth 3. (Lasiocampids; numerous genera) eggar, snout moth, lappet moth, tent caterpillar moth

**-ŘZBW-** ‘BOMBYCOID MOTH’ II 1. (Saturnids; numerous genera) oakworm moth, regal moth, pine-devil moth, splendid royal moth, rosy maple moth, imperial moth, io moth, buck moth, emperor moth, moon moth, tussar moth, comet moth, Polyphemus moth, mopane moth, cecropia moth, silkmoth, Hercules moth, Atlas moth 2. (Sphingids; numerous genera) sphinx moth, hawk- moth 3. (Apelodids; numerous genera) American silkworm moth, shag-carpet caterpillar moth

**-ŘZBY-** ‘BOMBYCOID MOTH’ II 1. (Eupterotids, Phiditiids, Endromids, Carthaeids; numerous genera) bombycid moth, dryandra moth 2. (Brahmaeids; several genera) brahmin moth, owl moth 3. (Anthelids; several genera) anthelid moth, rose anthelid

**-ŘZBL-** ‘GEOMETRID (GEOMETER) MOTH’ 1. (Geometrids; numerous genera) geometer, spinach, phoenix, barred straw, carpet, delicate, rivulet, seraphim, pug, oblique striped, mallow, chimney sweeper, vestal, blood-vein, zachera, wave, lace border, scallop, mocha, maiden’s blush, emerald, diminutive, purple-barred yellow moth 2. (Epicopeia; several genera) oriental swallowtail moth 3. (Sematurids and Pseudobistonids, several genera) sematurid moth, pseudobistonid moth

**-ŘZBR-** ‘URANIID MOTH’ 1. (Uraniines; numerous genera) urania, green page, tropical swallowtail, Laos brown butterfly, sunset moth, uraniine moth 2. (Epiplamines; numerous genera) scoopwing moth 3. (Auzeines, Microniines; several genera) auzeine moth, microniine moth

**-ŘZBŘ-** ‘EREBID MOTH’ I 1. (Erebines; numerous genera) underwing moth, witch moth 2. (Arctiines; numerous genera) tiger, lichen, footman, wasp moth 3. (Calpinesand Scoliopterygines; several genera) fruit-piercing, fruit-sucking, piercing moth, cotton leaf worm moth

**-ŘZBV-** ‘EREBID MOTH’ II 1. (Herminiines; numerous genera) litter moth 2. (Hypenines; numerous genera) snout moth, bomolocha, hypena, hop looper / hop vine, lantana defoliator, cloverworm moth 3. (Lymantriines; numerous genera) tussock moth, gypsy moth

**-ŘZBZ-** ‘EREBID MOTH’ III 1. (Aganaines; several genera) aganaine, tiger moth 2. (Scolecocampines; several genera) scolecocampine, algibelle, sigela, dead-wood borer moth 3. (Anobines, Boletobiines, Eulepidotines, Hycalines, Pangraptines, Rivulines, Tinoliines, Toxocampines; numerous genera) other erebid moth

**-ŘZBŽ-** ‘NOCTUID (OWLET) MOTH’ 1. (Noctuines; numerous genera) owlet moth, cutworm moth, dart, clay, square-spot, Hebrew character, rustic 2. (Acronictines, Agaristines, Amphipyrrines, Bagisarids, Bryophilines, Condicines; numerous genera) dagger, sycamore, marsh, slowpoke, Canadian giant, rusty shoulder knot moth, amphipyra, copper underwing, mouse moth, mountain forester, day flying moth, bagisara, marbled green, marbled gray, red groundling / pied groundling moth 3. (Cucullines, Dilobines, Eustrotiines, Hadenines, Heliothines, Pantheines, Plusiines, Raphiines; numerous genera) star-wort, woodworm moth, asteroid, merveille du jour, fallow, catabena, toadflax, brocade, figure of eight, armyworm moth, cabbage moth, arch, zebra caterpillar moth, glaucous shears, feathered ear, white-point, wainscot, bright-eye, double line, white-speck, drab, Quaker, corn earworm moth, bollworm moth, pease blossom, yellowhorn, looper, burnished brass, pitcher plant, alpine beauty, silver Y, Bröther moth

**-ŘZBD-** ‘NOCTUOID (OWLET) MOTH’ 1. (Notodontids; numerous genera) prominent, puss moth, buff-tip, lobster, poplar kitten, California oakworm, beech caterpillar, oakleaf caterpillar, yellownecked caterpillar, walnut caterpillar 2. (Nolids; numerous genera) nolid, nola, hieroglyphic moth, green pea moth 3. (Oenosandrids, Doids, Thaumetopoeids; numerous genera) stub, Boisduval’s autumn, epicoma, black spot, long-tailed bombyx / Sparshall’s moth, notodontid moth

Hexapods > Insects > Amphiesmenoptera > Trichoptera

**-ŘŽŇ-** ‘TRICHOPTERAN (CADDISFLY / SEDGE-FLY / RAIL-FLY)’ 1. (Annulipalpians; numerous genera) net-spinning caddisfly, tube-making caddisfly, trumpet-net caddisfly, finger-net caddisfly 2. (Integripalpians; numerous genera) portable case-maker caddisfly, snail-case caddisfly, stonecase caddisfly, tubecase caddisfly 3. (Spicipalpians; numerous genera) spicipalpan, purse-case caddisfly / microcaddisfly

Hexapods > Insects > Antliophora

Hexapods > Insects > Antliophora > Siphonaptera (flea)

**-ŘŽŇW-** ‘SIPHONAPTERAN (FLEA)’ 1. (Pulicids; numerous genera) common flea / cat flea 2. (Pulicioids other than Pulicids; numerous genera) pulicioid flea 3. (Hectopsyllids; genera *Tunga*, *Hectopsylla*) jigger / chigoe flea, hectopsyllid flea

Hexapods > Insects > Antliophora > Mecoptera (scorpionflies)

**-ŘJŇ-** ‘MECOPTERAN (SCORPIONFLY)’ I 1. (Panorpids; several genera) common scorpionfly 2. (Panorpidids; genera *Panorpodes*, *Brachypanorpa*) short-faced scorpionfly 3. (Boreids; several genera) snow scorpionfly

**-ŘJŇW-** ‘MECOPTERAN (SCORPIONFLY)’ II 1. (Bittacids; numerous genera) hangingfly / hanging scorpionfly 2. (Meropeids; genera *Merope*, *Austromerope*) earwigfly / forcepfly 3. (Eomeropids, Apteropanorpids, Choristids, Nannochoristids; several genera) notiothauma scorpionfly, apteropanorpa scorpionfly, choristid scorpionfly, nannochoristid scorpionfly

Hexapods > Insects > Antliophora > Diptera (true fly)

Hexapods > Insects > Antliophora > Diptera > Nematocera > Ptychopteromorpha (phantom and primitive crane-flies)

**-LZGV-** ‘TUPILOMORPHIC FLY (CRANE FLY)’ I 1. (Tanyderids; several genera) primitive crane fly 2. (Ptychopterids; several genera) phantom crane fly 3. (Trichocerids; three genera) winter crane fly, winter gnat

**-LZGD-** ‘TUPILOMORPHIC FLY (CRANE FLY)’ II 1. (Tipulids and Limoniines; numerous genera) crane fly, limoniid crane fly, snow fly 2. (Cylindrotomids; several genera) long-bodied crane fly 3. (Pediicids; several genera) hairy-eyed crane fly

Hexapods > Insects > Antliophora > Diptera > Nematocera > Culicomorpha (mosquitoes and biting midges)

**-LZG-** ‘CULICOMORPH’ I 1. (Culicids; numerous genera) mosquito 2. (Dixids; numerous genera) meniscus midge 3. (Chaoborids; numerous genera) phantom midge / glassworm midge

**-LZGW-** ‘CULICOMORPH’ II 1. (Simuliids; numerous genera) black fly / buffalo gnat / turkey gnat / white socks 2. (Ceratopogonids; numerous genera) biting midge / no-see-um 3. (Corethrellids; two genera) frog-biting midge

**-LZGY-** ‘CULICOMORPH’ III 1. (Chironomids; numerous genera) nonbiting midge / lake fly, harlequin fly 2. (Thaumaleids; several genera) solitary midge / trickle midge

Hexapods > Insects > Antliophora > Diptera > Nematocera > Blephariceromorpha (net-winged midges, etc.)

**-LZGŘ-** ‘BLEPHARICEROMORPH’ 1. (Blepharicerids; several genera) net-winged midge, torrent midge 2. (Deuterophlebiomorph; genus *Deuterophlebia*) mountain midge 3. (Nymphomyiids; genus *Nymphomyia*) nymphomyiid fly / nymphomyiid midge

Hexapods > Insects > Antliophora > Diptera > Nematocera > Bibionomorpha (march fly, midges, gnats)

**-LZGL-** ‘BIBIONOMORPH’ I 1. (Bibionids; several genera) march fly / St. Mark’s fly, love bug / honeymoon fly / double-headed bug 2. (Anisopodids; several genera) wood gnat / window-gnat 3. (Cecidomyiids; numerous genera) gall midge / gall gnat, wood midge

**-LZGR-** ‘BIBIONOMORPH’ II 1. (Mycetophilids; numerous genera) fungus gnat 2. (Lygistorrhinids; several genera) long-beaked fungus gnat 3. (Sciarids; numerous genera) dark-winged fungus gnat

**-LZGZ-** ‘BIBIONOMORPH’ III 1. (Rangomaramids; several genera) long-winged fungus gnat 2. (Keroplatids; numerous genera) predatory fungus gnat 3. (Ditomyids, Diadocidiids, Bolitophilids, Hesperinids; several genera) sciaroid gnat, bibionomorphic gnat

**-LZGŽ-** ‘OTHER NEMATOCERAN FLY’ 1. (Pachyneurids; several genera) pachyneurid gnat, pachyneurid fly, pachyneurid midge 2. (Axymyiids; three genera) axymyiid fly

Hexapods > Insects > Antliophora > Diptera > Nematocera > Psychodomorpha

**-LZBD-** ‘PSYCHODOMORPH’ (Psychodids; numerous genera) drain fly / sink fly / filter fly / sewer gnat / moth fly 2. (Scatopsids; numerous genera) dung midge / minute black scavenger fly 3. (Cnathyloscelids and Perissommatids; several genera) other scatopsoid fly

Hexapods > Insects > Antliophora > Diptera > Brachycera > Tabanomorpha, Xylophagomorpha, and Stratiomyomorpha

**-LZB-** ‘TABANID FLY’ 1. (Tabanines; numerous genera) horse-fly, cleg 2. (Chrysopsines; numerous genera) deer fly / banded horse-fly 3. (Pangoniines; numerous genera) long-tongued horse-fly



**-LZBW-** ‘TABANOMORPHOID FLY’ 1. (Rhagionids, Pelecorhychids, Bolbomyiids, Austroleptids, Oreoleptids; numerous genera) snipe fly 2. (Athericids; numerous genera) ibis fly / water snipe fly 3. (Xylophagids; several genera) awl-fly

**-LZBY-** ‘STRATIOMORPHIC FLY’ 1. (Stratiomyids; numerous genera) soldier fly 2. (Xylomyiids; several genera) wood soldier fly 3. (Pantophthalmids; 2 genera) timber fly

Hexapods > Insects > Antliophora > Diptera > Brachycera > Asilomorpha > Asiloidea

**-LZBL-** ‘ASILOID FLY’ I 1. (Asilids; numerous genera) robber fly / assassin fly 2. (Bombyliids; numerous genera) bee fly / humblefly 3. (Mydids and Apiocerids; numerous genera) Mydas fly, flower-loving fly

**-LZBR-** ‘ASILOID FLY’ II 1. (Therevids; numerous genera) stiletto fly 2. (Scenopinids; numerous genera) window fly 3. (Apsilocephalids, Evocoids; several genera) other theravid fly

**-LZBŘ-** ‘ASILOID FLY’ III 1. (Mythicomyiids; numerous genera) mythicomyyid fly 2. (Hilarimorphids; genus *Hilarimorpha*) hilarimorphid fly 3. (Apystromyiids; genus *Apystomyia*) apystomyiid fly

Hexapods > Insects > Antliophora > Diptera > Brachycera > Asilomorpha > Empidoidea

**-LZBZ-** ‘EMPIDOID FLY’ I 1. (Empidids; numerous genera) dagger fly / balloon fly 2. (Hybotids; numerous genera) dance fly 3. (Dolichopodids; numerous genera) long-legged fly

**-LZBŽ-** ‘EMPIDOID FLY FLY’ II 1. (Ragadids; several genera) ragadid fly 2. (Atelestids; several genera) atelestid fly

Hexapods > Insects > Antliophora > Diptera > Brachycera > Asilomorpha > Nemestrinoidea & Vermileonomorpha

**-LZBV-** ‘NEMESTRINOID & VERMILEONID FLY’ 1. (Acrocerids; numerous genera) small-headed fly / hunch-back fly / spider fly 2. (Nemestrinids; numerous genera) tangle-veined fly 3. (Vermileonids; several genera) wormlion fly

Hexapods > Insects > Antliophora > Diptera > Brachycera > Muscomorpha

Hexapods > Insects > Antliophora > Diptera > Brachycera > Muscomorpha > Aschiza

**-LZKW-** ‘PLATYPEZOID FLY’ 1. (Phorids; numerous genera) coffin fly, scuttle fly, ant-decapitating fly 2. (Lonchopterids; several genera) spear-winged fly / pointed-wing fly 3. (Platyphezids and Opetiids; numerous genera) flat-footed fly

**-LZKY-** ‘SYRPHOID & OTHER ASCHIZATE FLY’ 1. (Syrphids; numerous genera) hoverfly / flower fly / syrphid fly, drone fly / “H-bee” 2. (Pipunculids; numerous genera) big-headed fly 3. (Ironomyiids; genus *Ironomyia*) ironic fly

Hexapods > Insects > Antliophora > Diptera > Brachycera > Muscomorpha > Schizophora

Hexapods > Insects > Antliophora > Diptera > Brachycera > Muscomorpha > Schizophora > Acalyptrata

**-LZK-** ‘TEPHRITOID FLY’ I 1. (Tephritids; numerous genera) [tephritid] fruit fly / small fruit fly / peacock fly 2. (Platystomatids; numerous genera) signal fly 3. (Ulidiids; numerous genera) picture-winged fly

**-LZKL-** ‘TEPHRITOID FLY’ II 1. (Pallopterids; numerous genera) flutter-wing fly / trembling-wing fly / waving-wing fly 2. (Piophilids; numerous genera) cheese fly 3. (Pyrgotids, Ctenostylids, Richardiids; numerous genera) other tephritoid fly

- LZKR**- ‘NERIOID FLY’ 1. (Neriids; numerous genera) cactus fly, banana stalk fly 2. (Micropezids; numerous genera) stilt-legged fly 3. (Cypselosomatids; several genera) cypselosomatid fly
- LZKŘ**- ‘DIOPSOID FLY’ 1. (Diopsids; several genera) stalk-eyed fly 2. (Psilids; several genera) rust fly, carrot fly 3. (Gobryids, Megamerinids, Nothybids, Somatiids, Stongylophthalmyiids, Syringogastrids, Tanypezids; numerous genera) other diopsoid fly, stretched-foot fly
- LZKF**- ‘SCIOMYZOID FLY’ I 1. (Sciomyzids; numerous genera) marsh fly, snail-killing fly 2. (Sepsids; numerous genera) black scavenger fly / ensign fly 3. (Coelopids; several genera) kelp fly / seaweed fly
- LZKV**- ‘SCIOMYZOID FLY’ II 1. (Heterocheilids; genus *Heterochela*) half-bridge fly 2. (Dryomyzids, Helcomyzids, Helosciomyzids, Ropalomerids; numerous genera) other sciomyzoid fly
- LZKL**- ‘SPHAEROCEROID FLY’ 1. (Sphaerocerids; numerous genera) small dung fly / lesser dung fly / lesser corpse fly 2. (Chyromyids, Heleomyzids, Nannodastiids; numerous genera) other sphaerocerooid fly
- LZKC**- ‘LAUXANIOID FLY’ 1. (Chamaemyiids; numerous genera) aphid fly 2. (Celyphids; several genera) beetle fly / beetle-backed fly 3. (Lauxaniids, Cremifaniids; numerous genera) other lauxanioid fly
- LZKH**- ‘OPOMYZOID FLY’ I 1. (Agromyzids; numerous genera) leaf-miner fly 2. (Aulacigastrids; several genera) sap fly 3. (Clusiids; numerous genera) druid fly / lekking fly
- LZKHW**- ‘OPOMYZOID FLY’ II 1. (Opomyzids; several genera) opomyzid fly, cereal fly, grass fly 2. (Neurochaetids; two genera) upside-down fly 3. (Anthomyzids, Asteiids, Odiniids, Periscelidids, Teratomyzids, Xenasteiids; numerous genera) other opomyzoid fly
- LZKFW**- ‘EPHYDROID FLY’ I 1. (Ephydriids; numerous genera) shore fly, brine fly 2. (Diastatids; several genera) bog fly 3. (Drosophilids; numerous genera) fruit fly / vinegar fly
- LZKFY**- ‘EPHYDROID FLY’ II 1. (Curtonotids; several genera) quasimodo fly 2. (Camillids; several genera) camillid fly 3. (Braulids; two genera) bee louse
- LZKFL**- ‘CARNOID FLY’ I 1. (Carnids; several genera) bird fly / filth fly 2. (Canacids; numerous genera) beach fly / surf fly / surge fly 3. (Milichiids; numerous genera) freloader fly / jackal fly
- LZKFR**- ‘CARNOID FLY’ II 1. (Chloropids; numerous genera) frit fly / grass fly, eye gnat / eye fly 2. (Inbiomyiids; genus *Inbiomyia*) inbiomyiid fly 3. (Australimyziids; genus *Australimyza*) australimyziid fly
- LZKT**- ‘OTHER ACALYPTRATE FLY’ I 1. (Conopids; numerous genera) thick-headed fly 2. (Lonchaeids; several genera) lance fly 3. (Cryptochetids; several genera) scale parasite fly
- LZKTW**- ‘OTHER ACALYPTRATE FLY’ II 1. (Paraleucophids; several genera) paraleucophid fly 2. (Mormotomyiids; genus *Mormotomyia*) frightful hairy fly / terrible hairy fly

Hexapods > Insects > Antliophora > Diptera > Brachycera > Muscomorpha > Schizophora > Calyptrata

- LZL**- ‘MUSCID FLY’ 1. (genus *Musca*) housefly, face fly / autumn housefly, bazaar fly / eye-seeking fly, Australian bush fly 2. (ectoparasitic Stomoxyines; numerous genera including *Haematobia*, *Haematobosca*, *Stomoxys*) horn fly, buffalo fly, moose fly, stable fly / barn fly / dog fly / biting house fly / power mower fly 3. (Muscines [other than *Musca*], Atherigonines, Azeliines, Coenosiines, Cyrtoneurines, Mydaeines, Phaoniines; numerous genera) other muscid fly
- LZŘ**- ‘MUSCOID FLY’ 1. (Fanniids; several genera) little housefly 2. (Anthomyiids; numerous genera) root-maggot fly, cabbage fly, turnip root fly / summer cabbage fly, raspberry cane fly, beet leafminer, spinach leafminer, bean seed fly, onion fly, wheat bulb fly, willow catkin fly, knotting gall fly, seed fly 3. (Scathophagids; numerous genera) dung fly
- LZV**- ‘OESTROID FLY’ I 1. (Oestrids; numerous genera) botfly, heel fly, warble fly, gadfly 2. (Calliphorids; numerous genera) bow fly / carrion fly / bluebottle / greenbottle / cluster fly 3. (Sarcophagids; numerous genera) flesh fly

**-LZVW-** ‘OESTROID FLY’ II 1. (Rhinophorids; numerous genera) woodlouse fly 2. (Mystacinobiids; genus *Mystacinobia*) New Zealand bat fly 3. (Tachinids, Rhiniids, Ulurumyiids, Mesembrinellids; numerous genera) other oestroid fly

**-LZVY-** ‘HIPPOBOSCOID FLY’ 1. (Glossinids; genus *Glossina*) tsetse fly / tik-tik fly 2. (Hippoboscids; numerous genera) louse fly / ked fly 3. (Nycteribiids and Streblids; numerous genera) bat fly

### 7.3.2 Plants

**IMPORTANT NOTE:** When utilizing lexical stems relating to plants, care should be taken to remember that each of these stem refers to the entire plant as a whole. If the context is referencing a particular part of a plant (e.g., fruit, seed, leaf, stem, root, tuber, flower, nut, pod, etc.), an appropriate EPP affix should be utilized or the stem should be incorporated into another stem naming the relevant part of the plant.

All of the following stems referring to plants have the following Specification structure:

<b>BSC</b>	(to be) a plant as a holistic entity, including its physical/corporeal body and its living essence; to live/be alive (as a plant)
<b>CTE</b>	(to be) that which gives a particular plant its living essence; the living essence of a plant
<b>CSV</b>	(to be) the physical body of a plant; the corporeal aspect of a plant
<b>OBJ</b>	(to be) a particular stage of a plant’s life-cycle (e.g., dormancy as seed, sproutling, budding, in bloom, withering, winter dormancy, etc.)

#### 17.2.1 Bryophytes (non-vascular land plants)

**-FXW-** ‘GREEN ALGAE’ 1. (Chlorophytes; numerous genera) chlorophyte, chlorophytic green alga 2. (Charophyta [other than Embryophyta]; numerous genera) charophytic green alga 3. (Mesostigmatophyceae, Spirotaenia, Chlorokybophyceae; several genera) other green alga

**-FXX-** ‘NON-VASCULAR LAND PLANT’ 1.(Marchantiophyta; numerous genera) liverwort / hepatic 2. (Anthocerotophyta; several genera) hornwort 3. (Bryophyta; numerous genera) moss

**-FXL-** ‘MOSS (by branching type)’ 1. acrocarpous moss 2. pleurocarpous moss 3. cladocarpous moss

**-FXR-** ‘MOSS (by taxonomic class)’ 1. (Sphagnopsida; numerous genera) peat moss 2. (Bryopsida; numerous genera) bryopsid moss 3. (Takakiopsids, Andreaeopsids, Andreaeobyopsids, Oedipodiopsids, Polytrichopsids, Tetraphidopsids; numerous genera) other moss

#### 17.2.2 Tracheophytes (Vascular Plants)

**-CÑW-** ‘LYCOPOD’ 1. (Lycopodiaceae; numerous genera ) clubmoss 2. (Selaginellaceae; genus *Selaginella*) spikemoss, lesser clubmoss 3. (Isoetaceae; genus *Isoetes*) quillwort

**-CNW-** ‘POLYPODIOPSISID (FERN)’ I 1. (Equisetid; genus *Equisetum*) horsetail / horsetail fern 2. (Ophioglossids; several genera) moonwort, grape-fern, goblin fern, rattlesnake fern, hand fern, adder’s-tongue fern, whisk fern 3. (Marattiids; several genera) marattiid fern, giant fern, king fern, horse shoe fern

**-CNY-** ‘POLYPODIOPSISID (FERN)’ II 1. (Polypodiales; numerous genera) wood fern / male fern / buckler fern, macho fern / swordfern, deersfoot fern / hare’s foot fern / rabbit foot fern / ball fern / shinobu fern, mahogany maidenhair, shieldfern, beech fern, bog fern / Massachusetts fern, maiden fern, swamp shield-fern, New York fern, Sierra

marsh fern / Nevada march fern, lady-fern, twinsorus fern, silvery glade fern, spleenwort, Japanese lady fern, cliff fern, ostrich fern, sensitive fern, chain fern, waterfall fern, hard fern, water fern, rasp fern / amaumau fern, deer fern, half-net fern, bladderfern / fragile fern, oak fern, glade fern, hayscented fern / cup fern, batwing fern, beadfern, lace fern, bracken, brakenfern / eagle fern, maidenhair fern, cloak fern, false cloak fern, lip fern, brake, cliff brake, rock brake, leather fern, gold fern, shoestring fern, soralpouch fern, necklace fern 2. (Cyatheaales; numerous genera) tree fern, scaly tree fern, manfern 3. (Salviniales; several genera) watermoss, water fern / fairy moss / duckweed fern / mosquito fern, pillwort, water clover

**-CMW-** ‘POLYPODIOPSISID (FERN)’ III 1. (Schizaeaceae; several genera) ray fern, curlygrass fern / comb fern 2. (Lygodioids; genus *Lygodium*) climbing fern 3. (Anemioids; genus *Anemia*) pine fern, hemlock fern, flowering fern

**-CMY-** ‘POLYPODIOPSISID (FERN)’ IV 1. (Gleicheniales; several genera) forked fern, coral fern, tangle fern, umbrella fern, fan fern 2. (Hymenophyllaceae; several genera) filmy fern, bristle fern 3. (Osumdaceae; several genera) royal fern, interrupted fern, lancea flowering fern, cinnamon fern

Tracheophytes > Spermatophytes (seed plants)

**-PSÑ-** ‘CYCAD & GINGKO’ 1. (Cycads [other than genus *Ecephalartos*; several genera) cycad, king sago, queen sago, Dukour sago 2. (genus *Encephalartos*) bread tree / bread palm / kaffir bread tree 3. (Ginkgophyta; genus *Ginkgo*) ginkgo tree

**-PSÑW-** ‘GNETOPHYTE’ 1. (Gnetaceae; genus *Genetum*) gnetum tree, gnetum shrub, gnetum liana 2. (Welwitschiaceae; genus *Welwitschia*) welwitschia / tree tumbo 3. (Ephedraceae; genus *Ephedra*) joint-pine / jointfir / Mormon-tea plant / Brigham tea plant

Tracheophytes > Spermatophytes > Pinophyta (conifers)

**-LSK-** ‘PINE TREE’ I (genus *Pinus*, subgenus *Pinus*) 1. (P.P. Subsection *Ponderosae*; numerous species) ponderosa, Jeffrey / yellow / black, Torrey, gray / foothill / digger pine, Durango, Coulter / big-cone, Arizona, various Mexican and Central American pines 2. (P.P. Subsections *Australes* and *Contortae*; numerous species) lodgpole, jack, sand, Virginia, knobcone, bishop, Monterey, Caribbean, Cuban, shortleaf, slash, spruce pine, egg-cone, longleaf, paula, pitch, pond, loblolly, ocote, various Mexican and Central American pines 3. (P.P. Subsection *Pinus* and *Pinaster*; numerous species) mountain pine, red, Scots, tropical, various Eurasian pines

**-LSKW-** ‘PINE TREE’ II (genus *Pinus*, subgenus *Strobus*) 1. (P.S. Subsections *Strobus*, *Krempfianae*, and *Gerardianae*; numerous species) whitebark, sugar, white, blue, limber, Chiapas, lacebark, chilgoza, various Eurasian white pines 2. (P.S. Subsection *Balfourianae*; several species) bristlecone pine, foxtail pine 3. (P.S. Subsections *Cembroides* and *Nelsonianae*; numerous species) pinyon pine

**-LSKY-** ‘LARCH TREE’ (genus *Larix*) 1. ([North American larches] *L. laricina*, *L. lyallii*, *L. occidentalis*) western larch, tamarack, subalpine larch 2. ([Northern Eurasian larches] *L. decidua*, *L. sibirica*, *L. gmelinii*, *L. kaempferi*, *L. czekanowskii*) European, Siberian, Dahurian, Japanese larch 3. ([Southern Eurasian larches] *L. ptaninii*, *L. mastersiana*, *L. griffithii*) chinese larch, Masters’ larch, Himalayan larch

**-LSKL-** ‘PINACEAE’ I 1. (genus *Picea*) spruce tree 2. (genus *Pseudotsuga*) Douglas fir / Oregon pine 3. (genus *Cathaya*) cathaya

**-LSKR-** ‘PINACEAE’ II 1. (genus *Abies*) fir tree 2. (genus *Cedrus*) cedar tree 3. (genus *Tsuga*) hemlock tree

**-LSKŘ-** ‘PINACEAE’ III 1. (genus *Nothotsuga*) bristlecone hemlock tree 2. (genera *Keteleeria*) keteleeria tree 3. (genus *Pseudolarix*) golden larch

**-LSKÇ-** ‘PINOPSISID’ 1. (Araucariaceae; three genera) araucarian, kauri / dammara, wollemia 2. (Podocarpaceae; numerous genera) silver pine / Westland pine / white silver pine, creeping pine, celery pine, Huon pine / Macquarie pine, Asian bayberry, podocarp 3. (Sciadopityaceae; genus *Sciadopitys*) Japanese umbrella-pine

**-LSKH-** ‘CUPRESSOID’ 1. (genus *Cupressus*) cypress tree 2. (genus *Juniperus*) juniper 3. (Cupressoids other than *Cupressus* and *Juniperus*; several genera) thuja / arborvitae, hiba, false cypress, Fujian cypress, incense-cedar, Chinese arborvitae, sandarac / Barbary thuja, Siberian carpet-cypress / Russian arbor-vitae, Nootka cypress, Vietnamese golden cypress

**-LSKT-** ‘SEQUOIOID’ 1. (genus *Sequoia*) coast redwood 2. (genus *Sequoiadendron*) giant sequoia 3. (genus *Metasequoia*) dawn redwood

**-LSKL-** ‘CUPRESSACEAE’ 1. (Callitroids; several genera) cypress-pine, alerce / Patagonian cypress, callitroid 2. (Taxodioids; several genera) bald cypress, swamp cypress, sugi 3. (Athrotaxioids, Taiwanioids, Cunninghamioids; several genera) Tasmanian cedar, taiwania, cunninghamia

**-LSKF-** ‘TAXACEAE (YEW)’ I 1. (genus *Taxus*) common yew 2. (genus *Pseudotaxus*) whiteberry yew 3. (genus *Austrotaxus*) southern yew / New Caledonia yew

**-LSKV-** ‘TAXACEAE (YEW)’ II 1. (genus *Cephalotaxus*) plum-yew 2. (genus *Torreya*) nutmeg yew, torreya, gopher wood 3. (genus *Amentotaxus*) catkin-yew

Tracheophytes > Spermatophytes > Angiosperms (flowering plants)

**-CML-** ‘NYMPHAEALES’ 1. (Nymphaeaceae; several genera) water lily / pond-lily / bonnet lily / alligator-bonnet / spatterdock, blue lotus, Miami rose, Egyptian lotus, prickly waterlily / foxnut / gorgon nut / makhana 2. (Cobombaceae; genera *Brasenia*, *Cabomba*) water-shield, fanwort, cabomba 3. (Hydatellaceae; genus *Trithuria*) trithuria

**-CMR-** ‘PRIMITIVE ANGIOSPERM’ I 1. (Austrobreileyaceae; genus *Austrobaileya*) austrobaileya 2. (Trimeniaceae & Schisandrids; genera *Trimenia*, *Schisandra*, *Kadsura*, *Illicium*) trimenia, schisandrid, star anise / badian 3. (Amborellaceae; genus *Amborella*) amborella

**-CMŘ-** ‘PRIMITIVE ANGIOSPERM’ II 1. (Chloranthaceae; genera *Chloranthus*, *Sarcandra*, *Ascarina*, *Hedyosmum*) chloranthus, sacandra herb, hutu, ascarina 2. (Ceratophyllaceae; genus *Ceratophyllum*) coontail / hornwort

Tracheophytes > Spermatophytes > Angiosperms > monocots

Tracheophytes > Spermatophytes > Angiosperms > monocots > alismatid monocots

**-PŠM-** ‘ARACEAE (ARUM)’ I 1. (Orontioids; three genera) skunk cabbage, golden club 2. (Gymnostachyoideae; genus *Gymnostachys*) settler’s twine / boorgay 3. (Lemnoids; several genera) duckweed / water lentil / water lens, bogmat / mud-midget, watermeal, dotted duckmeat

**-PŠMW-** ‘ARACEAE (ARUM)’ II 1. (Pothoids; several genera) anthurium / tailflower / flamingo flower 2. (Aroids; numerous genera) arum lily, aroid, corpse flower, elephant yam, elephant ear / heart of Jesus / angel wing, calla / bog arum / marsh calla / wild calla / squaw claw / water-arum, Chinese evergreen, green dragon, water cabbage / water lettuce / shellflower / Nile cabbage, philodendron, rascagarganta, vilevine, arrow arum, arum lilly / calla lily, dead horse arum lily 3. (Lasioids, Zamioculcadoids; numerous genera) other aroid

**-PŠMY-** ‘ALISMATACEAE’ 1. (genus *Damasonium*) star-fruit / thrumwort, star water-plantain 2. (genus *Sagittaria*) arrowhead / duck potato / katniss / swamp potato / tule potato / wapato / wapato / wapati / watato 3. (Alismataceae other than Stems 1 and 2; numerous genera) water-plantain, burhead / Amazon sword plant, yellow velvetleaf / sawah flower rush / sawah lettuce

**-PŠML-** ‘ALISMATID’ I 1. (Butomaceae; genus *Butomus*) flowering rush / grass rush 2. (Hydrocharitaceae; numerous genera) waterweed, tape-grass, waterthyme, European frogbit / water-poppy, oxygen weed, spongeplant / American frogbit, eelgrass / vallis, water nymph / naiad, guppy grass / najas grass, duck lettuce, swamp lily, water soldier, turtlegrass 3. (Tofieldiaceae; several genera) rush featherling, tofieldia, Scottish asphodel / Scotch false asphodel, false asphodel, Harper’s beauty

**-PŠMR-** ‘ALISMATID’ II 1. (Aponogetonaceae; genus *Aponogeton*) cape-pondweed / water hawthorn, laceleaf / lattice leaf / lace plant 2. (Scheuchzeriaceae; genus *Scheuchzeria*) rannoch-rush / pod grass 3. (Juncaginaceae and Maundiaceae; several genera) arrowgrass, flowering quillwort / awl-leaf lilaea, southern water-ribbon / dwarf water-ribbon

**-PŠMR-** ‘ALISMATID’ III 1. (Posidoniaceae; genus *Posidonia*) Neptune grass / Mediterranean tapeweed, fibreball weed, posidonia seagrass 2. (Ruppiaceae; genus *Ruppia*) ruppia / widgeonweed / ditch grass / widgeon grass, tasselweed, tassel pondweed 3. (Cymodoceaceae; several genera) manatee-grass, little Neptune grass, narrowleaf seagrass, shoalweed / shoal grass, wire weed, sickle-leaved cymodocea

**-PŠÑ-** ‘ALISMATID’ IV 1. (Potamogetonaceae; several genera) pondweed, horned pondweed 2. (Zosteraceae; genera *Zostera*, *Phyllospadix*) marine eelgrass, surfgrass 3. (Acoraceae; genus *Acorus*) calamus / sweet flag

**-PŠŇW-** ‘MONSTEROID’ 1. (genus *Epipremnum*) satin pothos / silver vine, golden pothos / money plant / hunter’s robe / devil’s vine / devil’s ivy / marble queen / Ceylon creeper 2. (genus *Monstera*) monsteroïd, shingle plant, Adanson’s monstera / five holes plant, ceriman / monster fruit plant / fruit salad plant / Swiss cheese plant 3. (Monsteroïds other than *Epipremnum* and *Monstera*; several genera) spath / peace lily, centipede tongavine, other monsteroïd

Tracheophytes > Spermatophytes > Angiosperms > monocots > lilioid monocots > Dioscoreales

**-TXW-** ‘DIOSCOREACEAE’ 1. (genera *Dioscorea*, *Tamus*) yam, purple yam / greater yam / ube, Chinese yam / Chinese potato / cinnamon-vine / nagaimo, Indian three-leaved yam, Japanese mountain yam / yamaimo, Zanzibar yam, white yam / guinea yam / African yam, black bryony / lady’s seat / black bindweed, barbasco, Mexican yam, wild yam, lesser yam, pencil yam, Indian yam / cush-cush / yampee, fourleaf yam / devil’s bones / rheumatism root, fiveleaf yam 2. (genus *Tacca*) batflower, Polynesian arrowroot / pia 3. (genera *Borderea*, *Epipetrum*, *Rajania*, *Stenomeris*, *Avetra*, *Trichopus*) other dioscorean plant

**-TXL-** ‘NARTHECIACEAE’ 1. (genus *Alettris*) colicroot / colicweed / crow corn / unicorn root 2. (genus *Lophiola*) goldencrest 3. (genus *Nartheceium*) yellow asphodel / bog asphodel

**-TXR-** ‘OTHER DIOSCOREALES’ I 1. (Burmanniaceae; numerous genera) nodding-nixie, northern bluethread, yellowseed, thismia, fairy lantern, burmanniate 2. (Nartheciaceae; genera *Nietneria*, *Metanartheceium*) other nartheceiacean

Tracheophytes > Spermatophytes > Angiosperms > monocots > lilioid monocots > Liliales

**-LSW-** ‘LILIACEAE’ I 1. (genus *Lilium*) [true] lily 2. (genus *Fritillaria*) fritillary, spotted missionbells / spotted mountainbells, chocolate lily, kaiser’s crown / crown imperial, adobe lily, yellowbells, brown bells, checkered daffodil / frog-cup 3. (genus *Cardiocrinum*) giant lily

**-LSY-** ‘LILIACEAE’ II 1. (genera *Tulipa*, *Amana*) tulip 2. (genus *Gagea*) gagea, star-of-Bethlehem, Radnor lily, mountain spiderwort / Snowdon lily / common alplily, yellow star-of-Cypress 3. (genus *Erythronium*) fawn lily, trout lily, dog’s-tooth violet, avalanche-lily, adder’s tongue

**-LSL-** ‘LILIACEAE’ III 1. (genus *Clintonia*) bead liluy / bride’s bonnet / queen’s cup, speckled wood lily / Clinton’s lily, blue-bead lily / corn lily / snakeberry / dogberry / straw lily, clintonia 2. (genus *Medeola*) Indian cucumber-root / Cuke root 3. (genus *Calochortus*) globelily, mariposa lily, beavertail grass, star tulip, sego lily, pussy ears, cat’s ear lily

**-LSR-** ‘LILIACEAE’ IV 1. (genus *Streptotus*) twistedstalk / rosybells / rose mandarin / scootberry / liverberry / rose-bellwort 2. (genus *Posartes*) fairybells, drops of gold, yellow mandarin, spotted mandarin, Siskiyow bells 3. (genus *Scoliopus*) fetid adderstongue, slinkpod / brownies

**-LSŘ-** ‘LILIACEAE’ IV 1. (genus *Tricyrtis*) toad lily, hairy toad lily, tricyrtis 2. (genera *Nomocharis*, *Notholirion*) other liliate

**-LSX-** ‘PARIDS’ 1. (genus *Trillum*), trillium / wakerobin / birthroot / birthwort / tri flower 2. (genus *Paris*) paris, herb-paris / true lover’s knot, bunchflower 3. (genus *Pseudotrillium*) brook wakerobin

**-LSF-** ‘MELANTHIDS’ I 1. (genus *Amianthium*) fly poison 2. (genus *Anticlea*) elegant camas / alkali grass, deathcamas 3. (genus *Melanthium*) slender bunchflower / cripesd bunchflower, Ozark bunch-flower / Wood’s bunchflower

**-LSV-** ‘MELANTHIDS’ II 1. (genus *Toxicoscordion*) deathcamas, star zigadene, sand-corn 2. (genus *Zigadenus*) sandbog death camas 3. (genus *Stenathium*) featherbell, Osceola’s plume / black snakeroot / crow poison, pinebarren deathcamas

**-LST-** ‘MELANTHIDS’ III 1. (genus *Veratrum*) false hellebore / corn-lily 2. (genus *Schoenocaulon*) feathershank, sabadilla

**-LSL-** ‘MELANTHIACEAE’ 1. (Heloniads; genera *Helonias*, *Heloniopsis*, *Ypsilandra*) swamp pink 2. (Chionographids; genera *Chamaelirium*, *Chionographis*) blazing-star / devil’s bit / false unicorn / fairy wand 3. (Xerophylleae; genus *Xerophyllum*) turkey beard / beartongue / grass-leaved helonias

**-LSM-** ‘COLCHICAEAE’ 1. (Burchardideae; genus *Burchardia*) milkmaid 2. (Uvularieae; genera *Uvularia*, *Disporum*) bellwort / bellflower / merrybells, fairy bells 3. (Tripladenieae; three genera) tripladene, lilac lily

- LSN**- ‘COLCHICACEAE’ I 1. (genus *Colchicum* [including *Androcymbium* and *Merendera*]) autumn crocus / meadow saffron / naked lady 2. (genus *Gloriosa*) flame lily / fire lily / gloriosa lily / glory lily / superb lily / climbing lily / creeping lily 3. (genus *Hexacyrtis*) Namib lily
- LSÑ**- ‘COLCHICACEAE’ II 1. (genus *Sandersonia*) Christmas bells / golden lily of the valley / Chinese lantern lily / chinese lantern bulb 2. (Anguillarieae; genera *Baeometra*, *Wurmbea*) beetle lily, wurmbea, early Nancy, eight Nancy 3. (genera *Ornithoglossum*, *Iphigenia*, *Camptorrhiza*) other colchicace plant
- LSS**- ‘LILIALES’ I 1. (Smilacaceae; genera *Smilax*, *Heterosmilax*) greenbrier / catbrier / prickly-ivy 2. (Ripogonaceae; genus *Ripogonum*) supplejack 3. (Philesiaceae; genera *Lapageria*, *Philesia*) Chilean bellflower / copihue, austral bellflower
- LSH**- ‘LILIALES’ II 1. (Alstroemeriaceae; genera *Alstroemeria*, *Bomarea*) Inca-lily, Peruvian lily / lily of the Incas, bomarea, salsilla 2. (Luzuriagaceae; genera *Drymophila*, *Luzuriaga*) turquoise berry / native Solomons seal, orange berry, quilineja, almond flower 3. (Corsiaceae, Campynemataceae, Petermanniaceae; several genera) other liliales plant
- Tracheophytes > Spermatophytes > Angiosperms > monocots > lilioid monocots > Asparagales
- Tracheophytes > Spermatophytes > Angiosperms > monocots > lilioid monocots > Asparagales > Asparagaceae
- SFW**- ‘ASPARAGOIDEAE & AGAVOIDEAE’ I 1. (genus *Asparagus*) asparagus plant, large forest sicklethorn, katbos, bridal creeper, florist’s fern 2. (genera *Yucca*, *Hesperoyucca*) yucca plant, Grand Canyon Quixote plant / Newberry’s yucca, Quixote yucca / foothill yucca / Spanish bayonet 3. (genus *Agave*) agave / century plant, tuberose
- SFY**- ‘ASPARAGOIDEAE & AGAVOIDEAE’ II 1. (genus *Camassia*) camas / quamash / Indian hyacinth / wild hyacinth 2. (genus *Chlorogalum*) soap plant / soaproot / amole 3. (genus *Eremocrinum*) Utah solitaire lily / desert lily / sand lily / lonely lily / intermountain false-wheatgrass
- SFL**- ‘ASPARAGOIDEAE & AGAVOIDEAE’ III 1. (genus *Hastingsia*) rushlily 2. (genus *Hosta*) hostas, plantain lily 3. (genus *Leucocrinum*) common starlily, mountain lily
- SFR**- ‘ASPARAGOIDEAE & AGAVOIDEAE’ IV 1. (genus *Shoenolirion*) rush-lily / sunnybell 2. (genus *Hemiphylacus*) hemiphylacus 3. (Aphyllanthoideae; genus *Aphyllantes*) aphyllantes
- LSFW**- ‘NOLINOIDS’ I 1. (genus *Nolina*) beargrass, Bigelow’s nolina, palmilla 2. (genus *Convallaria*) lily-of-the-valley 3. (genus *Danae*) Alexandrian laurel / poet’s laurel
- LSFY**- ‘NOLINOIDS’ II 1. (genus *Maianthemum*) false Solomon’s seal, wild lily-of-the-valley, false lily-of-the-valley / Canada mayflower, false mayflower, May lily 2. (genus *Liriope*) monkey grass, creeping lilyturf, spider grass, liriope 3. (genus *Ophiopogon*) lilyturf
- LSFL**- ‘NOLINOIDS’ III 1. (genus *Dracaena*) dragon tree, shrubby dracaena, snake plant, African spear, sansevieria, golden hala pepe, “lucky bamboo”, Sait George’s sword / mother-in-law’s tongue / viper’s bowstring hemp 2. (genus *Polygonatum*) King Solomon’s seal 3. (genus *Rohdea*) Nippon lily / sacred lily
- LSFR**- ‘NOLINOIDS’ IV 1. (genus *Ruscus*) butcher’s broom 2. (genera *Aspidistra*, *Beaucarnea*, *Calibanus*, *Campylandra*, *Comospermum*, *Dasyllirion*, *Disporopsis*, *Eriospermum*, *Hereopolygonatum*, *Peliosantes*, *Pleomele*, *Reineckea*, *Semele*, *Speirantha*, *Theropogon*, *Tupistra*) other nolinoid
- RSFW**- ‘LOMANDROIDS’ I 1. (genus *Lomandra*) fish bones, mat-rush, basket grass 2. (genus *Chamaescilla*) blue stars / blue squill / mudrurt 3. (genus *Cordyline*) cabbage tree
- RSFY**- ‘LOMANDROIDS’ II 1. (genus *Dichopogon*) chocolate lily 2. (genus *Eustrephus*) wombat berry vine 3. (genus *Laxmannia*) paperlily
- RSFL**- ‘LOMANDROIDS’ III 1. (genus *Arthropodium*) renga lily / New Zealand rock lily, vanilla lily 2. (genus *Sowerbaea*) purple tassels, vanilla lily, chocolate flower, many-stemmed lily 3. (genus *Thysanotus*) fringe-lily
- RSFR**- ‘LOMANDROIDS’ IV 1. (genus *Xerolirion*) Basil’s asparagus 2. (genera *Acanthocarpus*, *Chamaexeros*, *Murchisonia*, *Romnaldia*, *Trichopetalum*) other lomandroid
- ŘSFW**- ‘SCILLOIDEAE’ I 1. (genus *Hyacinthus*) hyacinth 2. (genus *Muscari*) grape hyacinth 3. (genus *Hyacinthoides*) bluebells

- ŘSFY**- ‘SCILLOIDEAE’ II 1. (genus *Scilla*) squill, glory-of-the-snow, Dalmation scilla 2. (genus *Drimia*) drimia, sea squill / sea onion 3. (genus *Prospero*) autumn squill
- ŘSFL**- ‘SCILLOIDEAE’ III 1. (genus *Ledebouria*) silver squill / wood hyacinth, ledebouria 2. (genus *Leopoldia*) tassel hyacinth / tassel grape hyacinth 3. (genus *Ornithogalum*) star-of-Bethlehem, sun star, chinchinchee, snake flower, Bath asparagus / Prussian asparagus
- ŘSFR**- ‘SCILLOIDEAE’ IV 1. (genus *Eucomis*) pineapple flower, pineapple lily 2. (genus *Drimiopsis*) little white soldiers / leopard plant / false hosta 3. (genus *Massonia*) hedgehog lily, blistered massonia
- ŘSFŘ**- ‘OTHER SCILLOIDEAE & BRODIAEOIDEAE’ 1. (genus *Albuca*) slime lily 2. (Scilloideae other than previously named genera) other scilloid plant 3. (Brodiaeoideae; numerous genera) cluster-lily, Mexican star, triplet lily, Baja lily / blue sand lily, brodiaeoid

Tracheophytes > Spermatophytes > Angiosperms > monocots > lilioid monocots > Asparagales > Amaryllidaceae

- STŘ**- ‘ALLIEAE (ONION)’ I (genus *Allium*) 1. (*A. cepa*) onion plant 2. (*A. oschaninii*) shallot plant 3. (*A. ampeloprasum*) leek plant
- STĽ**- ‘ALLIEAE (ONION)’ II (genus *Allium*) 1. (*A. sativum*) garlic 2. (*A. schoenoprasum*) chive plant 3. (various other *Allium* species) scallion plant
- STW**- ‘ALLIOIDEAE’ 1. (Leucocoryneae; several genera) glory-of-the-sun, starflower / spring starflower, springstar, crowpoison / false garlic, honeybells / onion weed 2. (Tulbaghieae; genera *Tulbaghia*, *Prototulbaghia*) wild garlic / society garlic 3. (Gilliesieae; several genera) South American allioid / gilliesid
- LSTW**- ‘AMARYLLIDACEAE’ I 1. (Amaryllids; several genera) amarylid, swampily, poisonbulb / Queen Emma lily, seven sisters 2. (Cyrtantheae; genus *Cyrtanthus*) fire lily, Knysna lily, falcate fire lily 3. (Haemantheae; several genera) Natal lily / bush lily / Kaffir lily, green-tip forest lily, paintbrush, blood flower / blood lily, haemanthus, Inyanga fireball, kukumakranka
- LSTY**- ‘AMARYLLIDACEAE’ II 1. (Calostemmatae; genera *Proiphys*, *Calostemma*) Cardwell lily, Brisbane lily / Moreton Bay lily, wilcannia lily, garland lily 2. (Lycorideae; genera *Lycoris*, *Ungernia*) hurricane lily, cluster amaryllis, red spider lily / hell flower / red magic lily / equinox flower, resurrection lily / surprise lily / magic lily / naked lady, ungernia 3. (Griffineae; genera *Griffinia*, *Worsleya*) griffinid, Empress-of-Brazil
- LSTĽ**- ‘AMARYLLIDACEAE’ III 1. (Narcisseae; genera *Narcissus*, *Sternbergia*, *Lapiedra*) daffodil, winter daffodil / autumn daffodil / lily-of-the-field / yellow autumn crocus 2. (Pancractieae; genera *Pancratium*, *Vagaria*) pancratid, sea daffodil 3. (Galantheae; genera *Acis*, *Galanthus*, *Leucojum*) snowflake, snowdrop
- LSTŘ**- ‘AMARYLLIDACEAE’ IV 1. (Hippeastreae; several genera) copperlily, pink fairy lily / pink rain lily, Barbados snowdrop, lily-of-the-palace, “amaryllis”, Aztec lily / Jacobean lily, rainflower, zephyr lily, rain lily, Atamasco lily / wild Easter lily, traubiine 2. (Eustephieae; four genera) eustephid, fire lily / flame lily 3. (Eucharideae; several genera) eucharid, Amazon lily, giant Peruvian daffodil
- STY**- ‘AGAPANTHOIDEAE & OTHER AMARYLLIDACEAE’ 1. (Agapanthoideae; genus *Agapanthus*) lily of the Nile, African lily, African tulip, African bluebell / African blue lily, agapanthus 2. (Hymenocallideae; three genera) spider lily, cahaba lily, Peruvian daffodil, amancay 3. (Clinantheae; three genera) clinanthus, clinanthid

Tracheophytes > Spermatophytes > Angiosperms > monocots > lilioid monocots > Asparagales > Asphodelaceae

- RSTW**- ‘ASPHODELOIDEAE’ I 1. (genus *Aloe*) true aloe, aloe vera 2. (genus *Aristaloe*) guinea-fowl aloe / lace aloe 3. (genus *Asphodelus*) asphodel
- RSTY**- ‘ASPHODELOIDEAE’ II 1. (genus *Eremurus*) foxtail lily / desert candle 2. 3. (genus *Gonialoe*) partridge aloe
- RSTĽ**- ‘ASPHODELOIDEAE’ III 1. (genus *Haworthia*) haworthia 2. (genus *Haworthiopsis*) haworthiopsis 3. (genus *Gasteria*) gasteria
- RSTŘ**- ‘ASPHODELOIDEAE’ IV 1. (genus *Kniphofia*) tritoma, red hot poker, torch lily, poker plant, “Bees’ Sunset”, “Brimstone Bloom”, “Buttercup” 2. (genus *Kumara*) fan-aloe, kumara 3. (Asphodeloideae other than previously named genera) other asphodeloid plant
- ŘSTW**- ‘HEMEROCALLIDOIDEAE’ I 1. (genus *Hemerocallis*) daylily, lemon lily, tiger lily / ditch lily 2. (genus *Simethis*) Kerry lily 3. (genus *Ticoryne*) yellow rush-lilly



**-ŘSTY-** ‘HEMEROCALLIDOIDEAE’ II 1. (genus *Caesia*) grass lily 2. (genus *Johnsonia*) pipe lily 3. (genera *Corynotheca*, *Arnocrinum*, *Hensmania*, *Stawellia*) other johnsoniid hemerocallid

**-ŘSTL-** ‘HEMEROCALLIDOIDEAE’ III 1. (genus *Phormium*) New Zealand flax 2. (genus *Geitonoplesium*) scrambling lily 3. (genus *Stypandra*) nodding blue lily / blind grass

**-ŘSTR-** ‘HEMEROCALLIDOIDEAE’ IV 1. (genus *Dianella*) flax lily, blueberry lily / paroo lily, inkberry lily 2. (genus *Thelionema*) tufted blue-lily 3. (genus *Herpolirion*) sky lily

**-ŘSTŘ-** ‘XANTHORRHOEOIDEAE & OTHER HEMEROCALLIDOIDEAE’ 1. (Xanthorrhoeoideae; genus *Xanthorrhoea*) grass tree 2. (genera *Excremis*, *Pasithea*, *Agrostocrinum*) other phormid hemerocallidoid

Tracheophytes > Spermatophytes > Angiosperms > monocots > lilioid monocots > Asparagales > Iridaceae

**-RSP-** ‘IRIDEAE’ 1. (genus *Iris*) iris, juno 2. (genus *Moraea*) Cape tulip, Barbary nut 3. (genera *Dietes*, *Bobartia*, *Ferraria*) wood iris / fortnight iris / butterfly iris / Japanese iris / African iris, other irid

**-RSPF-** ‘IRIDOIDEAE’ 1. (Sisyrinchieae; several genera) blue-eyed grass, morning iris, purple-eyed grass / satin flower / grass-widow / olsynium, pretty grass-flag 2. (Tigridieae; numerous genera) peacock flower / tiger-flower / shell flower, peatleaf, propeller flower, lágrimas de la virgen, tigrid 3. (Trimezieae; several genera) walking iris, apostle’s iris, apostle plant, forenoon yellow flag

**-RSPL-** ‘CROCEAE’ I 1. (genus *Crocus*) crocus 2. (genus *Babiana*) baboon-root 3. (genus *Ixia*) corn lily

**-RSPR-** ‘CROCEAE’ II 1. (genus *Dierama*) hairbells, angel’s fishing rods / grassy bells / fairybell / wedding bell, wandflower 2. (genus *Sparaxis*) harlequin flower, wandflower, sparaxis 3. (genera *Chasmanthe*, *Duthieastrum*, *Geissorhiza*, *Hesperantha*, *Radinosiphon*, *Syringodea*, *Tritonia*, *Tritoniopsis*) other crocid

**-RSPŘ-** ‘CROCOIDEAE’ 1. (Gladiolaeae; genera *Gladiolus*, *Melasmaerula*) gladiolus, cornflag, painted lady, cliff lily, Afrikaner, sword lily, gladiola 2. (Watsonieae; several genera) bugle lily, watsoniid 3. (Freesieae; genera *Freesia*, *Xenoscapa*, *Crocasmia*, *Devia*) freesia, montbretia

**-RSPŤ-** ‘IRIDACEAE’ 1. (Aristeoideae; genus *Aristea*) blue flies / blue stars / blue-eyed iris, blue corn-lily 2. (Patersonioideae; genus *Patersonia*) native flag / purple flag / native iris, swamp iris 3. (Isophysidoideae, Geosiridoideae, Nivenioideae; several genera) other crocioid

Tracheophytes > Spermatophytes > Angiosperms > monocots > lilioid monocots > Asparagales > Orchidaceae

**-RSPW-** ‘ORCHIDACEAE’ 1. (Orchidoideae; numerous genera) orchidoid orchid 2. (Epidendroideae; numerous genera) epidendroid orchid 3. (Apostasioideae and Cypripedioideae; numerous genera) apostasioid or cypripediooid orchid

**-RSPY-** ‘VANILLOIDEAE’ 1. (Vanilleae; *Vanilla planifolia*) flat-leaved vanilla orchid plant [source of vanilla bean extract] 2. (Vanilleae; several genera/species other than *V.planifolia*) vanillid orchid plant 3. (Pogonieae; several genera) pogonia, snakemouth orchid, little five leaves, pogonid orchid

Tracheophytes > Spermatophytes > Angiosperms > monocots > lilioid monocots > Asparagales > remaining families

**-RSPH-** ‘OTHER ASPARAGALES’ I 1. (Doryanthaceae; genus *Doryanthes*) gymnea lily, giant spear lily 2. (Tecophilaeaceae; several genera) Chilean blue crocus, Hartweg’s doll’s lily, tecophilaeid 3. (Ixioliriaceae; genus *Ixiolirion*) lavender mountain lily / Siberian lily

**-RSPĽ-** ‘OTHER ASPARAGALES’ II 1. (Asteliaceae; several genera) pineapple grass / perching lily, silver spear, bush flax / bush lily, astelia, asteliid 2. (Hypoxidaceae; several genera) hypoxidiid, weevil-wort, curculigo 3. (Lanariaceae; genus *Lanaria*) lambtails / Cape edelweiss

**-RSPÇ-** ‘OTHER ASPARAGALES’ III 1. (Blandfordiaceae; genus *Blandfordia*) Christmas bells 2. (Boryaceae; genera *Boryna*, *Alania*) pincushion, borya, alania 3. (Xeronemataceae; genus *Xeronema*) Poor Knights lily

Tracheophytes > Spermatophytes > Angiosperms > monocots > lilioid monocots > remaining orders

**-RSPHW-** ‘OTHER LILLIOID MONOCOT’ 1. (Pandanales; numerous genera) pandan, screw-pine / screw palm / pandanus palm 2. (Petrosaviales; genera *Petrosavia*, *Japonolirion*) petrosaviate

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Commelinales

**-NÇPF-** ‘COMMELINACEAE’ 1. (Commelineae; several genera) dayflower, widow’s tears, tropical spiderwort / wandering Jew, scurvy weed, scurvy grass, rat’s ear, marble berry, dewflower 2. (Tradescantieae; numerous genera) spiderwort, Indian paint, boatlily / oyster plant, wild crocus, false dayflower, blue ginger 3. (Cartonemateae; genus *Cartonema*) cartonema, wiridjagu

**-NÇPH-** ‘COMMELINALES’ 1. (Haemodoraceae; numerous genera) bloodwort, kangaroo paw, winter bell, bloodroot, coneflower, redroot 2. (Pontederiaceae; several genera) mud plantain, water hyacinth, water stargrass, ducksalad, pickerel weed, false pickerelweed / oval-leafed pondweed 3. (Philydraceae & Hanguanaceae; genera *Philydrum*, *Philydrella*, *Helmholtzia*, *Hanguana*) stream lily, frogmouth, woolly waterlily, hanguna

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Zingiberales

**-NÇP-** ‘MUSACEAE’ 1. (genus *Musa*) banana, plantain 2. (genus *Ensete*) enset, false banana 3. (genus *Musella*) Chinese dwarf banana / golden lotus banana

**-NÇPW-** ‘ZINGIBERACEAE’ I 1. (genus *Zingiber*) ginger plant, myoga [Japanese ginger] 2. (genus *Curcuma*) turmeric plant, zedoary / white turmeric, Java ginger / Javanese turmeric, Cape York lily, mango ginger, Siam tulip / summer tulip, East Indian arrowroot / narrow-leaved turmeric, mango-ginger 3. (genera *Amomum*, *Elettaria*) cardamom plant

**-NÇPY-** ‘ZINGIBERACEAE’ II 1. (genus *Alpinia*) galangal plant, shellflower / shellplant, alpinia, Chinese ginger, shell ginger, round Chinese cardamom 2. (genus *Aframomum*) false cardamom / Ethiopian cardamom plant, melegueta pepper / alligator pepper / grains of paradise 3. (genera *Elingera*) torch ginger / torch lily / Philippine wax flower / Indonesian tall ginger / porcelain rose, Malay rose

**-NÇPŘ-** ‘ZINGIBERACEAE’ III 1. (genus *Hornstedtia*) Scott’s ginger / jiddo / native cardamom 2. (genus *Hedychium*) garland flower / ginger lily / kahili ginger 3. (Zingiberaceae other than already named; numerous genera) other zingiberid

**-NÇPL-** ‘ZINGIBERALES’ I 1. (Cannaceae; genus *Canna*) canna lily 2. (Heliconiaceae; genus *Heliconia*) lobster-claws / toucan beak / wild plantain / false bird-of-paradise 3. (Lowlaceae; genus *Orchidantha*) orchidantha

**-NÇPR-** ‘ZINGIBERALES’ II 1. (Strelitziaceae; three genera) strelitzia, bird of paradise, crane lily, traveller’s tree / traveller’s palm 2. (Costaceae; several genera) costus, orange tulip ginger, spiral ginger, spiralfag ginger / Indian head ginger, yellow trumpet, spiral flag, crêpe ginger, wax ginger 3. (Marantaceae; numerous genera) arrowroot, prayer plant, calathea, myrosma, alligator-flag, thalia, hardy canna, fire-flag

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Arecales

**-LBW-** ‘COMMON FOOD PALM (ARECACEAE)’ I 1. (genus *Cocos*) coconut tree 2. (genus *Phoenix*) date palm tree 3. (genus *Euterpe*) açai palm tree

**-LBY-** ‘COMMON FOOD PALM (ARECACEAE)’ II 1. (genus *Butia*) jelly palm, yatay palm, pindo palm 2. (genus *Elaeis*) oil palm, macaw-fat 3. (genus *Bactris*) peach palm

**-LBL-** ‘ARECEAE’ I 1. (genus *Areca*) areca nut palm [betel nut palm] 2. (genus *Howea*) thatch palm / Kentia palm 3. (genus *Normanbya*) black palm

**-LBR-** ‘ARECEAE’ II 1. (genus *Nenga*) pinang palm 2. (genus *Heterospatha*) sagisi palm 3. (genus *Hedyscepe*) big mountain palm / umbrella palm

- LBŘ-** ‘ARECEAE’ III 1. (genus *Acanthophoenix*) barbel palm / palmiste rouge 2. (genus *Wodyetia*) foxtail palm 3. (genus *Phoenicophorium*) thief palm / latanier palm
- LBV-** ‘COCOSEAE’ 1. (genus *Jubaea*) Chilean wine palm 2. (genus *Jubaeopsis*) Pondoland palm 3. (genus *Voanioala*) forest coconut palm
- LBĐ-** ‘ARACOIDEAE’ 1. Leopoldinieae; genus *Leopoldinia*) pissava palm / jará palm 2. (Roystoneae; genus *Roystonea*) royal palm, palmiste / imperial palm / cabbabe palm, yagua / cabiche 3. (Geonomeae, Iriarteeae, Manicarieae, Oranieae, Pelagodoxeae, Podococceae, Reinhardtiae, Sclerospermeae, Areceae other than named genera above; numerous genera) other aracoid palm
- LBZ-** ‘CALAMOIDEAE’ 1. (Calameae; numerous genera) rattan palm 2. (Eugeissoneae; genus *Eugeissona*) bertam / wild Bornean sago palm 3. (Lepidocaryeae; several genera) raffia palm, butiti, poltamui
- LBŽ-** ‘CORYPHOIDEAE’ 1. (Trachycarpeae; numerous genera) needle palm, lady palm, saw palmetto, carnauba wax palm, European fan palm / Mediterranean dwarf palm 2. (Crysophileae; several genera) zombie palm, Key thatch palm, silver pimeto 3. (Sabaleae, Borasseae, Caryoteae; Chuniophoeniceae, Chorypheae; numerous genera) fan-palm, palmetto, sea coconut palm / double coconut palm, fishtail palm, Hainan fan palm, white backed palm, Mazari palm, tahina palm
- LBH-** ‘OTHER ARECALES’ 1. (Ceroxylodeae; several genera) ivory palm / ivory-nut palm / tagua palm, chonta palm, mastodon palm / fiber palm 2. (Nypoideae; genus *Nypa*) nipa / mangrove palm 3. (Dasypogonaceae; four genera) pineapple bush, tinsel lily, kingia / bullanock, baxteria

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales (grasses)

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Poaceae

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Poaceae > Avenine grasses

**-BT-** ‘TRITICUM (WHEAT)’ I 1. (*T. aestivum*) common wheat / bread wheat grass 2. (*T. durum*) durum wheat / pasta wheat grass 3. (*T. spelta*) spelt grass / dinkel wheat grass

**-BTY-** ‘TRITICUM (WHEAT)’ II 1. (*T. monococcum*, *T. boeoticum*) einkorn wheat grass 2. (*T. turgidum dicoccum*, *T. turgidum dicoccoides*) emmer wheat grass 3. (*T. turanicum*) khorasan wheat grass, kamut grass

**-BTW-** ‘TRITICEAE (WHEAT-RELATED DOMESTICATED CEREAL GRAINS)’ 1. (genus *Hordeum*) barley grass 2. (genus *Secale*) rye grass 3. (*Triticum*+*Secale* hybrid) tritcale grass

**-BTL-** ‘OTHER TRITICEAE’ I 1. (genus *Agropyron*) wheatgrass 2. (genus *Aegilops*) goatgrass 3. (genus *Elymus*) couch grass, wildrye, bottlebrush grass, lyme grass, dune grass, strand grass / strand-wheat, squirreltail

**-BTR-** ‘OTHER TRITICEAE’ II 1. (genus *Hordelymus*) wood-barley 2. (genus *Leymus*) wildrye, lyme grass 3. (genus *Thinopyrum*) Eurasian quackgrass, rush wheatgrass, tall wheatgrass

**-BTŘ-** ‘OTHER TRITICEAE’ III 1. (genus *Triticum* other than already named species) club wheat, Persian wheat, Armenian wild emmer, red wild einkorn wheat, Ethiopian wheat, Zanduri wheat, Polish wheat 2. (Triticeae other than previously named genera) other wild wheatgrass

**-BTH-** ‘AVENA (OAT)’ 1. (*A. sativa*) common oat grass 2. (*A. nuda*) naked oat / hulless oat grass 3. (*A. abyssinica*) Ethiopian oat grass

**-BTÇ-** ‘POOIDEAE’ I 1. (Aveninae-type grasses; numerous genera) oatgrass, junegrass, vernal grass / hornwort, bentgrass, hairgrass, button-grass, plumegrass, hedgehog grass, false mannagrass, swamp wallaby grass, beard grass / rabbitsfoot grass, nit grass, Ozark grass, shining grass, silkybent grass, windgrass 2. (Poinae-type grasses; numerous genera) meadow-grass, bluegrass, tussock, snow-grass, sussock-grass, muttonbird poa, quaking grass, pendant grass, hardgrass, alkali grass, salt grass, saltmarsh-grass, fescue, pinegrass, blue bunchgrass, pseudovina, English bluegrass, fescue tussock, ryegrass, cock’s-foot grass, orchard grass, hair grass, tussock grass, sandgrass,

common rivergrass, giant mountain grass, timothy grass, sloughgrass, woodreed, foxtail grass, hooded grass 3. (Bromeae, Littledaleae, Brachypodieae; genera *Bromus*, *Littledalea*, *Brachypodium*) brome, chess grass, cheat grass, quake grass, bull grass, rescue grass / Australian oat, false brome, tor-grass

**-BTF-** ‘POOIDEAE’ II 1. (Nardeae; genus *Nardus*) matgrass 2. (Lygeae; genus *Lygeum*) esparto grass / cord grass / albardine 3. (Duthieae; several genera) oat speargrass

**-BTV-** ‘POOIDEAE’ III 1. (Meliceae; several genera) melic grass, semaphore grass, false semaphore grass, false mesic 2. (Stipeae; numerous genera) needle grass, spear grass, silver spike grass, ricegrass, sleepygrass, achnatherum, needle-and-thread grass, feather grass, false needle grass 3. (Ampelodesmeae; genus *Ampelodesmos*) stramma / rope grass / Mauritania grass / dis grass

**-BTŁ-** ‘POOIDEAE’ IV 1. (Diarrheneae; genera *Diarrhena*, *Neomolinia*) breakgrain / break grass 2. (genus *Ammophila*) beach grass, marram grass 3. (Brachyelytreae, Phaenospemateae, Brylkiniae; genera *Brachyelytrum*, *Phaenosperma*, *Brylkinia*) other pooid grass

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Poaceae > Bambusoideae

**-BTHW-** ‘BAMBUSOIDEAE (BAMBOO)’ 1. (Bambuseae; numerous genera) tropical woody bamboo 2. (Olyreae; numerous genera) tropical herbaceous bamboo 3. (Arundinarieae; numerous genera) temperate woody bamboo, hill cane, switchcane, river cane / giant cane

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Poaceae > Oryzoideae

**-BK-** ‘ORYZA (RICE)’ 1. (*O. sativa*) Asian rice grass 2. (*O. glaberrima*) African rice grass 3. (*O. rufipogon*) red rice / brownbeard rice grass

**-BKW-** ‘ORYZAE’ I 1. (genus *Zizania*) wild rice, Canada rice, Indian rice, water oats 2. (genus *Zizaniopsis*) giant cutgrass / water millet / southern wildrice 3. (genus *Oryza* other than previously named species) wild rice grass

**-BKY-** ‘ORYZAE’ II 1. (genus *Leersia*) cutgrass, whitegrass, swamp rice grass 2. (genus *Potamophila*) Hastings River reed 3. (genera *Luziola*, *Hygroryza*) watergrass

**-BKÇ-** ‘ORYZOIDEAE’ 1. (Ehrharteae; four genera) weeping grass / weeping rice grass / weeping meadow grass, veldtgrass, zotovia 2. (Phyllorachideae, Streptogyneae) other oryzoid grass

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Poaceae > Chlororidoideae

**-BKL-** ‘ERAGROSTIDEAE’ 1. (*Eragrostis tef*) teff grass 2. (genus *Eragrostis* other than *E. tef*) lovegrass, canegrass, cause grass 3. (Eragrostids other than *Eragrostis*; several genera) robies cocksfoot, thimble grass / Zulu fescue, other eragrostid grass

**-BKR-** ‘ELEUSININAE’ 1. (*Eleusine coracana*) finger millet grass 2. (genus *Eleusine* other than *E. coracana*) goosegrass, wiregrass, crowfootgrass, yard-grass 3. (Eleusininae other than *Eleusine*; numerous genera) caterpillar grass, windmill grass, Mitchell grass, Bermuda grass / dog’s tooth grass

**-BKF-** ‘CYNODONTEAE’ I 1. (Triodiinae; genus *Triodia*) spinifex, porcupine grass 2. (Dactylocteniiinae; several genera) goose grass, crowfoot grass 3. (Muhlenbergiinae; genus *Muhlenbergia*) muhly, scratchgrass, deergrass, bullgrass, aparejoggrass

**-BKŦ-** ‘CYNODONTEAE’ II 1. (Scleropogoninae; several genera) eyelashgrass, desertgrass, desert fluff-grass, woollygrass, burrograss, Eureka dunegrass, false buffalograss 2. (Orcuttiinae; genera *Orcuttia*, *Neostapfia*) Colusa grass, Orcutt grass 3. (Cynodonteae other than Stems 1 and 2; numerous genera) five-minute grass, grama grass, pappusgrass, burr grass, carrot-seed grass, Texasgrass, sandgrass, skeletongrass, curly mesquite, other cynodontid grass

**-BKŘ-** ‘ZOYSIEAE’ 1. (genus *Zoysia*) zoysia / zoysiagrass, mascarene grass / Korean velvet grass, Korean lawngrass, Manila grass 2. (genus *Sporobolus*) dropseed, sacaton grass, fairy grass / yakka grass, smut grass, giant rat’s-tail grass, poverty grass, salt grass 3. (genera *Psilolemma*, *Urochondra*) other zoysioid grass

**-BKL-** ‘CHLORIDOIDEAE’ 1. (Centropodieae; two genera) centropodiid grass 2. (Triraphideae; three genera) triraphid grass 3. (genera *Grossweilerochola*, *Indopoa*, *Lepturopetium*, *Myriostachya*, *Pogonochloa*, *Pseudozysia*, *Silentvalleya*) other chloridoid grass

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Poaceae > Panicoideae > Andropogoneae

**-RDL-** ‘ANDROPOGONEAE’ I 1. (genus *Zea*) maize / corn plant 2. (genus *Saccharum*) sugarcane plant, ravena grass, elephant grass 3. (genus *Sorghum*) sorghum grass

**-RDR-** ‘ANDROPOGONEAE’ II 1. (genus *Ischaemum*) murainagrass, duck-beak, paddle grass, lucuntu grass 2. (genus *Tripsacum*) gamagrass 3. (genus *Hemarthria*) jointgrass / limpgrass / halt grass / quick grass

**-RDŘ-** ‘ANDROPOGONEAE’ III 1. (genus *Arthraxon*) carpet grass 2. (genus *Chrysopogon*) vetiver, amorseco / grama-amorosa / lesser spear grass 3. (Andropogoneae other than previously named genera) browntop, other andropogonid grass

**-RDM-** ‘ANDROPOGONINES & SACCHARINES’ 1. (genus *Cymbopogon*) lemongrass, citronella grass, palmarosa / Indian geranium, barbed wire grass, silky head, oily head, Cochin grass, Malabar grass 2. (Andropogonines other than *Cymbopogon*; numerous genera) broomsedge, whiskygrass, bluestem, Tambuki grass / gamba grass, beard grass, sweetpitted grass, leg grass / red grass / redleg, Flinders grass, tanglehead, scented-top grass 3. (Saccharines other than *Saccharum*) cogongrass / kunai grass / blady grass / satintail / lalang grass / cotton wool grass, crinkleawn grass, silvergrass

**-RDŇ-** ‘ANDROPOGONOID PANICOIDEAE’ I 1. (Paspaleae; numerous genera) carpet grass, vine mesquite, bedgrass, panicgrass, bahiagrass, paspalum, koda millet / kodra millet, hilo grass / carabao grass, dallis grass, crowngrass, marsh grass 2. (Gynerieae; genus *Gynerium*) wildcane, arrow cane 3. (Arundinelleae, Lecomtelleae; several genera) other andropogonoid panicoid grass

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Poaceae > Danthonioideae

**-RDF-** ‘DANTHONIOIDEAE’ 1. (genus *Danthonia*) oatgrass / heathgrass / wallaby grass 2. (genus *Schismus*) Mediterranean grass 3. (Danthonioideae other than Stems 1 and 2; numerous genera) danthonioid grass, snowgrass

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Poaceae > Panicoideae > Paniceae

**-TXL-** ‘MILLET’ I 1. (*Panicum milleaceum*) common millet grass [a.k.a. proso millet, broomcorn millet, hog millet, red millet, white millet] 2. (*Pennisetum glaucum*) pearl millet grass 3. (*Setaria italica*) foxtail millet / Italian millet

**-TXR-** ‘MILLET’ II 1. (*Digitaria exilis*, *D. iburua*) fonio / hungry rice 2. (*D. compacta*) raishan 3. (genus *Digitaria* [other than *D. exilis*, *D. iburua* and *D. compacta*]) crabgrass, finger-grass, summer grass, witchgrass, cottontop, umbrella grass, blue couch, pangolagrass, sourgrass, Polish millet

**-TXM-** ‘CENCHRINAE’ 1. (genus *Cenchrus*) buffelgrass, sandbur, sand spur 2. (genus *Pennisetum* [other than *P. glaucum*]) fountaingrass, swamp-foxtail, bristlegrass, feather grass / bedding grass, mission grass, Napier grass, elephant grass / barner grass, feathertop / white foxtail 3. (genus *Setaria* [other than *S. italica*]) pigeon grass, bristle grass, highland pitpit, grama negra, yellow foxtail, bristly foxtail, corn grass / Mary grass

**-TXN-** ‘PANICEAE’ 1. (other Cenchrinae; numerous genera) mudgrass, false bristlegrass, flat-stem grass, sandhill canegrass 2. (Boivinellinae; numerous genera) basketgrass, barnyard grass / cockspur grass, boivinelline grass 3. (other Paniceae [including *Panicum* other than *P. milleaceum*]; numerous genera) mulga grass, rosette grass, cupscale grass, signalgrass, panicum, tumbleweed, maidencane, switchgrass, panic, Guinea grass / buffalo grass, panic grass

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Poaceae > Panicoideae > Centothecoid clade

**-TXW-** ‘CENTOTHECOID’ 1. (Chasmanthieae; genera *Chasmanthium*, *Bromuniola*) woodoats 2. (Thysanolaeneae; genus *Thysanolaena*) tiger grass / broom stick / Nepalese broom grass 3. (Zeugiteae, Steyermarkochloae, Tristachyidae, Centotheceae, Cyperochloae; several genera) other centothecoid grass

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Poaceae > Micrairoideae

-**TX**- ‘MICRAIROIDEAE’ 1. (genus *Isachne*) bloodgrass 2. (genus *Eriachne*) Wanderrie grass 3. (Micrairoideae other than Stems 1 and 2; several genera) macrairoid grass

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Poaceae > Arundinoideae

-**TL**- ‘ARUNDINOIDEAE’ I 1. (genus *Phragmites*) common reed 2. (genus *Arundo*) giant cane / Spanish cane, Pliny’s reed 3. (genus *Amphipogon*) greybeard grass

-**TR**- ‘ARUNDINOIDEAE’ II 1. (genus *Molinia*) moor grass 2. (genus *Monachather*) mulga oats 3. (Arundinoideae other than previously named genera; several genera) other arundinoid grass or reed

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Poaceae > Puelioideae, Pharoideae, and Anomochlooideae

-**TY**- ‘OTHER POACEAE’ 1. (Puelioideae; genera *Puelia*, *Guaduella*) puelioid grass 2. (Pharoideae; genera *Pharus*, *Leptaspis*) stalkgrass, leptaspis 3. (Anomochlooideae; genera *Anomochloa*, *Streptochaeta*) anomochlooid grass

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Graminids > Ecdeicoleaceae, Joinvilleaceae, and Flagellariaceae

-**TH**- ‘OTHER GRAMMINID GRASS FAMILY’ 1. (Ecdeicoleaceae; genera *Ecdeicolea*, *Georgeantha*) ecdeicoleid plant 2. (Joinvilleaceae; genus *Joinvillea*) joinvillea 3. (Flagellariaceae; genus *Flagellaria*) whip vine / hell tail / supplejack / false rattan / bush cane

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Bromeliads > Bromeliaceae and Typhaceae

-**KW**- ‘BROMELIAD’ 1. (genus *Ananas*) pineapple 2. (Bromeliaceae other than *Ananas*; numerous genera) bromeliad, airplant, ball moss, Spanish moss 3. (Typhaceae; genera *Typha*, *Sparganium*) cattail / punk / reed / bulrush / reedmace, bur-reed

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Cyperid clade

-**KY**- ‘CYPERUS’ 1. (*C. esulentus*) chufa flatsedge [tuber used as food] 2. (*C. papyrus*) papyrush sedge 3. (other *Cyperus* species) flatsedge, nutsedge, umbrella-sedge

-**KL**- ‘CYPERACEAE’ I 1. (genus *Carex*) [true] sedge 2. (*Eleocharis dulcis*) Chinese water chestnut 3. (other *Eleocharis* species) spikerush / hairgrass, spikesedge, scallion grass

-**KR**- ‘CYPERACEAE’ II 1. (genus *Scirpus*) club-rush, bulrush, beakrush 2. (genus *Fimbristylis*) fimbry / fringe-rush / fimbristyle 3. (Cyperaceae other than previously named genera; numerous genera) bulrush, hairsedge, twigrush, bogrush, nutrush, sedge

-**KF**- ‘JUNCACEAE’ 1. (genus *Juncus*) rush, blackgrass 2. (genus *Luzula*) woodrush, Good Friday grass / sweep’s brush 3. (Juncaceae other than Stems 1 and 2; several genera) other rush-like plant

-**KT**- ‘OTHER CYPERID’ 1. (Thurniaceae; genera *Thurnia*, *Pronium*) palmiet, thurnia 2. (Rapateaceae; numerous genera) rapateaceous plant 3. (Mayacaceae; genus *Mayaca*) mayaca plant

Tracheophytes > Spermatophytes > Angiosperms > monocots > commelinid monocots > Poales > Restiid and Xyrid clades

-**KR**- ‘POALES’ 1. (Restionaceae [including Anarthriaceae, Centrolepidaceae, and Lyginiaceae]; numerous genera) wire rush, bamboo rush, silver reed, Cape thatching reed, rope-rush, buttonrush, cord-rush, tassel rush, plume rush, centrolepis, Manypeaks rush, Australian reed, restiad, restio 2. (Eriocaulaceae; several genera) pipewort, hat pin, bog button 3. (Xyridaceae; several genera) yellow-eyed grass

Tracheophytes > Spermatophytes > Angiosperms > Eudicots

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Buxales

-**KMW**- 'BUXACEAE' 1. (genus *Buxus*) box, boxwood 2. (genus *Pachysandra*) Allegheny spurge, carpet box / Japanese spurge, pachysandra 3. (genus *Sarcococca*) sweet box, Christmas box

-**KMY**- 'OTHER BUXALES' 1. (Didymelaceae; genus *Didymela*) didymeles 2. (Haptanthaceae; genus *Haptanthus*) haptanthus

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Proteales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Proteales > Proteaceae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Proteales > Proteaceae > Proteoideae

-**NDPW**- 'PROTEOIDEAE' I 1. (genus *Protea*) sugarbush, protea, honey flower, creeping beauty 2. (genus *Petrophile*) petrophile, cone bush, conesticks, pixie mops 3. (genus *Aulax*) featherbush

-**NDPY**- 'PROTEOIDEAE' II 1. (genus *Conospermum*) smokebush, blue brother, blue lace 2. (genus *Synaphea*) synaphea 3. (genus *Stirlingia*) blueboy

-**NDPL**- 'PROTEOIDEAE' III 1. (genus *Isopogon*) coneflower, drumsticks, wild Irishman / horny cone bush, pincushion rose bush, isopogon 2. (genus *Adenanthos*) jugflower, glandflower, basket flower, woollybush, flame bush / bridle bush / sweat bush, adenanthos 3. (genus *Cenarrhenes*) Port Arthur plum / native plum

-**NDPR**- 'PROTEOIDEAE' IV 1. (genus *Leucadendron*) cone bush 2. (genus *Serruria*) spiderhead, blushing bride / pride of Franschhoek 3. (genus *Paranomus*) sceptre, exploding baked apple

-**NDPR**- 'PROTEOIDEAE' V 1. (genus *Vexatorella*) vexator 2. (genus *Sorocephalus*) powderpuff 3. (genus *Spatalla*) spoon plant

-**NDPF**- 'PROTEOIDEAE' VI 1. (genus *Leucospermum*) pincushion plant 2. (genus *Mimetes*) pagoda plant 3. (genus *Diastella*) silkypuff

-**NDPL**- 'PROTEOIDEAE' VII 1. (genus *Orothamnus*) marsh rose 2. (Proteoideae other than named genera; several genera) other proteoid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Proteales > Proteaceae > Grevilleoideae

-**NDKW**- 'GREVILLEOIDEAE' I 1. (genus *Grevillea*) spider flower, silky oak, toothbrush plant, grevillea 2. (genus *Opisthiolepis*) blush silky oak / pink silky oak / brown silky oak / drunk rabbit 3. (genus *Buckinghamia*) ivory curl flower

-**NDKY**- 'GREVILLEOIDEAE' II 1. (genus *Hakea*) hakea, mulloway needlebush, needlewood, corkbark tree, red pokers, bootlace tree / corkwood, cork tree, needles and corks, dungyn, yandena, walukara, needle tree, woody peach, kerosine bush / two-leaf, pin bush / water tree / booldoobah, emu bush, corkwood oak, honey bush 2. (genus *Stenocarpus*) scrub beefwood, firewheel tree, stenocarpus 3. (genus *Lomatia*) crinkle bush / parsely fern, guitarplant, lomatia, native holly, radial

-**NDKL**- 'GREVILLEOIDEAE' III 1. (genus *Embothrium*) Chilean firebush / notro / ciruelillo / foforito 2. (genus *Telopea*) waratah 3. (genus *Alloxylon*) Queensland tree waratah / red silky oak, Dorrigo waratah

-**NDKR**- 'GREVILLEOIDEAE' IV 1. (genus *Banksia*) banksia, parrot bush, dryandra, kerosene bush, couch honeypot 2. (genus *Musgravea*) crater silky oak, briar silky oak 3. (genus *Austromuelleria*) Mueller's silky oak

-**NDKR**- 'GREVILLEOIDEAE' V 1. (genus *Orites*) orites, mountain silky oak / prickly ash / white beefwood, yellow bush 2. (genus *Neorites*) fishtail oak / fishtail silky oak 3. (genus *Triunia*) spice bush, red nut

-**NDKF**- 'GREVILLEOIDEAE' VI 1. (genus *Xylomelum*) woody pear 2. (genus *Lambertia*) wild honeysuckle 3. (genus *Hollandaea*) Sayer's silky oak, hollandaea

-**NDKM**- 'GREVILLEOIDEAE' VII 1. (genus *Helicia*) helicia, silky oak, pale oak / brown oak, Austral oak, hairy weiner / rusty oak 2. (genus *Sphalmium*) mystery oak / Mt. Lewis oak / poorman's fishtail oak / buff silky oak / satin silky oak 3. (genus *Carnarvonia*) red oak / red silky oak

-**NDKN**- 'GREVILLEOIDEAE' VIII 1. (genus *Macadamia*) macadamia nut tree, bauple nut / Queensland nut / bush nut / Hawaii nut 2. (genus *Brabejum*) wild almond / bitter almond 3. (genus *Catalepidia*) Hey's nut oak

-**NDKS**- 'GREVILLEOIDEAE' IX 1. (genus *Athertonia*) Atherton oak 2. (genus *Cordwellia*) northern silky oak / bull oak / golden spanglewood / lacewood / congaary 3. (genus *Gevuina*) Chilean hazelnut tree

-**NDKŠ**- 'GREVILLEOIDEAE' X 1. (genus *Hicksbeachia*) red bopple nut / monkey nut / red nut /beef nut / rose nut / ivory silky oak 2. (Grevilleoideae other than named genera) other grevilleoid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Proteales > Proteaceae > remaining sub-families: Bellendonoideae, Persoonioideae, and Symphionematoideae

-**NDKH**- 'OTHER PROTEACEAE' I 1. (genus *Bellendena*) mountain rocket 2. (genus *Placospermum*) rose silky oak / plate-seeded oak 3. (genus *Persoonia*) geebung, snottybobble, persoonia, wild pear

-**NDKHW**- 'OTHER PROTEACEAE' II 1. (genus *Agastachys*) white waratah 2. (Proteaceae other than named genera) other proteaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Proteales > remaining families: Nelumbonaceae, Platanaceae, and Sabiaceae

-**NDPH**- 'OTHER PROTEALES' 1. (Nelumbonaceae; genus *Nelumbo*) lotus flower / sacred lotus / Indian lotus / rose of India / sacred water lilly, American lotus 2. (Platanaceae; genus *Platanus*) plane tree, American sycamore / buttonwood / water beech / occidental plane tree, California sycamore / western sycamore / aliso, Arizona sycamore 3. (Sabiaceae; genera *Sabia*, *Ophiocaryon*, *Meliosma*) sabiaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Ranunculales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Ranunculales > Ranunculaceae

-**VZMW**- 'RANUNCULACEAE' I 1. (genus *Ranunculus*) buttercup, spearwort, crowfoot, water-crowfoot 2. (genus *Ceratocephala*) bur buttercup / curveseed butterwort 3. (genus *Ficaria*) fig buttercup / lesser celandine / pilewort

-**VZMY**- 'RANUNCULACEAE' II 1. (genus *Myosurus*) mousetail 2. (genus *Trautvetteria*) Carolina bugbane / false bugbane / tassel-rue 3. (genus *Caltha*) marsh marigold, caltha

-**VZML**- 'RANUNCULACEAE' III 1. (genus *Anemone*) anemone, Spanish marigold / windflower, thimbleweed 2. (genus *Clematis*) clematis, leather flower, pine hyacinth, traveller's joy, satin curls, virgin's bower, headache vine, vasevine, curlyheads, bluebill, devil's darning needles, old man's beard 3. (genus *Hepatica*) liverleaf / liverwort / hepatica

-**VZMR**- 'RANUNCULACEAE' IV 1. (genus *Pulsatilla*) pasque flower, windflower, prairie crocus / cutleaf anemone 2. (genus *Helleborus*) hellebore, setterwort, Christmas rose, Lenten rose, bear's foot 3. (genus *Nigella*) love-in-a-mist / ragged lady / devil in the bush

-**VZMRŠ**- 'RANUNCULACEAE' V 1. (genus *Actaea*) baneberry, bugbane, cohosh, herb christopher, doll's eyes 2. (genus *Anemonopsis*) false anemone 3. (genus *Eranthis*) white aconite

-**VZVW**- 'RANUNCULACEAE' VI 1. (genus *Aconitum*) aconite, monkshood, wolfsbane, iron hammer, leopard's bane, mousebane, devil's helmet, queen of poisons, blue rocket 2. (genus *Consolida*) larkspur 3. (genus *Delphinium*) larkspur, delphinium

-**VZVY**- 'RANUNCULACEAE' VII 1. (genus *Adonis*) pheasant's-eye, blooddrops, adonis 2. (genus *Trollius*) globeflower 3. (genus *Glaucidium*) Japanese wood poppy

-**VZVL**- 'RANUNCULACEAE' VIII 1. (genus *Hydrastis*) goldenseal / orangeroot / yellow puccoon 2. (genus *Coptis*) goldthread 3. (genus *Xanthorhiza*) yellowroot

-**VZVR**- 'RANUNCULACEAE' IX 1. (genus *Thalictrum*) meadow rue, rue-anemone 2. (genus *Isopyrum*) false rue-anemone 3. (genus *Enemion*) false rue-anemone

-**VZVRŠ**- 'RANUNCULACEAE' X 1. (genus *Aquilegia*) columbine / granny's bonnet / granny's nightcap 2. (genus *Paraquilegia*) spurless columbine 3.

(Ranunculaceae other than named genera; several genera) other ranunculaceous plant



Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Ranunculales > Berberidaceae

- VZBW**- 'BERBERIDACEAE' I 1. (genus *Berberis*) barberry 2. (genus *Mahonia*) Oregon grape, Beale's barberry, Cascade barberry, currant-of-Texas / wild currant / chaparral berry, mahonia 3. (genus *Achlys*) vanilla leaf / deer's foot / sweet after death
- VZBY**- 'BERBERIDACEAE' II 1. (genus *Podophyllum*) mayapple / American mandrake / wild mandrake / ground lemon 2. (genus *Sinopodophyllum*) Himalayan may apple / Indian may apple 3. (genus *Diphyllia*) umbrella leaf
- VZBL**- 'BERBERIDACEAE' III 1. (genus *Epimedium*) barrenwort, bishop's hat, fairy wings, horny goat weed 2. (genus *Jeffersonia* [including *Plagiorhegma*]) twinleaf / rheumatism root, Asian twinleaf 3. (genus *Vancouveria*) inside-out flower
- VZBR**- 'BERBERIDACEAE' IV 1. (genus *Nandina*) heavenly bamboo / sacred bamboo / nandina 2. (genus *Caulophyllum*) blue cohosh / squaw root / papoose root 3. (Berberidaceae other than named genera; several genera) other berberidaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Ranunculales > Menispermaceae

- VZGW**- 'MENISPERMACEAE' I 1. (genus *Menispermum*) moonseed, ghost grape, common parilla 2. (genus *Legnephora*) round-leaf vine 3. (genus *Sarcopetalum*) pearl vine
- VZGY**- 'MENISPERMACEAE' II 1. (genus *Cocculus*) red-berried moonseed / Carolina moonseed, correhuela, broom creeper, laurel-leaved snail tree, queen coralbead 2. (genus *Cissampelos*) velvet leaf, abuta 3. (genus *Stephania*) snake vine
- VZGL**- 'MENISPERMACEAE' III 1. (genus *Calycocarpum*) cupseed 2. (genus *Dioscoreophyllum*) serendipity berry 3. (genus *Jateorhiza*) calumba
- VZGR**- 'MENISPERMACEAE' IV 1. (genus *Anamirta*) Indian berry / fishberry / Levant nut 2. (Menispermaceae other than named genera; numerous genera) other menispermaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Ranunculales > Lardizabalaceae

- VZBŘ**- 'LARDIZABALACEAE' I 1. (genus *Lardizabala*) zabala fruit 2. (genus *Boquila*) chameleon vine 3. (genus *Decaisnea*) dead man's fingers
- VZBV**- 'LARDIZABALACEAE' II 1. (genus *Holboellia*) blue china vine 2. (genus *Akebia*) chocolate vine, akebia 3. (Lardizabalaceae other than named genera; several genera) other lardizabalaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Ranunculales > Papaveraceae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Ranunculales > Papaveraceae > Papaveroideae

- VZDW**- 'PAPAVEROIDEAE' I 1. (genus *Papaver*) poppy, blindeyes 2. (genus *Arctomecon*) bear poppy / bear-paw poppy 3. (genus *Argemone*) prickly poppy
- VZDY**- 'PAPAVEROIDEAE' II 1. (genus *Canbya*) pygmy poppy 2. (genus *Meconopsis*) blue poppy, autumn poppy, Nepal poppy / satin poppy, Himalayan woodland-poppy 3. (genus *Romneya*) matilija poppy, California tree poppy
- VZDL**- 'PAPAVEROIDEAE' III 1. (genus *Stylomecon*) windpoppy 2. (genus *Meconella*) fairypoppy 3. (genus *Platystemon*) creamcups
- VZDR**- 'PAPAVEROIDEAE' IV 1. (genus *Eschscholzia*) California poppy, tufted poppy / foothill poppy, frying pans, desert gold(en) poppy / Mojave poppy, San Benito poppy, Lemmon's poppy, pygmy poppy, Parish's poppy, Channel Islands poppy 2. (genus *Dendromecon*) bush poppy, Channel Islands tree poppy 3. (genus *Hunnemannia*) Mexican tulip poppy
- VZDŘ**- 'PAPAVEROIDEAE' V 1. (genus *Chelidonium*) celandine / greater celandine / nipplewort / swallowwort / tetterwort 2. (genus *Bocconia*) plume poppy / tree poppy / tree celandine / parrotweed / sea oxeye daisy / John Crow bush 3. (genus *Dicranostigma*) eastern horned poppy
- VZDV**- 'PAPAVEROIDEAE' VI 1. (genus *Eomecon*) snow-poppy / dawn-poppy 2. (genus *Glaucium*) yellow horned poppy, sea poppy 3. (genus *Hylomecum*) forest poppy

**-VZZ-** ‘PAPAVEROIDEAE’ VII 1. (genus *Macleaya*) plume poppy 2. (genus *Sanguinaria*) bloodroot / bloodwort / redroot / red puccoon / Canada puccoon / pauson 3. (genus *Stylophorum*) celandine-poppy / woods-poppy

**-VZJ-** ‘PAPAVEROIDEAE’ VIII 1. (genus *Hesperomecon*) narrow-leaved meconella 2. (*Roemeria*) spotted Asian poppy 3. (Papaveroideae other than named genera) other papaveroid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Ranunculales > Papaveraceae > Fumarioideae

**-VZGV-** ‘FUMARIOIDEAE’ I 1. (genus *Fumaria*) fumitory, ramping-fumitory, earth smoke 2. (genus *Pseudofumaria*) pale corydalis / white coridaly 3. (genus *Corydalis*) fumewort, corydalis, scrambled eggs / golden smoke

**-VZGZ-** ‘FUMARIOIDEAE’ II 1. (genus *Capnoides*) harlequin corydalis / pale corydalis / pink corydalis 2. (genus *Dicentra*) bleeding-heart, steer’s-head, turkey-corn, squirrel-corn, Dutchman’s-breeches 3. (genus *Ichtyoselmis*) large-flowered dicentra

**-VZGŽ-** ‘FUMARIOIDEAE’ III 1. (genus *Ehrendorferia*) eardrops, yellow bleeding-heart 2. (genus *Lamprocapnos*) Asian bleeding-heart 3. (Fumarioideae other than named genera; several genera) other fumarioid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Ranunculales > remaining families: Eupteleaceae and Circaeasteraceae

**-VZGR-** ‘EUPTELEACEAE & CIRCAEASTERACEAE’ 1. (Eupteleaceae; genus *Euptelea*) euptelia 2. (Circaeasteraceae; genera *Circaeaster*, *Kingdonia*) circaeasteraceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Trochodendrales

**-VZD-** ‘TROCHODENDRACEAE’ 1. (genus *Trochodendron*) wheel tree 2. (genus *Tetracentron*) tetracentron

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Gunnerales

**-VZNW-** ‘GUNNERALES’ 1. (Gunneraceae; genus *Gunnera*) giant rhubarb / Chilean rhubarb, gunnera, poor man’s umbrella 2. (Myrothamnaceae; genus *Myrothamnus*) resurrection plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > Dilleniales

**-VZNY-** ‘DILLENIACEAE’ 1. (genus *Hibbertia*) guinea flower, yellow buttercups, hibbertia 2. (genus *Dillenia*) red beech / golden guinea tree, elephant apple tree 3. (Dilleniaceae other than Stems 1 and 2; several genera) other dilleniaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Campanulids

**-FTL-** ‘AQUIFOLIALES’ 1. (Aquifoliaceae; genus *Ilex*) holly 2. (Cardiopteridaceae, Helwingiaceae, Phylonomaceae, Stemonuraceae; several genera) other aquifoliolate plant

**-FTÇ-** ‘ESCALLONIACEAE’ 1. (genus *Escallonia*) cloven gum box, redclaws, escallonia 2. (genus *Anopterus*) native laurel / Tasmanian laurel, queensland laurel / Macleay laurel 3. (Escalloniaceae other than *Escallonia* and *Anopterus*) other escalloniaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Campanulids > Dipsacales

- FMW**- ‘ADOXACEAE’ 1. (genus *Adoxa*) moschatel / hollowroot / muskroot / five-faced bishop / townhall clock / tuberous crowfoot 2. (genus *Sambucus*) elderberry 3. (genus *Viburnum* and other several other Axodoceae genera) viburnum / arrowwood, wild raisin / Appalachian tea, squashberry / mooseberry / highbush cranberry / lowbush cranberry, blackhaw, stag bush, Guelder-rose, Japanese snowball, nannyberry / sheepberry, hobble-bush, wayfaring tree, hoarwithy, laurustinus / laurustine
- FMY**- ‘CAPRIFOLIACEAE [CAPRIFOLIOIDEAE]’ 1. (genus *Lonicera*) honeysuckle 2. (genus *Symphoricarpos*) snowberry / waxberry / ghostberry / coralberry 3. (genus *Triosteum*) horse-gentian / feverwort
- FNW**- ‘CAPRIFOLIACEAE [VALERIANOIDEAE]’ 1. (genus *Valeriana*) valerian 2. (genus *Valerianella*) cornsalad 3. (genus *Plectritis*) seablush, plectritis
- FNY**- ‘OTHER CAPRIFOLIACEAE’ 1. (genus *Diervilla*) bush honeysuckle 2. (genus *Linnaea*) twinflower, beautybush, abelia 3. (Caprifoliaceae other than named genera; several genera) other caprifoliolate plant

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- KPW**- ‘APIEAE’ I 1. (genus *Apium*) celery plant, marshwort 2. (genus *Foeniculum*) fennel plant 3. (genus *Petroselinum*) parsley plant
- KPY**- ‘APIEAE’ II 1. (genus *Anethum*) dill plant 2. (genus *Ammi*) bishop’s weed / bullwort / lady’s face / laceflower, toothpick-plant / toothpickweed / bisnaga / khella 3. (Apiaceae other than named genera; several genera) other apiid plant
- KPL**- ‘SELINEAE’ I 1. (genus *Selinum*) milk-parsley 2. (genus *Aethusa*) fool’s parsley / fool’s cicely / poison parsley 3. (genus *Tauschia*) umbrellawort
- KPR**- ‘SELINEAE’ II 1. (genus *Angelica*) angelica 2. (genus *Ammoselinum*) sandparsley 3. (genus *Apiastrum*) mock parsley
- KPŘ**- ‘SELINEAE’ III 1. (genus *Arracacia*) arracacha / racacha 2. (genus *Cnidium*) cnidium [source of coumarins] 3. (genus *Cymopterus*) springparsley, Indian parsnip, wavewing
- KPF**- ‘SELINEAE’ IV 1. (genus *Glehnia*) beach silvertop / American silvertop 2. (genus *Lomatium*) buscuitroot / Indian parsley / desert parsley 3. (genus *Oreonana*) mountainparsley
- KPT**- ‘SELINEAE’ V 1. (genus *Orogenia*) Indian potato 2. (genus *Podistera*) podistera, woodroot 3. (genus *Saposhnikovia* [a.k.a. *Ledebouriella*]) siler
- KPC**- ‘SELINEAE’ VI 1. (genus *Seseli*) moon carrot, stone-parsley 2. (genus *Sphenosciadium*) button parsley / woollyhead parsnip / ranger’s buttons / button parsley / swamp white heads 3. (genus *Taenidia*) pimpernel
- KPL**- ‘SELINEAE’ VII 1. (genus *Thaspium*) meadow-parsnip 2. (genus *Zizia*) alexanders, zizia 3. (Selineae other than named genera; several genera) other selenid parsley-like plant
- KPH**- ‘ACIPHYLLEAE’ 1. (genus *Aciphylla*) golden speargrass / golden Spaniard, giant speargrass, mountain celery / snow aciphyll 2. (genus *Anisotome*) Campbell Island carrot, mountain celery 3. (Aciphyllae other than Stems 1 and 2; several genera) other acyphill plant
- KBW**- ‘SCANDICEAE’ I 1. (genus *Daucus*) carrot plant 2. (genus *Cuminum*) cumin plant 3. (genus *Anthriscus*) chervil
- KBY**- ‘SCANDICEAE’ II 1. (genus *Ferula*) galbanum plant, asafoetida plant, giant fennel 2. (genus *Chaerophyllum*) hairyfruit chervil / Southern chervil, bulbous chervil / parsnip chervil 3. (genus *Myrrhis*) myrrh / cicely / sweet chervil
- KBL**- ‘SCANDICEAE’ III 1. (genus *Osmorhiza*) sweet cicely / sweetroot 2. (genus *Scandix*) shepherd’s-needle / Stork’s needle / Venus’ comb 3. (Scandiceae other than named genera; several genera) hedge parsley, false carrot
- KBR**- ‘SANICULEAE’ I 1. (genus *Sanicula*) sanicle, black snakeroot, turkey pea 2. (genus *Eryngium*) eryngo, sea holly, rattlesnake master, beethistle, coyote thistle, snakeroot, blue devil, button-celery, prickfoot 3. (genus *Astrantia*) masterwort
- KBŘ**- ‘SANICULEAE’ II 1. (genus *Hacquetia*) hacquetia 2. (Saniculeae other than named genera; several genera) other sanicle-like plant
- KDW**- ‘OENANTHEAE’ I 1. (genus *Berula*) water parsnip 2. (genus *Cicuta*) water hemlock 3. (genus *Cryptotaenia*) honewort

- KDY**- ‘OENANTHEAE’ II 1. (genus *Ptilimnium*) harperella, bishopweed, laceflower 2. (genus *Lilaeopsis*) grasswort, mudflat quillplant 3. (genus *Oenanthe*) water dropwort, Chinese celery / Indian pennywort / Japanese parsley / water celery
- KDL**- ‘OENANTHEAE’ III 1. (genus *Perideridia*) yampa / yampah, squaw potato, Sierra Queen Anne’s lace 2. (genus *Sium*) water parsnip 3. (Oenantheae other than named genera) other oenanthid plant
- KDR**- ‘MACKINLAYOIDEAE’ I 1. (genus *Platysace*) platysace, karna, karno, tapeworm plant, Ravensthorpe radish, carrot tops 2. (genus *Actinotus*) flannel flower 3. (genus *Centella*) Asiatic pennywort / Indian pennywort
- KDŘ**- ‘MACKINLAYOIDEAE’ II 1. (genus *Xanthosia*) xanthosia, southern cross 2. (Mackinlayoideae other than named genera) other mackinlayoid plant
- KŠP**- ‘APIOIDEAE’ I 1. (genus *Pastinaca*) parsnip plant 2. (genus *Levisticum*) lovage 3. (genus *Ligusticum*) licorice-root
- KŠPW**- ‘APIOIDEAE’ II 1. (genus *Pimpinella*) anise, short-fruit pimpinella / chamnamul, burnet-saxifrage 2. (genus *Carum*) caraway / meridian fennel / Persian cumin 3. (genus *Coriandrum*) coriander / Chinese parsley / cilantro
- KŠPY**- ‘APIOIDEAE’ III 1. (genus *Bunium*) great pignut / earthnut, black cumin / blackseed / black caraway 2. (genus *Crithmum*) rock samphire / sea fennel 3. (genus *Cyclospermum*) marsh parsley / fir-leafed celery
- KŠPL**- ‘APIOIDEAE’ IV 1. (genus *Heracleum*) hogweed, giant hogweed, cow parsnip 2. (genus *Smyrniium*) alexanders / black-lovage / horse-parsley 3. (genus *Tordylium*) hartwort
- KŠPR**- ‘APIOIDEAE’ V 1. (genus *Bupleurum*) hare’s ear, thorow-wax, thoroughwax 2. (genus *Falcaria*) sickleweed / longleaf 3. (genus *Erigenia*) harbinger of spring, pepper-and-salt
- KŠPŘ**- ‘APIOIDEAE’ VI 1. (genus *Conium*) hemlock 2. (genus *Conioselinum*) hemlock-parsley 3. (genus *Opopanax*) Hercules-all-heal
- KŠPL**- ‘APIOIDEAE’ VII 1. (genus *Silaum*) pepper-saxifrage 2. (Apioideae other than named genera; numerous genera) other apioid plant
- KŠPH**- ‘OTHER APIACEAE’ 1. (Azorelloideae, numerous genera) azurella, cushion plant, llareta / yareta 2. (Apaiaceae other than named genera; numerous genera) other apaiceous plant

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- KSBW**- ‘ARALIACEAE’ I 1. (genus *Hedera*) ivy 2. (genus *Panax*) ginseng 3. (genus *Aralia*) spikenard, aralia, sarsaparilla, devil’s walking stick / Hercules’ club / angelica-tree / prickly ash / prickly elder
- KSBY**- ‘ARALIACEAE’ II 1. (genus *Asrotricha*) star-hair, flannel leaf 2. (genus *Kalopanax*) castor aralia / tree aralia / prickly castor oil tree 3. (genus *Oplopanax*) devil’s club / Alaskan ginseng
- KSBL**- ‘ARALIACEAE’ III 1. (genus *Polyscias*) parasol tree, Ming aralia, island pine, elderberry panax / small basswood, shield arala / plum aralia, pencil cedar, celery wood 2. (genus *Plerandra*) false aralia 3. (genus *Seemannaralia*) wild-maple / mock carrot tree
- KSBR**- ‘ARALIACEAE’ IV 1. (genus *Tetrapanax*) rice-paper plant 2. (genus *Trachymene*) wild parsnip, white parsnip, sponge-fruit, blue lace flower, purple parsnip 3. (genus *Hydrocotyle*) water pennywort, marsh pennywort, waxweed, floating pennyroyal, whorled pennyroyal
- KSBŘ**- ‘ARALIACEAE’ V 1. (genus *Stilbocarpa*) Macquarie Island cabbage 2. (Araliaceae other than named genera) other araliaceous plant

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- KSBV**- ‘OTHER APIALES’ 1. (Pittosporaceae; several genera) pittosporum, billardiera, pronaya, Australian bluebell, appleberry, blackthorn, finger-flower, cheesewood, petroleum nut, lemonwood, native frangipani, marianthus, white marianthus 2. (Torricelliaceae, Griselinaceae, Myodocarpaceae, Pennantiaceae; numerous genera) other apiales plant

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**-RŽB-** ‘ASTEREAE’ I 1. (genus *Bellis*) daisy 2. (genus *Aphanostephus*) lazydaisy 3. (genus *Astranthium*) western-daisy

**-RŽBW-** ‘ASTEREAE’ II 1. (genus *Aster*) aster 2. (genus *Bradburia*) goldenaster 3. (genus *Sericocarpus*) white-topped aster

**-RŽBY-** ‘ASTEREAE’ III 1. (genus *Boltonia*) doll’s-daisy 2. (genus *Egletes*) tropic daisy 3. (genus *Pentachaeta*) pygmydaisy

**-RŽBL-** ‘ASTEREAE’ IV 1. (genera *Machaeranthera*, *Psilactis*, *Rayjacksonia*) tansyaster 2. (genus *Arida*) desert tansy-aster 3. (genus *Doelingeria*) tall flat-topped aster

**-RŽBR-** ‘ASTEREAE’ V 1. (genus *Xanthisma*) sleepydaisy 2. (genus *Corethrogyne*) sandaster 3. (genus *Xylorhiza*) woody-aster

**-RŽBŘ-** ‘ASTEREAE’ VI 1. (genus *Solidago*) goldenrod 2. (genus *Bigelowia*) rayless-goldenrod 3. (genus *Cuniculotinus*) rock goldenrod

**-RŽBV-** ‘ASTEREAE’ VII 1. (genus *Petradoria*) rock goldenrod 2. (genus *Xylothamia*) desert goldenrod 3. (genus *Brintonia*) rayless mock goldenrod

**-RŽD-** ‘ASTEREAE’ VIII 1. (genus *Almutaster*) alkali marsh aster 2. (genus *Ampelaster*) climbing aster 3. (genus *Callistephus*) China aster, annual aster

**-RŽDW-** ‘ASTEREAE’ IX 1. (genus *Brachyscome*) yellow-tongue daisy, variable daisy, grassland daisy, rock daisy, tufted daisy, mountain daisy 2. (genus *Calotis*) burr-daisy 3. (genus *Celmisia*) New Zealand aster, New Zealand daisy, cotton daisy, snow-daisy

**-RŽDY-** ‘ASTEREAE’ X 1. (genus *Eastwoodia*) yellow aster, yellow mock aster 2. (genus *Dieteria*) hoary-aster, hoary tansyaster 3. (genus *Eucephalus*) elegant aster, Olympic Mountain aster, Siskiyou aster, Klickitat aster, Cascade aster, rayless aster, wayside aster

**-RŽDL-** ‘ASTEREAE’ XI 1. (genus *Euthamia*) goldentop, grass-leaved goldenrod 2. (genus *Gundlachia*) goldenshrub 3. (genus *Pyrrocoma*) goldenweed

**-RŽDR-** ‘ASTEREAE’ XII 1. (genus *Herrickia*) Wasatch aster, horrid herrickia, King’s serpentweed / King’s aster, gray aster 2. (genus *Oclemena*) bog aster / bog nodding aster, whorled wood aster 3. (genus *Eurybia*) mountain aster / mountain wood aster / Applalachian heartleaf aster, slender aster, western showy aster, white-wood aster, thistleleaf aster / coyote-thistle aster, forked aster, southern prairie aster, thickstem aster, bigleaf aster / largeleaf aster, subalpine aster / arctic aster, bouquest aster / dwarf aster, southern swamp aster, rough wood aster / low rough aster, roughleaf aster, nettle-leaved Michaelmas-daisy, Siberian aster, purple wood aster / showy aster, pinewoods aster, creeping aster

**-RŽDŘ-** ‘ASTEREAE’ XIII 1. (genus *Stenotus*) goldenweed, mock goldenweed 2. (genus *Nestotus*) goldenweed, mock goldenweed 3. (genus *Oonopsis*) false goldenweed

**-RŽDV-** ‘ASTEREAE’ XIV 1. (genus *Oreostemma*) Peirson’s aster / Peirson’s mountaintop, tundra aster / Anderson’s mountain crown, Plumas alpine aster 2. (genus *Ionactis*) ankle-aster 3. (genus *Symphyotrichum*) Pacific aster, meadow aster, western aster / intermountain aster, blue wood aster, serpentine aster, heath aster, alkali aster, smooth aster / glaucous aster, calico aster, aromatic aster, frost aster / hairy aster, sky-blue aster / azure aster, crooked-stem aster, purplestem aster / red-stemmed aster, silky aster, bushy aster / rice-button aster, New England aster, panicled aster / tall white aster

**-RŽG-** ‘ASTEREAE’ XV 1. (genus *Olearia*) daisy-bush 2. (genus *Townsendia*) Townsend daisy 3. (genus *Vittadinia*) New Holland daisy

**-RŽGW-** ‘ASTEREAE’ XVI 1. (genus *Croptilon*) scratchdaisy 2. (genus *Chaetopappa*) leastdaisy 3. (genus *Chrysopsis*) golden aster

**-RŽGY-** ‘ASTEREAE’ XVII 1. (genus *Tonestus*) serpentweed 2. (genus *Toiyabea*) alpine serpentweed 3. (genus *Gutierrezia*) snakeweed, matchweed

**-RŽGL-** ‘ASTEREAE’ XVIII 1. (genus *Ericameria*) goldenrush 2. (genus *Neonesomia*) goldenshrub 3. (genus *Isocoma*) jimmyweed, goldenweed

**-RŽGR-** ‘ASTEREAE’ XIX 1. (genus *Benitoa*) benitoa 2. (genus *Tracyina*) Indian headdress / beaked tracyina 3. (genus *Amphipappus*) chaffbush, eytelia

**-RŽGŘ-** ‘ASTEREAE’ XX 1. (genus *Erigeron*) fleabane 2. (genus *Grindelia*) gum-plant, resin-weed 3. (genus *Heterotheca*) goldenaster, telegraphweed, Mexican arnica, Zion golden aster, camphorweed, false golden aster, monarch golden aster

- RŽGV**- ‘ASTEREAE’ XXI 1. (genus *Chrysanthamnus*) rabbitbrush 2. (genus *Lorandersonia*) rabbitbush 3. (genus *Monoptilon*) desertstar
- RŽGD**- ‘ASTEREAE’ XXII 1. (genus *Hazardia*) bristleweed 2. (genus *Rigiopappus*) wireweed 3. (genus *Amphiachyris*) broomweed
- RŽM**- ‘ASTEREAE’ XXIII 1. (genus *Kippistia*) fleshy minuria 2. (genus *Gymnosperma*) gumhead, sticky selloa 3. (genus *Tetramolopium*) pamakani, tetramolopium
- RŽMW**- ‘ASTEREAE’ XXIV 1. (genus *Triniteurybia*) Idaho goldenweed 2. (genus *Laennecia*) horseweed 3. (genus *Lessingia*) lessingia
- RŽMY**- ‘ASTEREAE’ XXV 1. (genus *Miyamayomena*) Korean starwort 2. (genus *Lagenophora*) lagenophora, bottle-daisy 3. (Astereae other than named genera; numerous genera) other aster-like or daisy-like plant
- RŽT**- ‘ANTHEMIDEAE’ I 1. (genus *Chrysanthemum*) chrysanthemum, mum, chrysanth 2. (genus *Chamaemelum*) chamomile, dogfennel 3. (genus *Anthemis*) chamomile, dog-fennel, mayweed
- RŽTW**- ‘ANTHEMIDEAE’ II 1. (genus *Achillea*) yarrow, milfoil / allheal / thousand-leaf / bloodwort / carpenter’s grass / cammock / nosebleed / green adder’s mouth / soldier’s woundwort / dog daisy / old-man’s pepper, sweet Nancy / English mace, sneezewort / sneezeweed 2. (genus *Anacyclus*) anacyclus, white buttons, pellitory, Spanish chamomile / Mount Atlas daisy 3. (genus *Artemisia*) mugwort, wormwood, sagebrush, budsage
- RŽTY**- ‘ANTHEMIDEAE’ III 1. (genus *Nipponanthemum*) Montauk daisy / Nippon daisy 2. (genus *Otanthus*) cottonweed plant 3. (genus *Leucanthemum*) ox-eye daisy / dog daisy, Shasta daisy, creeping daisy / mini marguerite, max chrysanthemum
- RŽTL**- ‘ANTHEMIDEAE’ IV 1. (genus *Cotula*) water buttons / buttonweeds 2. (genus *Heteranthemis*) oxeye, sticky oxeye 3. (genus *Santolina*) cotton lavender / lavender-cotton
- RŽTR**- ‘ANTHEMIDEAE’ V 1. (genus *Tanacetum*) tansy, golden-buttons, dusty-miller / silver-lace, feverfew, pyrethrum, painted daisy / Persian insect-flower, costmary 2. (genus *Soliva*) burr-weed 3. (genus *Tripleurospermum*) mayweed
- RŽTŘ**- ‘ANTHEMIDEAE’ VI 1. (genus *Ismelia*) tricolour chrysanthemum / tricolor daisy / annual chrysanthemum 2. (genus *Rhodanthemum*) Moroccan daisy 3. (Anthemideae other than named genera; numerous genera) other anthemid plant
- RŽTF**- ‘CALENDULEAE’ I 1. (genus *Calendula*) marigold, ruddle 2. (genus *Osteospermum*) daisybush, African daisy, Cape marguerite, Stinking Roger 3. (genus *Dimorphoteca*) Cape marigold / Namaqualand daisy, Cape daisy / rain daisy, rain flower / white bietou
- RŽTČ**- ‘CALENDULEAE’ II 1. (genus *Chrysantemoides*) bitou bush / bietou / tick berry 2. (Calenduleae other than named genera; several genera) other calendulid plant
- RŽTL**- ‘GNAPHALIEAE’ I 1. (genus *Gnaphalium*) cudweed 2. (genus *Gamochaeta*) everlasting, featherweed, cudweed 3. (genus *Antennaria*) catsfoot, pussytoes, everlasting
- RŽTH**- ‘GNAPHALIEAE’ II 1. (genus *Anaphalis*) pearl, pearly everlasting 2. (genus *Craspedia*) billy button / woollyhead 3. (genus *Pycnosorus*) drumstick / billy button
- RŽTHW**- ‘GNAPHALIEAE’ III 1. (genus *Rhodanthe*) sunray, pink paper daisy 2. (genus *Cassinia*) cassinia, dogwood / dolly bush, chinese scrub, cough bush / dead finish, bully bush / killmoke 3. (Gnaphalieae other than named genera; numerous genera) other gnaphaliid plant

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- RZB**- ‘SENECIONEAE’ I 1. (genus *Senecio*) ragwort, groundsel, squaw-weed, senecio, marsh fleabane, butterweed, dolphin necklace / flying dolphins / dolphin plant, wax ivy, Cape ivy / German ivy, string of bananas, string of pearls, old-man-in-the-spring 2. (genus *Arnoglossum*) Indian plantain 3. (genus *Barkleyanthus*) willow ragwort / willow groundsel

- RZBW**- ‘SENECIONEAE’ II 1. (genus *Blennosperma*) stickyseed 2. (genus *Cacalioposis*) silvercrown 3. (genus *Crassocephalum*) ragleaf, thickhead  
 -**RZBY**- ‘SENECIONEAE’ III 1. (genus *Crocidium*) spring gold 2. (genus *Doronicum*) leopard’s bane 3. (genus *Emilia*) tasselflower  
 -**RZBL**- ‘SENECIONEAE’ IV 1. (genus *Erechtites*) fireweed, burnweed 2. (genus *Gynura*) purple passion 3. (genus *Lepidospartum*) broomsage, scalebroom  
 -**RZBR**- ‘SENECIONEAE’ V 1. (genus *Luina*) silverback 2. (genus *Petasites*) butterbur, coltsfoot 3. (genus *Psacalium*) Indian bush  
 -**RZBŘ**- ‘SENECIONEAE’ VI 1. (genus *Roldana*) groundsel 2. (genus *Rugelia*) Rugel’s ragwort / Rugel’s Indian plantain 3. (genus *Sinosenecio*) butterweed  
 -**RZBV**- ‘SENECIONEAE’ VII 1. (genus *Tetradymia*) horsebrush 2. (genus *Tussilago*) coltsfoot 3. (genus *Yermo*) desert yellowhead  
 -**RZBD**- ‘SENECIONEAE’ VIII 1. (genus *Bedfordia*) blanket leaf 2. (genus *Farfugium*) leopard plant / green leopard plant 3. (Senecioneae other than named genera; numerous genera) other senecionid plant

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- MZB**- ‘COREOPSIDEAE’ I 1. (genus *Dahlia*) dahlia 2. (genus *Cosmos*) cosmos 3. (genus *Coreopsis*) calliopsis, tickseed  
 -**MZBW**- ‘COREOPSIDEAE’ II 1. (genus *Bidens*) beggarticks, tickseed sunflower, water-marigold, Spanish needles, bur-marigold, devil’s pitchfork / devil’s bootjack / pitchfork weed, sticktight, Meskel flower, black jack 2. (genus *Thelesperma*) greenthread, Navajo tea, Hopi tea 3. (Coreopsidae other than named genera; numerous genera) other coreopsis plant  
 -**MZBY**- ‘MADIEAE’ I 1. (genus *Madia*) madia, tarweed 2. (genera *Hemizonia*, *Hemizonella*, *Deinandra*, *Centromadia*, *Holcarpha*) tarweed, spikeweed 3. (genus *Blepharizonia*) big tarweed, big tarplant  
 -**MZBL**- ‘MADIEAE’ II 1. (genus *Argyroxiphium*) silversword, greensword 2. (genus *Wilkesia*) iliau 3. (genus *Arnica*) arnica, leopardbane, mountain tobacco  
 -**MZBR**- ‘MADIEAE’ III 1. (genus *Blepharipappus*) rough eyelash / rough eyelashweed 2. (genus *Calycadenia*) western rosinweed 3. (genus *Constancea*) Nevin’s woolly sunflower  
 -**MZBŘ**- ‘MADIEAE’ IV 1. (genus *Eatonella*) white false tickhead 2. (genus *Eriophyllum*) woolly sunflower 3. (genus *Guardiola*) Apache plant  
 -**MZBV**- ‘MADIEAE’ V 1. (genus *Harmonia*) harmonia, serpentine tarweed, nodding madia 2. (genus *Holozonia*) whitecrown 3. (genus *Hulsea*) alpinegold  
 -**MZD**- ‘MADIEAE’ VI 1. (genus *Kyhosia*) kyhosia, Bolander’s madia 2. (genus *Lagophylla*) hareleaf 3. (genus *Lasthenia*) goldfields  
 -**MZDW**- ‘MADIEAE’ VII 1. (genus *Layia*) tidytips 2. (genus *Monolopia*) monolopia, San Joaquin woollythread 3. (genus *Osmadenia*) false rosinweed  
 -**MZDY**- ‘MADIEAE’ VIII 1. (genus *Pseudobahia*) sunburst 2. (genus *Raillardella*) raillardella 3. (genus *Syntrichopappus*) Frémont’s-gold, xerasid  
 -**MZDL**- ‘MADIEAE’ IX 1. (genus *Venegasia*) canyon sunflower 2. (genus *Achyrachaena*) blow-wives 3. (Madieae other than named genera; several genera) other madiid plant  
 -**MZDR**- ‘INULEAE’ I 1. (genus *Inula*) elecampane / horse-heal / elfdock, golden samphire, ploughman’s-spikenard, yellowhead, inula, Irish fleabane, giant fleabane 2. (genus *Caesulia*) pink node flower 3. (genus *Pallenis*) starwort, golden star, rose of Jericho / dinosaur plant  
 -**MZDŘ**- ‘INULEAE’ II 1. (genus *Pechuel-loeschea*) stinkbush 2. (genus *Pulicaria*) false fleabane 3. (Inuleae other than Stems 1 and 2) other inulid plant  
 -**MZDV**- ‘MILLERIEAE’ I 1. (genus *Sigesbeckia*) St. Paul’s wort 2. (genus *Smallanthus*) leafcup, bear’s foot, yacón 3. (genus *Tetragonotheca*) nerveray  
 -**MZG**- ‘MILLERIEAE’ II 1. (genus *Bebbia*) sweetbush 2. (genus *Galinsoga*) galinsoga, gallant soldier / quickweed / potato weed, shaggy soldier / Peruvian daisy 3. (genus *Guizotia*) inga seed, black seed, ramtil, niger seed  
 -**MZGW**- ‘MILLERIEAE’ III 1. (genus *Melampodium*) blackfoot 2. (genus *Tridax*) tridax daisy / coatbuttons 3. (Millerieae other than named genera; several genera) other milleriid plant  
 -**MZGY**- ‘TAGETEAE’ I 1. (genus *Tagetes*) marigold 2. (genus *Adenophyllum*) dogweed 3. (genus *Dyssodia*) fetid marigold  
 -**MZGL**- ‘TAGETEAE’ II 1. (genus *Dysodiopsis*) false dogfennel 2. (genus *Haploesthes*) false broomweed 3. (genus *Jamesianthus*) Alabama warbonnet  
 -**MZGR**- ‘TAGETEAE’ III 1. (genus *Jaumea*) jaumea 2. (genus *Nicolletia*) hole-in-the-sand plant 3. (genus *Pectis*) cinchweed, chinchweed, donkeyweed

- MZGR**- ‘TAGETEAE’ IV 1. (genus *Porophyllum*) poreleaf, pápalo / Bolivian coriander, jarilla 2. (genus *Pseudocappia*) false claddis 3. (genus *Sartwellia*) glowwort
- MZGV**- ‘TAGETEAE’ V 1. (genus *Thymophylla*) pricklyleaf, Texas dogweed, ashy dogweed 2. (Tageteae other than named genera) other tagetid plant
- MŽB**- ‘HELENIEAE’ I 1. (genus *Helenium*) sneezeweed, rosilla, cabazona 2. (genus *Gaillardia*) blanket flower, gaillardia, bandanna daisy, firewheel, perfumeballs 3. (genus *Balduina*) honeycombhead
- MŽBW**- ‘HELENIEAE’ II 1. (genus *Baileya*) desert marigold, laxflower 2. (genus *Hymenoxys*) rubberweed, bitterweed, four-nerve daisy, old-man-of-the-mountain, owl claws, prairie dawn 3. (genus *Marshallia*) Barbara’s buttons
- MŽBY**- ‘HELENIEAE’ III 1. (genus *Psathyrotes*) turtleback, brittlestem, fanleaf, velvet rosette, psathyrotes 2. (genus *Psilostrophe*) paperflower
- MŽBL**- ‘HELENIEAE’ IV 1. (genus *Schkuhria*) false threadleaf, canchalagua, dwarf Mexican marigold 2. (Helenieae other than named genera; several genera) other heleniid plant
- MŽBR**- ‘EUPATORIEAE’ I 1. (genus *Eupatorium*) thoroughwort, dog-fennel, Yankeeweed, false fennel, justiceweed, boneset, hemp-agrimony 2. (genus *Eutrochium*) Joe-Pye weed 3. (genus *Isocarpha*) pearlhead
- MŽBR**- ‘EUPATORIEAE’ II 1. (genus *Liatris*) blazing star, Cahaba torch, gayfeather, colicroot, prairie-pine / button snakeroot, devil’s bite 2. (genus *Carphephorus*) chaffhead, vanillaleaf 3. (genus *Ageratina*) snakeroot, richweed / white sanicle, mistflower, ageratina, Western eupatorium, Shasta eupatorium, creeping cottonwood
- MŽBV**- ‘EUPATORIEAE’ III 1. (genus *Ageratum*) whiteweed, flossflower / blueblossom / blueweed / pussy foot / Mexican paintbrush 2. (genus *Conoclinium*) mistflower, palmleaf thoroughwort 3. (genus *Fleischmannia*) slender-thoroughwort, pink thoroughwort
- MŽD**- ‘EUPATORIEAE’ IV 1. (genus *Brickellia*) brickellbush, Flyr’s nemesis, false boneset 2. (genus *Flyriella*) brickelbush 3. (genus *Asanthus*) Mule Mountain false brickellbush
- MŽDW**- ‘EUPATORIEAE’ V 1. (genus *Trichocoronis*) bugheal 2. (genus *Shinnersia*) Rio Grande bugheal / Mexican oak leaf plant 3. (genus *Carphochaete*) bristlehead
- MŽDY**- ‘EUPATORIEAE’ VI 1. (genus *Stevia*) stevia 2. (genus *Garberia*) garberia, Garber’s scrub start 3. (genus *Hartwrightia*) Florida hartwrightia
- MŽDL**- ‘EUPATORIEAE’ VII 1. (genus *Malperia*) brown turban 2. (genus *Pleurocoronis*) bush arrowleaf 3. (genus *Sclerolepis*) pink bogbutton
- MŽDR**- ‘EUPATORIEAE’ VIII 1. (genus *Carminatia*) plumeweed 2. (Eupatorieae other than named genera; numerous genera) other eupatoriid plant
- MŽDR**- ‘BAHIEAE’ I 1. (genus *Bahia*) bahia 2. (genus *Picradeniopsis*) many-flowere bahia, oppositeleaf bahia 3. (genus *Chamaechaenactis*) fullstem
- MŽDV**- ‘BAHIEAE’ II 1. (genus *Palafoxia*) palafox, Spanish needles 2. (genus *Florestina*) florestina, sticky florestina 3. (genus *Hypenopappus*) woollywhite, oldplainsman, collegeflower, hymenopappus
- MŽG**- ‘BAHIEAE’ III 1. (genus *Hymenothrix*) thimblehead 2. (genus *Peucephyllum*) pygmy cedar / desert fir / desert pine 3. (genus *Platyschkuhria*) basindaisy
- MŽGW**- ‘BAHIEAE’ IV 1. (genus *Bartlettia*) Bartlett daisy 2. (genus *Amauriopsis*) ragleaf bahia, yellow ragweed 3. (Bahieae other than named genera) other bahiid plant
- MŽGY**- ‘PERITYLEAE’ 1. (genus *Perityle*) rock daisy 2. (genus *Pericome*) mountain tall-leaf 3. (Perityleae other than Stems 1 and 2; several genera) other peritylid plant
- MŽGL**- ‘PLUCHEAE’ 1. (genus *Pluchea*) camphorweed, pluchea, cure-for-all, sweetscent / saltmarsh fleabane, arrowweed 2. (genus *Pterocaulon*) blackroot, applebush / fruit-salad plant 3. (Plucheeae other than Stems 1 and 2; several genera) other plucheid plant
- MŽGR**- ‘CHAENACTIDEAE’ 1. (genus *Chaenactis*) dustymaiden, pincushion 2. (genus *Dimeresia*) doublet 3. (genus *Orochaenactis*) California mountain pincushion
- MŽGR**- ‘NEUROLAENEAE & POLYMNIEAE’ 1. (genus *Calea*) bitter-grass / Mexican calea / dream herb 2. (Neurolaeneae other than Stem 1; several genera) other neuroleanid plant 3. (Polymnieae; genus *Polymnia*) leafcup
- MŽGV**- ‘ATHROISMEAE & FEDDEAE’ 1. (genus *Centipeda*) old man weed / scent weed 2. (Athroismeae other than Stem 1; several genera) other athroismid plant 3. (Feddeae; genus *Feddea*) feddea



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-**ŇZV**- 'HELIANTHINAE' I 1. (genus *Helianthus*) sunflower, Jerusalem artichoke / sunchoke / earth-apple 2. (genus *Viguiera*) goldeneye, yellow streamer 3. (genus *Heliomeris*) false goldeneye, showy goldeneye, hairy goldeneye, paria sunflower

-**ŇZVW**- 'HELIANTHINAE' II 1. (genus *Phoebanthus*) false sunflower 2. (genus *Sclerocarpus*) bonebract 3. (genus *Simsia*) bush sunflower

-**ŇZVY**- 'HELIANTHINAE' III 1. (genus *Tithonia*) tree marigold / Mexican tournesol / Mexican sunflower / Japanese sunflower / Nitobe chrysanthemum, red sunflower 2. (genus *Bahiopsis*) San Diego County sunflower / San Diego viguiera / tornleaf goldeneye 3. (Helianthinae other than named genera; several genera) other sunflower-like plant

-**ŇZB**- 'ZINNIINAE' I 1. (genus *Zinnia*) zinnia 2. (genus *Echinacea*) echinacea, coneflower 3. (genus *Heliopsis*) smooth oxeye, mountain oxeye, gold root, pinewoods oxeye, rough oxeye

-**ŇZBW**- 'ZINNIINAE' II 1. (genus *Sanvitalia*) creeping zinnia 2. (Zinniinae other than named genera; several genera) other zinniid plant

-**ŇZBY**- 'ECLIPTINAE' I 1. (genus *Melanthera*) squarestem 2. (genus *Eclipta*) false daisy 3. (genus *Lipochaeta*) nehe

-**ŇZBL**- 'ECLIPTINAE' II 1. (genus *Sphagneticola*) creeping-oxeye 2. (genus *Wedelia*) wedelia, creeping oxeyes 3. (genus *Synedrella*) nodeweed

-**ŇZBR**- 'ECLIPTINAE' III 1. (genus *Sphagneticola*) [creeping-oxeye](#), [Singapore daisy](#) / [trailing daisy](#) / [wedelia](#) 2. (genus *Jefea*) jefea 3. (genus *Calypocarpus*) straggler daisy / horseherb / lawnflower / creeping Cinderella-weed

-**ŇZBŘ**- 'SPILANTHINAE' 1. (genus *Acmella*) paracress / toothache plant / tingflowers / electric daisy / buzz buttons / Sichuan buttons, Spilanthes, spotflower 2. (Spilanthinae other than Stem 1; several genera) other spilanthine plant

-**ŇZBV**- 'AMBROSIINAE' 1. (genus *Ambrosia*) ragweed, bursage, marko, altamisa, Roman wormwood, beach-bur, ambrosia, burrobush, lagoonweed 2. (genus *Parthenium*) feverfew, wild quinine, whitetop weed, guayule 3. (Ambrosiinae other than Stems 1 and 2; several genera) other ambrosiine plant

-**ŇZG**- 'ENCELIINAE' I 1. (genus *Encelia*) brittlebrush, encelia, noddinglead / noddinglead sunray 2. (genus *Enceliopsis*) sunray, Panamint daisy 3. (genus *Geraea*) desert sunflower, desert gold, geraea

-**ŇZGW**- 'ENCELIINAE' II 1. (genus *Flourensia*) tarbush, tarwort 2. (genus *Helianthella*) little sunflower 3. (other Enceliinae genera) other enceliine plant

-**ŇZGY**- 'ENGELMANNIINAE' I 1. (genus *Engelmannia*) Engelmann's daisy / cutleaf daisy 2. (genus *Berlandiera*) greeneyes 3. (genus *Lindheimera*) Texas yellow star / Texas star

-**ŇZGL**- 'ENGELMANNIINAE' II 1. (genus *Silphium*) rosinweed 2. (genus *Wyethia*) mule's ears, black sunflower, California compassplant, wyethia 3. (genus *Balsamorhiza*) balsamroot

-**ŇZGR**- 'ENGELMANNIINAE' III 1. (genus *Chrysogonum*) golden-knee / green-and-gold / goldenstar 2. (genus *Borrichia*) seaside tansy, sea-oxeye 3. (genus *Vigethia*) Mexican green-eyed sunflower

-**ŇZGŘ**- 'VERBESININAE' 1. (genus *Verbesina*) crownbeard, wingstem / yellow ironweed, goldweed / butter daisy / American dogweed, gravelweed, stick weed, frostweed 2. (Verbesininae other than Stem 1; several genera) other verbesinine plant

-**ŇZGV**- 'HELIANTHEAE' 1. (genus *Rudbeckia*) black-eyed-susan 2. (genus *Rojasianthe*) rojasianthe 3. (Heliantheae other than named genera) other helianthid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Campanulids > Asterales > Asteraceae > Cichorioideae > Cichorieae

-**RBZ**- 'LACTUCA SATIVA (LETTUCE CULTIVAR)' I 1. (loose)leaf lettuce 2. romaine/cos lettuce 3. iceberg/crisphead lettuce

-**RBZW**- 'LACTUCA SATIVA (LETTUCE CULTIVAR)' II 1. butter(head)/bibb lettuce 2. red leaf lettuce 3. summercrisp lettuce

- RBZY-** ‘LACTUCINAE’ 1. (genus *Lactuca* other than *L. sativa*) wild lettuce, bitter lettuce, pliant lettuce, blue lettuce prickly lettuce / compassplant / scarole / milk thistle, willow lettuce / least lettuce, mountain lettuce, downy lettuce / hairy lettuce, grassleaf lettuce, woodland lettuce, tail lettuce, sow thistle 2. (genus *Cicerbita*) blue sow thistle 3. (genus *Notoseris*) notoseris
- RBZL-** ‘CICHORUM’ 1. (*C. endivia*) endive plant, escarole 2. (*C. intybus*) common chicory, leaf chicory, radicchio, Belgian endive 3. (*C. pumilum* and several other species) wild endive
- RBZR-** ‘CICHORIINAE’ 1. 2. (genus *Tolpis*) European umbrella milkwort 3. (genus *Arnoseris*) dwarf nipplewort / lamb-succory / lamb’s succory 3. (genera *Phalacroseris*, *Erythroseris*, *Rothmaleria*) mock dandelion, other cichoriine plant
- RBZŘ-** ‘MICROSERIDINAE’ I 1. (genera *Microseris*, *Uropappus*) silverpuffs, microseris, sylvan scorzonella 2. (genus *Agoseris*) false dandelion, mountain dandelion, agoseris 3. (genus *Nothocalais*) false dandelion, false agoseris
- RBZV-** ‘MICROSERIDINAE’ II 1. (genus *Malacothrix*) desert dandelion 2. (genus *Atrichoseris*) tobacco weed / parachute plant / gravel ghost 3. (genus *Munzothamnus*) Blair’s wirelettuce / Blair’s munzothamnus
- RBZM-** ‘MICROSERIDINAE’ III 1. (genus *Stephanomeria*) wirelettuce 2. (genus *Rafinesquia*) plumeseed, California chicory, desert chicory 3. (genus *Glyptopleura*) carveseed / keysia / crustleaf, holy dandelion
- RBZN-** ‘MICROSERIDINAE’ IV 1. (genus *Pleiacanthus*) thorn(y) skeletonweed 2. (genus *Prenanthes*) brightwhite 3. (genus *Krigia*) dwarf dandelion
- RBZŇ-** ‘MICROSERIDINAE’ V 1. (genus *Pinaropappus*) rock lettuce 2. (genus *Pyrrhopappus*) desert-chicory 3. (genus *Shinneroseris*) beaked skeletonweed
- RBZH-** ‘MICROSERIDINAE’ VI 1. (genus *Lygodesmia*) skeletonplant, rushpink 2. (genus *Chaetadelphe*) Wheeler’s skeletonweed 3. (Microseridiinae other than named genera; several genera) other microserid(ine) plant
- RBZZ-** ‘HIERACIINAE’ 1. (genus *Hieracium*) hawkweed, Sicilian sparviere 2. (genus *Pilosella*) fox-and-cubs / orange hawk bit / devil’s paintbrush / grim-the-coller, white hawkweed, yellow hawkweed, king devil, yellow devil 3. (Hieraciinae other than Stem 1; several genera) other hieraciine plant
- RZW-** ‘HYOSERIDINAE’ 1. (genus *Sonchus*) sow thistle, hare thistle, hare lettuce, milk thistle 2. (genus *Reichardia*) brighteyes, false sowthistle 3. (Hyoseridinae other than Stems 1 and 2; genera *Hyoseris*, *Aposeris*, *Launaea*) other hyoserid(ine) plant
- RZY-** ‘CREPIDINAE’ I 1. (genus *Crepis*) hawksbeard 2. (genus *Lapsana*) nipplewort 3. (genus *Askellia*) elegant hawksbeard, dwarf alpine hawksbeard
- RZL-** ‘CREPIDINAE’ II 1. (genus *Teraxum*) dandelion 2. (genus *Ixeris*) creeping lettuce 3. (genus *Youngia*) Japanese hawkweed, Oriental false hawkweed
- RZR-** ‘CREPIDINAE’ III 1. (genus *Nabalus*) white lettuce, rattlesnakeroot 2. (Crepidinae other than named genera; several genera) other crepid(ine) plant
- RZŘ-** ‘HYPOCHAERIDINAE’ I 1. (genus *Hypochaeris*) cat’s ear, flatweed / false dandelion, chikku-chikku 2. (genus *Scorzoneroides*) autumn hawbit 3. (genus *Prenanthes*) rattlesnake root
- RZV-** ‘HYPOCHAERIDINAE’ II 1. (genus *Urospermum*) goldenfleece 2. (genus *Picris*) ox-tongue 3. (genus *Helminthotheca*) bristly ox-tongue
- RZM-** ‘HYPOCHAERIDINAE’ III 1. (genus *Leontodon*) hawkbit 2. (genus *Hedynois*) scaly hawkbit 3. (Hypochaeridinae other than named genera) other hypochaeridine plant
- RZN-** ‘CHONDRILLINAE’ 1. (genus *Chondrilla*) rush skeletonweed, smallflower desert-chicory / Texas false dandelion 2. (genus *Willemetia*) willemetia 3. (genus *Phitosia*) phitosia
- RZŇ-** ‘SCOLYMINAE’ 1. (genus *Scolymus*) golden thistle / oyster thistle 2. (genus *Catananche*) Cupid’s dart 3. (genera *Gundelia*, *Hymenonema*) tumble thistle, other scolymine plant
- RZH-** ‘SCORZONERINAE’ 1. (genus *Tragopogon*) salsify, goatsbeard, oyster plant, jack-go-to-bed-at-noon 2. (genus *Scorzonera*) black salsify / Spanish salsify / black oyster plant / serpent root / viper’s herb, viper’s grass, scorzonera 3. (genus *Geropogon*) slender salsify / pasture goatsbeard
- RZHW-** ‘OTHER SCORZONERINAE & WARIONIINAE’ 1. (Scorzonerinae other than named genera; several genera) oother goatsbeard or salsify-like plant) 2. (Warioniinae; genus *Warionia*) warionia

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Campanulids > Asterales > Asteraceae > Cichorioideae [other than Cichorieae]

**-RMGW-** ‘VERNONIEAE’ I 1. (genus *Vernonia*) ironweed 2. (genus *Tarlmounia*) curtain creeper / vernonia creeper 3. (genus *Stokesia*) stokesia / Stokes’ aster

**-RMGY-** ‘VERNONIEAE’ II 1. (genus *Piptocarpha*) ashdaisy 2. (genus *Piptocoma*) velvetshrub 3. (genus *Gymnanthemum*) bitterleaf tree

**-RMGL-** ‘VERNONIEAE’ III 1. (genus *Centratherum*) lark daisy, Brazilian button 2. (genus *Elephantopus*) elephant’s foot, devil’s grandmother 3. (genus *Pseudelephantopus*) dog’s-tongue

**-RMGR-** ‘VERNONIEAE’ IV 1. (genus *Hesperomannia*) island-aster 2. (Vernonieae other than named genera; numerous genera) other vernoniine plant

**-RMGR-** ‘GORTERIINAE’ 1. (genus *Gorteria*) beetle daisy 2. (genus *Berkheya*) thistle-thorn, yellow thistle, berkheya, Augusta thistle / Hamelin thistle 3. (genus *Gazania*) gazania, treasure flower

**-RMGV-** ‘ARCTOTIDINAE’ 1. (genus *Arctotis*) monarch-of-the-veld, African daisy, arctotis 2. (genus *Arctotheca*) Cape weed / creeping bear’s ear, capeweed / cape dandelion / cape marigold / plain treasureflower, beach daisy / beach pumpkin / sea pumpkin / dune cabbage / coast capeweed 3. (genus *Cymbonotus*) bear’s ears

**-RMGD-** ‘CICHORIOIDEAE’ 1. (Arctotidinae other than previously named genera; several genera) other arctotidine plant 2. (Gorteriinae other than previously named genera; several genera) other gorteriine plant 3. (Platycarpeae, Moquinieae, Liabeae, plus other unplaced cichorioid genera, e.g., *Distephanus*, *Trichospira*, *Heterolepis*, *Haplophyllum*) other cichorioid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Campanulids > Asterales > Asteraceae > Carduoideae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Campanulids > Asterales > Asteraceae > Carduoideae > Cardueae (a.k.a. Cynareae)

**-FSPW-** ‘CYNARA (ARTICHOKE)’ I 1. (*C. scolymus*) globe/French/green artichoke 2. (*C. cardunculus*) cardoon 3. (*C. cornigera*) white artichoke

**-FSPY-** ‘CYNARA (ARTICHOKE)’ II 1. (*C. humilis*) lesser wild artichoke 2. (*Cynara* species other than already named) various wild artichoke species

**-FSPL-** ‘CARDUINAE’ I 1. (genus *Carduus*) plumeless thistle, curled thistle, weltd thistle, musk thistle, sheep thistle / shore thistle / slender thistle, Italian thistle 2. (genus *Cirsium*) [numerous types of] thistle 3. (genus *Onopordum*) cotton thistle, Scotch thistle, woolly thistle

**-FSPR-** ‘CARDUINAE’ II 1. (genus *Arctium*) burdock, beggar’s buttons / thorny burr / happy major, louse-bur / button-bur / cuckoo-button / wild rhubarb 2. (genus *Galactites*) milk thistle 3. (genus *Notobasis*) Syrian thistle

**-FSPR-** ‘CARDUINAE’ III 1. (genus *Saussurea*) saw-wort, snow lotus 2. (genus *Silybum*) silver milk thistle / elephant thistle / ivory thistle, blessed milk thistle / variegated thistle 3. (Carduinae other than named genera; numerous genera) other carduine thistle

**-FSPF-** ‘CARLININAE’ I 1. (genus *Carlina*) carline thistle 2. (genus *Atractylis*) atractylis 3. (Carlininae other than Stems 1 and 2; several genera) other carlinine thistle

**-FSPT-** ‘CENTAUREINAE’ I 1. (genus *Centaurea*) basketflower, knapweed, centaurea, centaury, starthistle, loggerhead, connrnflower / bachelor’s button / boutonniere flower / hartsicle / bluebottle, yellow cockspur 2. (genus *Amberboa*) sweetsultan 3. (genus *Rhaponticum*) maral root, Russian knapweed / creeping knapweed / hardheads / bluweed, Austral cornflower / native thistle

**-FSPC-** ‘CENTAUREINAE’ II 1. (genus *Carthamus*; *C. tinctorius*) safflower 2. (genus *Carthamus*; species other than *C. tinctorius*) distaff thistle, saffron thistle / downy safflower, glaucous starthistle 3. (genus *Cheirolophus*) Maltese rock-centaury, cheirolophus

**-FSPL-** ‘CENTAUREINAE’ III 1. (genus *Crupina*) crupina, bearded-creeper / false saw-wort / starry scabious 2. (genus *Psephellus*) bachelor’s button 3. (genus *Serratula*) plumeless saw-wort

**-FSPH-** ‘CENTAUREINAE’ IV 1. (genus *Mantisalca*) dagger-flower 2. (Centaureinae other than named genera; numerous genera) other centaureine thistle plant

**-FSPHW-** ‘OTHER CARDUEAE’ 1. (Echinopsinae; genus *Echinops*) globe-thistle 2. (Cardopatiinae; genera *Cardopatum*, *Cousiniopsis*) cardopatiine plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Campanulids > Asterales > Asteraceae > Carduoideae [other than Cardueae]

-**ṬBV**- ‘TARCHONANTHEAE & OTHER CARDUOIDEAE’ 1. (genus *Tarchonanthus*) camphor bush 2. (genus *Brachylaena*) silver oak, white alder 3. (Dicomeae, Oldenburgieae; several genera) other carduoid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Campanulids > Asterales > Asteraceae > Mutisioideae & remaining Asteraceae

-**ṬBW**- ‘MUTISIOIDEAE’ I 1. (genus *Leibnitzia*) sunbonnet 2. (genus *Chaptalia*) silverpuff, pineland daisy, white sunbonnet 3. (genus *Gerbera*) African daisy, Barberton daisy / Transvaal daisy / gerbera daisy, Hilton daisy

-**ṬBY**- ‘MUTISIOIDEAE’ I 1. (genus *Adenocaulon*) trailplant, pathfinder 2. (genus *Acourtia*) desertpeony, sacapellote, desert holly, brownfoot, desert paeonia 3. (genus *Leucheria*) vanilla daisy

-**ṬBL**- ‘MUTISIOIDEAE’ III 1. (genus *Trixis*) threefold 2. (genus *Perezia*) perezia 3. (Mutisioideae other than named genera; numerous genera) other mutisioid plant

-**ṬBR**- ‘GOCHNATIEAE & HECASTOCLEIDOIDEAE’ 1. (genus *Gochnatia*) shrubby bullseye 2. (Gochnatieae other than Stem 1; several genera) other gochnatiid plant 3. (Hecastocleidoideae; genus *Hecastocleis*) prickleleaf

-**ṬBŘ**- ‘CORYMBIOIDEAE & OTHER ASTERACEAE’ 1. (Corymbioideae; genus *Corymbium*) plampers 2. (Famatinanthoideae, Stifftieae, Barnadesieae, Wunderlichioideae, Pertyeae, Gymnarrhenioideae; several genera) other mutisioid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Campanulids > Asterales > Campanulaceae

-**LCPW**- ‘CAMPANULOIDEAE’ I 1. (genus *Campanula*) bellflower 2. (genus *Canarina*) Canary Island bellflower 3. (genus *Adenophora*) ladybell

-**LCPY**- ‘CAMPANULOIDEAE’ II 1. (genus *Asyneuma*) harebell 2. (genus *Edraianthus*) rockbell, dwarf harebell 3. (genus *Githopsis*) bluecup

-**LCPL**- ‘CAMPANULOIDEAE’ III 1. (genus *Heterocodon*) western pearlflower / rareflower heterocodon 2. (genus *Jasione*) sheep’s-bit / blue bonnet / blue button / blue daisy / iron flower 3. (genus *Triodanis*) Venus’ looking-glass

-**LCPR**- ‘CAMPANULOIDEAE’ IV 1. (genus *Legousia*) looking glass 2. (genus *Phyteuma*) rampion 3. (genus *Physoplexis*) tufted horned rampion

-**LCPR**- ‘CAMPANULOIDEAE’ V 1. (genus *Trachelium*) throatwort 2. (genus *Wahlenbergia*) small bellflower, flat bluebell, Cape bluebell, tufted bluebell, Roxburgh bellflower / dwarf cabbage tree, rock bluebell, fairy bluebell, river bluebell, Australian bluebell, royal bluebell, annual bluebell, austral bluebell, granite bluebell 3. (genus *Hanabusaya*) diamond bluebell

-**LCPF**- ‘CAMPANULOIDEAE’ VI 1. (genus *Codonopsis*) lance asiabell, poor man’s ginseng 2. (Campanuloideae other than named genera; numerous genera) other campanuloid plant

-**LCPT**- ‘LOBELIOIDEAE’ I 1. (genus *Lobelia*) lobelia, cardinal flower, Indian tobacco, wild tobacco, pratia 2. (genera *Brighamia*, *Clermontia*, *Cyanea*, *Delissea*, *Trematolobelia*) Hawaiian lobelioid 3. (genus *Downingia*) calicoflower

-**LCPC**- ‘LOBELIOIDEAE’ II 1. (genus *Hippobroma*) Star of Bethlehem, madamfate 2. (genus *Hwellia*) water howellia 3. (genus *Isotoma*) isotome, blue star creeper, Woodbridge poison

-**LCPL**- ‘LOBELIOIDEAE’ III 1. (genus *Legenere*) false Venus’ looking-glass 2. (genus *Porterella*) fleshy porterella 3. (genus *Pratia*) poison pratia, white root

-**LCPH**- ‘LOBELIOIDEAE’ IV 1. (genus *Trimeris*) St. Helena lobelia / milkwood 2. (Lobelioideae other than named genera; numerous genera) other lobelioid plant

-**LCPHW**- ‘CYPHIOIDEAE’ 1. (genus *Nemacladus*) threadplant, nemacladus 2. (Cyphioideae other than Stem 1; several genera) other cyphiod plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Campanulids > Asterales > families other than Campanulaceae

-**LČPW**- ‘ALSEUOSMIACEAE’ 1. (genus *Wittsteinia*) baw baw berry 2. (Alseuosmiaceae other than Stem 1; several genera) other alseuosmiacean plant

- LČPY**- ‘ARGOPHYLLACEAE’ 1. (genus *Argophyllum*) silver leaf 2. (genus *Corokia*) corokia
- LČPL**- ‘CALYCERACEAE’ 1. (genus *Nastanthus*) false-plantain, nastanthus 2. (Calyceraceae other than Stem 1; several genera) other calyceracean plant
- LČPR**- ‘GOODENIACEAE’ I 1. (genus *Goodenia*) goodenia, native primrose 2. (genus *Brunonia*) blue pincushion / native cornflower 3. (genus *Dampiera*) dampiera
- LČPŘ**- ‘GOODENIACEAE’ II 1. (genus *Lechenaultia*) lechenaultia 2. (genus *Scaevola*) scaevola, fan-flower, half-flower, naupaka 3. (genus *Selliera*) swampweed / bonking grass
- LČPF**- ‘GOODENIACEAE’ III 1. (genus *Velleia*) pee-the-bed, velleia 2. (Goodeniaceae other than named genera; several genera) other goodeniacean plant
- LČPT**- ‘MENYANTHACEAE’ I 1. (genus *Menyanthes*) buckbean / bogbean 2. (genus *Liparophyllum*) marshwort 3. (genus *Nymphoides*) floatingheart, banana lily, water snowflake, fringed water lily, marshwort
- LČPČ**- ‘MENYANTHACEAE’ II 1. (genus *Nephrophyllidium*) deer cabbage 2. (Menyanthaceae other than named genera) other menyanthacean plant
- LČPL**- ‘ROUSSEACEAE’ 1. (genus *Cuttsia*) silver-leaved cuttsia / native elderberry / honey bush 2. (genus *Carpodetus*) marbleleaf / bucket-of-water -tree 3. (Rousseaceae other than Stems 1 and 2; several genera) other rousseacean plant
- LČPH**- ‘STYLIDIACEAE’ 1. (genus *Stylidium*) triggerplant 2. (genus *Forstera*) forstera 3. (genus *Levenhookia*) stylewort
- LČPHW**- ‘OTHER STYLIDIACEAE & OTHER ASTERALES FAMILIES’ 1. (genera *Phyllachne*, *Donatia*) cushionplant 2. Stylidiaceae other than named genera) other stylidiacean plant 3. (Pentaphragmataceae, Phellinaceae; several genera) other asterales plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Campanulids remaining families

- RŽŇW**- ‘OTHER CAMPANULID’ 1. (Paracryphiaceae, three genera) possumwood tree, paracryphiaceous plant 2. (Bruniaceae; several genera) brunia, button bush, redlegs 3. (Columelliaceae; genera *Collumelia*, *Desfontainia*) columelliaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Lamiales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Lamiales > Lamiaceae

- LMZ**- ‘MENTHA’ I 1. (*Mentha spicata*) spearmint / common mint / garden mint / lamb mint 2. (*M. requienii*) Corsican mint 3. (*M. longifolia*) horse mint
- LMZW**- ‘MENTHA’ II 1. (*M. aquatica*) water mint / marsh mint 2. (*M. arvensis*) corn mint / field mint / banana mint 3. (*M. canadensis*) Canada mint, American wild mint
- LMZY**- ‘MENTHA’ III 1. (*M. laxiflora*) forest mint 2. (*M. satureioides*) creeping mint / native pennyroyal 3. (*M. suaveolens*) apple mint, pineapple mint
- LMZL**- ‘MENTHA’ IV (hybrids) 1. (*M. piperita*) peppermint 2. (*M. gracilis*) gingermint / redmint / Scotchmint / Scotch spearmint 3. (*M. villosa*) Cuban mint / large apple mint / foxtail mint / hairy mint / woolly mint / mojito mint
- LMZR**- ‘MENTHA’ V 1. (*M. laxiflora*) forest mint 2. (*M. satureioides*) creeping mint / native pennyroyal 3. (*M. suaveolens*) apple mint
- LMSŘ**- ‘MENTHA’ VI 1. (*M. pulegium*) pennyroyal / pennyrile / squaw mint / mosquito lant / pudding grass 2. (*M. australis*, *M. diemenica*) Australian mint / river mint / native mint / native peppermint, slender mint 3. (other *Mentha* species and hybrids) other mint plant
- LMZG**- ‘MENTHEAE’ I 1. (genus *Monarda*) beebalm, bergamot, Oswego tea, fragrantbalm, horse-mint, monarda 2. (genus *Monardella*) wildmint, coyote mint, monardella, mountain pennyroyal 3. (genus *Pycnanthemum*) mountainmint, koellia
- LMZGW**- ‘MENTHEAE’ II 1. (genus *Poliomintha*) rosemary mint 2. (genus *Pogogyne*) mesa mint 3. (genus *Piloblephis*) wild pennyroyal
- LMZGY**- ‘MENTHEAE’ III 1. (genus *Stachydeoma*) mock pennyroyal 2. (genus *Hedeoma*) false pennyroyal 3. (genus *Dicerandra*) scrub mint, coastal plain mint, rose balm, Titusville mint, Radford’s balm

- LMZGL-** ‘MENTHEAE’ IV 1. (genus *Conradina*) false rosemary, short-leaf rosemary 2. (genus *Blephilia*) pagoda plant, wood mint 3. (genus *Acanthomintha*) thornmint
- LMZGR-** ‘MENTHEAE’ V 1. (genus *Hyssopus*) hyssop 2. (genus *Agastache*) giant hyssop, blue giant hyssop, anise hyssop, hummingbird mint 3. (genus *Dracocephalum*) dragonhead, dragonhead mint
- LMZGR-** ‘MENTHEAE’ VI 1. (genus *Nepeta*) catnip, catmint 2. (genus *Cedronella*) Canary balm / Balm of Gilead 3. (genus *Lallemantia*) dragon’s head
- LMZGV-** ‘MENTHEAE’ VII 1. (genus *Calamintha*) calamint 2. (genus *Prunella*) self-heal, heal-all, allheal 3. (genus *Horminium*) dragonmouth, Pyrenean dead-nettle
- LMZGD-** ‘MENTHEAE’ VIII 1. (genus *Melissa*) lemon balm / common balm / balm mint 2. (genus *Lepechinia*) pitcher sage, woodbalm 3. (genus *Rhododon*) sandmint
- LMZGM-** ‘MENTHEAE’ IX 1. (genus *Lycopus*) water-horehound, gypsywort, bugleweed 2. (genus *Acinos*) rock thyme, basil thyme / spring savory 3. (Mentheae other than named genera) other menthid plant
- LMZB-** ‘THYMUS’ I 1. (*Thymus vulgaris*) [common] thyme 2. (*T. pulegiodes*) lemon thyme / broad-leaved thyme 3. (*T. citriodorus*) citrus thyme
- LMZBW-** ‘THYMUS’ II 1. (*T. herba-barona*) caraway thyme 2. (*T. serpyllum*) wild thyme / creeping thyme / elfin thyme / Breckland thyme 3. (*T. praecox*) mother of thyme
- LMZBY-** ‘THYMUS’ III 1. (*T. pseudolanuginosus*) woolly thyme 2. (*T. capitatus*) conehead thyme / Persian-hyssop / Spanish oregano 3. (other *Thymus* species) other thyme plant
- LMZBL-** ‘ORIGANUM’ 1. (*Origanum vulgare*) oregano plant 2. (*O. majorana*) marjoram plant 3. (other *Origanum* species) other oregano or marjoram plant
- LMZBR-** ‘SATUREJA’ 1. (*Satureja hortensis*) summer savory 2. (*S. montana*) winter savory / mountain savory 3. (other *Satureja* species) other savory plant
- LMZBR-** ‘SALVIA’ 1. (*Salvia officinalis*) sage 2. (*S. rosmarinus*) rosemary 3. (other *Salvia* species) other sage plant
- LMZD-** ‘LAMIACEAE’ I 1. (genus *Lamia*) dead-nettles 2. (genus *Sideritis*) ironwort / mountain tea / shepherd’s tea 3. (genus *Phlomis*) lampwick plant / Jerusalem sage
- LMZDW-** ‘LAMIACEAE’ II 1. (genus *Holmskioldia*) Chinese hat plant / cup-and-saucer plant / mandarin’s hat 2. (genus *Scutellaria*) skullcaps
- LMZDY-** ‘LAMIACEAE’ III 1. (genus *Lavandula*) lavender 2. (genus *Hyptis*) bushmint 3. (genus *Plectranthus*) spurflower, lobster bush / fly bush / mosquito bush, cockspur, country potato / Chinese potato, coleus, Swedish ivy / Swedish begonia, Livingstone potato, Ethiopian potato
- LMZDL-** ‘LAMIACEAE’ IV 1. (genus *Ajuga*) bugleweed, bugle, carpet bugle, ground-pine, carpetweed, St. Lawrence plant 2. (genus *Teucrium*) germander 3. (genus *Clerodendrum*) glorybower, bagflower, bleeding-heart
- LMZDR-** ‘LAMIACEAE’ V 1. (genus *Tectona*) teak 2. (genus *Callicarpa*) beautyberry 3. (genus *Congea*) shower orchid, woolly congee
- LMZDR-** ‘LAMIACEAE’ VI 1. (genus *Vitex*) chaste tree 2. (genus *Petitia*) bastard stopper 3. (genus *Premna*) firestick tree, fragrant premna
- LMZDV-** ‘LAMIACEAE’ VII 1. (genus *Prostanthera*) mintbush 2. (genus *Westringia*) westringia, white button bush, coastal rosemary 3. (Lamiaceae other than named genera; numerous genera) other lamiaceous plant

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Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Lamiales > Acanthaceae > Acanthoideae

**-LZFW-** ‘ACANTHOIDEAE’ I 1. (genus *Acanthus*) acanthus, bear’s breech, sea holly / holly mangrove 2. (genus *Aphelandra*) aphelandra, zebra plant 3. (genus *Andrographis*) creat / green cireta / king-of-bitters, false waterwillow

**-LZFY-** ‘ACANTHOIDEAE’ II 1. (genus *Barleria*) baleria, snake bush, bush violet, porcupine flower 2. (genus *Asystasia*) Chinese violet / coromandel / creeping foxglove, asystasia 3. (genus *Carlowrightia*) wrightwort

- LZFL**- ‘ACANTHOIDEAE’ III 1. (genus *Odontonema*) toothedthread 2. (genus *Dyschoriste*) snakeherb 3. (genus *Hygrophila*) swampweed, temple plant / starhorn / giant hygro, glush weed, water wisteria, dwarf hygro, Indian waterweed
- LZFR**- ‘ACANTHOIDEAE’ IV 1. (genus *Petalidium*) petal-bush 2. (genus *Ruellia*) ruellia, wild petunia 3. (Acanthoidiae other than named genera; numerous genera) other acanthoid plant
- LZFR**- ‘ACANTHACEAE’ 1. (Avicennioideae; genus *Avicennia*) api api, black mangrove, grey mangrove / white mangrove, Indian mangrove 2. (Thunbergioideae, Nelsonioideae; several genera) other acanthaceous plant

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- LZM**- ‘OLEA’ 1. (*Olea europaea*) olive tree 2. (*O. capensis*) ironwood tree 3. (other *Olea* species) other oleid tree
- LZMW**- ‘OLEACEAE’ I 1. (genus *Osmanthus*) osmanthus, sweet olive / tea olive / fragrant olive, holly olive, false holly 2. (genus *Phillyrea*) mock privet, green olive tree 3. (genus *Nestegis*) maire
- LZMY**- ‘OLEACEAE’ II 1. (genus *Chionanthus*) fringetree 2. (genus *Forsythia*) forsythia, Easter tree, Korean goldenbell tree 3. (genus *Abeliophyllum*) white forsythia, Korean abelialeaf
- LZML**- ‘OLEACEAE’ III 1. (genus *Jasminum*) jasmine 2. (genus *Menodora*) menodora, broom twinberry 3. (genus *Cartrema*) American olive / wild olive / devilwood
- LZMR**- ‘OLEACEAE’ IV 1. (genus *Ligustrum*) privet 2. (genus *Forestiera*) swampprivet, stretchberry / desert olive/ tanglewood / devil’s elbow / spring herald / spring goldenglow / New Mexico privet / Texas forsythia, southern privet
- LZMR**- ‘OLEACEAE’ III 1. (genus *Syringa*) lilac 2. (genus *Fraxinus*) ash tree 3. (Oleaceae other than named genera) other oleaceous tree

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- ŘŽB**- ‘LENTIBULARIACEAE’ 1. (genus *Genlislea*) corkscrew plant 2. (genus *Pinguicula*) butterwort 3. (genus *Utricularia*) bladderwort
- ŘŽBW**- ‘LINDERNIACEAE’ 1. (genus *Lindernia*) false pimpernel, moist bank pimpernel 2. (genus *Torenia*) wishbone flower, bluewing, ola’a beauty 3. (Linderniaceae other than Stems 1 and 2; several genera) other linderniaceae flower plant
- ŘŽBY**- ‘MARTYNIACEAE’ 1. (genus *Martynia*) cat’s claw / tiger’s claw 2. (genus *Proboscidea*) unicorn-plant, devil’s horn / devil’s claw, ram’s horn, doubleclaw 3. (Martyniaceae other than Stems 1 and 2; several genera) other martyniaceae plant, other unicorn plant
- ŘŽBL**- ‘PEDALIACEAE’ 1. (genus *Sesamum*) sesame, benniseed 2. (genus *Harpagophytum*) devil’s claw / grapple plant / wood spider 3. (Pedaliaceae other than Stems 1 and 2; several genera) other pedaliaceous plant
- ŘŽBR**- ‘PHRYMACEAE’ 1. (genus *Phryma*) lopseed 2. (genus *Glossostigma*) mudmat 3. (other Phymaceae; genera *Diplacus*, *Eythranthe*, *Mimulus*, *Thrydia*, five others) monkey-flower, musk flower, blood-drop-emlet
- ŘŽBR**- ‘STILBACEAE’ 1. (genus *Nuxia*) forest elder / wild elder / forest nuxia 2. (genus *Bowkeria*) shell-flower 3. (Stilbaceae other than Stems 1 and 2; several genera) other stilbaceous plant
- ŘŽBV**- ‘VERBENACEAE’ I 1. (genus *Verbena*) verbena / vervain 2. (genus *Phyla*) fogfruit / frogfruit 3. (genus *Petrea*) sandpaper vine / purple wreath / queen’s wreath
- ŘŽBD**- ‘VERBENACEAE’ II 1. (genus *Citharexylum*) fiddlewood 2. (genus *Aloysia*) beebrush, whitebrush / whitebush, lemon verbena, almond verbena, mintbush lippia 3. (genus *Duranta*) golden dewdrop / pigeon berry / skyflower, espino
- ŘŽBZ**- ‘VERBENACEAE’ III 1. (genus *Lantana*) lantana, shrubverbena, tickberry, buttonsage, calico bush 2. (genus *Glandularia*) mock vervain, mock verbena 3. (genus *Stachytarpheta*) porterweed, velvetberry, rat tail, snakeweed, bastard vervain / Brazilian tea

- ŘŽBŽ**- ‘VERBENACEAE’ IV 1. (genus *Lippia*) lippia, Mexican oregano / scented matgrass, licorice verbena, koseret 2. (genus *Nashia*) Bahamas berry / pineapple verbena / Moujean tea 3. (Verbenaceae other than named genera; numerous genera) other verbenaceous plant
- ŘŽF**- ‘BIGNONIACEAE’ I 1. (genus *Bignonia*) crossvine 2. (genus *Adenoclymma*) garlic vine 3. (genus *Fridericia*) cricket-vine, chica
- ŘŽFW**- ‘BIGNONIACEAE’ II 1. (genus *Jacaranda*) jacaranda tree, Brazilian caroba-tree, fern tree / black poui 2. (genus *Eccremocarpus*) Chilean glory-flower / Chilean glory creeper 3. (genus *Saritaea*) glowvine
- ŘŽFY**- ‘BIGNONIACEAE’ III 1. (genus *Campsis*) trumpet creeper / trumpet vine 2. (genus *Deplanchea*) golden bouquet tree / wallaby wireless tree / yellow pagoda flower tree 3. (genus *Incarvillea*) Chinese trumpet flower
- ŘŽFL**- ‘BIGNONIACEAE’ IV 1. (genus *Pandorea*) wonga vine, bower of beauty, Pandora’s vine, boat vine 2. (genus *Tecoma*) trumpetbush, Cape honeysuckle 3. (genus *Tecomanthe*) pink trumpet vine
- ŘŽFR**- ‘BIGNONIACEAE’ V 1. (genus *Millingtonia*) tree jasmine / Indian cork tree 2. (genus *Oroxylum*) midnight horror / broken bones / tree of Damocles / Indian caper / Indian trumpet flower 3. (genus *Catalpa*) catalpa, catawba
- ŘŽFR**- ‘BIGNONIACEAE’ VI 1. (genus *Chilopsis*) desert-willow 2. (genus *Tabebuia*) roble, pink manjack, trumpet tree, pink poui, white ipê 3. (genus *Handroanthus*) epay / ipe / poui
- ŘŽVL**- ‘BIGNONIACEAE’ VII 1. (genus *Spathodea*) African tulip tree / fountain tree / Nandi flame 2. (genus *Kigelia*) sausage tree / cucumber tree 3. (genus *Pajanelia*) tender wild jack / pajanelia
- ŘŽVR**- ‘BIGNONIACEAE’ VIII 1. (genus *Pithecoctenium*) monkey’s comb 2. (Bignoniaceae other than named genera; numerous genera) other trumpet creeper/vine/bush/tree
- ŘŽG**- ‘GESNERIACEAE’ I 1. (genus *Fieldia*) fieldia 2. (genus *Sarmienta*) Chilean pitcher flower 3. (genus *Negria*) pumpkin tree
- ŘŽGW**- ‘GESNERIACEAE’ II 1. (genus *Achimenes*) magic flowers, widow’s tears, Cupid’s bower, hot water plant 2. (genus *Episcia*) flame violet 3. (genus *Kohleria*) kohleria, tree gloxinia
- ŘŽGY**- ‘GESNERIACEAE’ III 1. (genus *Haberlea*) Orpheus flower, resurrection plant 2. (Gesneriaceae other than named genera; numerous genera) other gesnerioid or cyrtandroid plant
- ŘŽGL**- ‘OROBANCHACEAE’ I 1. (genus *Orobancha*) boomrape 2. (genus *Castilleja*) Indian paintbrush, prairie-fire 3. (genus *Cistanche*) desert-boomrape
- ŘŽGR**- ‘OROBANCHACEAE’ II 1. (genus *Conopholis*) cancer-root, squawroot 2. (genus *Agalinis*) false foxglove 3. (genus *Aureolaria*) yellow false foxglove, oak-leach, fernleaf false foxglove
- ŘŽGR**- ‘OROBANCHACEAE’ III 1. (genus *Orthocarpus*) owl’s-clover 2. (genus *Triphysaria*) owl’s-clover, johnny-tuck / butter-and-eggs 3. (genus *Striga*) witchweed
- ŘŽGV**- ‘OROBANCHACEAE’ IV 1. (genus *Melampyrum*) cow wheat 2. (genus *Lathraea*) toothwort 3. (genus *Rhinanthus*) rattle
- ŘŽGD**- ‘OROBANCHACEAE’ V 1. (genus *Bartsia*) bartsia, velvetbells 2. (genus *Euphrasia*) eyebright 3. (genus *Parentucellia*) glandweed
- ŘŽGZ**- ‘OROBANCHACEAE’ VI 1. (genus *Boschniakia*) groundcone 2. (genus *Cordylanthus*) bird’s beak 3. (genus *Epifagus*) beech drops
- ŘŽGŽ**- ‘OROBANCHACEAE’ VII 1. (genus *Schwalbea*) American chaffseed 2. (Orobanchaceae other than named genera; numerous genera) other orobanchaceous plant
- ŘŽV**- ‘ANTIRRHINEAE’ I 1. (genera *Antirrhinum*, *Misopates*, *Mohavea*, *Sairocarpus*) dragon flower, snapdragon 2. (genus *Asarina*) trailing snapdragon 3. (genus *Pseudorontium*) dog’s-mouth, Deep Canyon snapdragon
- ŘŽVW**- ‘ANTIRRHINEAE’ II 1. (genus *Linaria*) Eurasian toadflax 2. (genus *Nuttallanthus*) Canada toadflax, Texas toadflax, Apalachicola toadflax 3. (genus *Cymbalaria*) ivy-leaved toadflax / coliseum ivy / mother of thousands / wandering sailor



- ŘŽVY**- ‘ANTIRRHINEAE’ III 1. (genus *Kickxia*) cancerwort, fluellin 2. (genus *Maurandya*) angels trumpet / Mexican viper, climbing snapdragon / roving sailor 3. (Antirrhinines other than named genera) other antirrhine snapdragon or toadflax-like plant
- ŘŽM**- ‘CHELONEAE’ I 1. (genus *Chelone*) turtlehead 2. (genus *Collinsia*) blue eyed Mary, Chinese houses 3. (genus *Keckiella*) keckiella, beardtongue, penstemon
- ŘŽMW**- ‘CHELONEAE’ II 1. (genus *Penstemon*) beardtongue 2. (genus *Nothocelone*) woodland beardtongue 3. (Cheloneae other than named genera; several genera) other cheloneid plant
- ŘŽMY**- ‘GRATIOLEAE’ I 1. (genera *Gratiola*, *Sophronanthe*) hedge-hyssops 2. (genus *Bacopa*) waterhyssop 3. (genus *Capraria*) goatweed, Tamaulipan tea
- ŘŽML**- ‘GRATIOLEAE’ II 1. (genus *Leucospora*) cliff conobea / cut-leaf conobea / much-cleft conobea / narrow-leaved paleseed / Obi-Wan conobea 2. (genus *Limnophila*) marshweed 3. (genus *Mecardonia*) axilflower
- ŘŽMR**- ‘GRATIOLEAE’ III 1. (genus *Scoparia*) licorice weed, sweet broom, scoparia-weed 2. (genus *Stemodia*) twintip, stemodia, bluerod, pagurda 3. (Gratioleae other than named genera) other gratiolid plant
- ŘŽMŘ**- ‘VERONICEAE’ I 1. (genus *Veronica*) speedwell, germander speedwell, bird’s eye, gypsyweed, brooklime 2. (genus *Veronicastrum*) Culver’s-root / Culver’s physic / Bowman’s root / black root, veronicastrum 3. (genus *Hebe*) hebe, New Zealand lilac, bushy veronica, mountain-box, koromiko, showy-speedwell
- ŘŽX**- ‘VERONICEAE’ II 1. (genus *Wulfenia*) wulfenia 2. (Veroniceae other than named genera) other veronicid plant
- ŘŽXW**- ‘PLANTAGINACEAE’ I 1. (genus *Plantago*) plantain, fleawort 2. (genus *Digitalis*) foxglove 3. (genus *Erinus*) fairy foxglove / alpine balsam / starflower / liver balsam
- ŘŽXL**- ‘PLANTAGINACEAE’ II 1. (genus *Callitriche*) water-starwort 2. (genus *Hippuris*) mare’s tail 3. (genus *Globularia*) globe daisy, globularia, ball flower
- ŘŽXR**- ‘PLANTAGINACEAE’ III 1. (genus *Russelia*) firecracker plant, coralblow, russelia, fountainbush / coral plant 2. (Plantaginaceae other than named genera; numerous genera) other plantaginaceous plant
- ŘŽČ**- ‘SCROPHULARIACEAE’ I 1. (genus *Scrophularia*) figwort 2. (genus *Verbascum*) mullein 3. (genus *Buddleja*) butterfly bush
- ŘŽČW**- ‘SCROPHULARIACEAE’ II 1. (genus *Limosella*) mudwort 2. (genus *Diascia*) twinspur 3. (genus *Leucophyllum*) barometer bush, Texas ranger / silverleaf
- ŘŽJ**- ‘SCROPHULARIACEAE’ III 1. (genus *Myoporum*) boobialla, bastard ironwood / popwood, native myrtle, sugarwood, myoporum 2. (genus *Eremophila*) emu bush, turkey bush, poverty bush 3. (genus *Bontia*) wild olive, white alling
- ŘŽJW**- ‘SCROPHULARIACEAE’ IV 1. (genus *Phygелиus*) Cape fuchsia / Cape figwort 2. (Scrophulariaceae other than named genera; numerous genera) other scrophulariaceous plant, other figwort-like plant
- ŘŽŇ**- ‘LAMIALES’ I 1. (Byblidaceae; genus *Byblis*) rainbow plant 2. (Calceolariaceae; three genera) lady’s purse / slipper flower / pocketbook flower / slipperwort 3. (Mazaceae; two genera) mazus, swamp musk, lancea
- ŘŽŇW**- ‘LAMIALES’ II 1. (Paulowniaceae; genus *Paulownia*) dragon tree, empress tree, princess tree, foxglove-tree 2. (Tetrachondraceae; genera *Tetrachondra*, *Polypremum*) juniperleaf / rustweed 3. (Carlemanniaceae, Plocospermataceae, Schlegeliaceae, Thomandersaceae; several genera) other lamiales plant

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Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Gentianales > Rubiaceae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Gentianales > Rubiaceae > Rubioideae

-**ŇČB**- ‘RUBIEAE’ I 1. (genus *Rubia*) madder 2. (genus *Kelloggia*) kelloggia 3. (genus *Gallium*) bedstraw

-**ŇČBW**- ‘RUBIEAE’ II 1. (genus *Crucianella*) crosswort 2. (genus *Asperula*) woodruff 3. (Rubieae other than named genera; several genera) other rubiid plant

-**ŇČBY**- ‘PSYCHOTRIEAE’ (genus *Psychotria*) psychotria, wild coffee 2. (genus *Myrmecodia*) ant-house plant 3. (Psychotrieae other than Stems 1 and 2) other psychotriid plant

-**ŇČBL**- ‘SPERMACOCEAE’ I 1. (genus *Spermacoce*) false buttonweed 2. (genus *Diodella*) poorjoe / rough buttonweed 3. (genus *Diodia*) Virginia buttonweed

- NÇBR**- ‘SPERMACEAE’ I 1. (genus *Ernodea*) beech creeper / cougbush 2. (genus *Hedyotis*) starviolet 3. (genus *Houstonia*) bluet
- NÇBŘ**- ‘SPERMACEAE’ I 1. (genus *Mitracarpus*) girdlepod 2. (genus *Richardia*) Mexican-clover 3. (Spermacoeae other than named genera; numerous genera) other spermacoeous plant
- NÇBV**- ‘ANTHOSPERMEAE’ 1. (genus *Opercularia*) stinkweed, dogweed 2. (genus *Nertera*) coral bead plant / coral moss / English baby tears 3. (Anthospermeae other than Stems 1 and 2; several genera) other anthosperm
- NÇBD**- ‘RUBIOIDEAE’ 1. (Mitchelleae; genus *Mitchella*) partridge berry 2. (Paederieae; several genera) sewer vine, snowrose, tree of a thousand stars, Japanese boxthorn 3. (Palicoureeae, Coussareeae, Argostemmateae Coltoecemateae, Craterispermeae, Cyanoneuroneae, Danaideae, Dunnieae, Gaertnereae, Knoxieae, Lasiantheae, Morindeae, Ophiorrhizeae, Perameae, Prismaticerideae, Putorieae, Schizocoleae, Theligoneae, Urophyleae; numerous genera) other rubioid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Gentianales > Rubiaceae > Ixoroideae

- ÇX**- ‘COFFEA’ 1. (*Coffea arabica*) arabica coffee plant 2. (*C. canephora*) robusta coffee plant 3. (all other *Coffea* species) other coffea plant
- ÇXW**- ‘GARDENIEAE’ 1. (genus *Gardenia*) gardenia, cape jasmine, turpentine tree 2. (genus *Randia*) indigoberry 3. (Gardenieae other than Stems 1 and 2; numerous genera) other gardeniid plant
- ÇXL**- ‘CONDAMINEAE’ 1. (genus *Warszewiczia*) chaconia / wild poinsettia / pride of Trinidad and Tobago 2. (Condamineae other than Stem 1; numerous genera) other condamineid plant
- ÇXR**- ‘IXOROIDEAE’ 1. (Ixoreae; genus *Ixora*) West Indian jasmine, jungle flame, jungle geranium 2. (Posoquerieae; genera *Posoqueria*, *Molopanthera*) needle flower 3. (Aiospermeae, Albertae, Aleisanthiae, Augustae, Bertiereae, Coffeae [other than genus *Coffea*], Cordiereae, Cremasporeae, Crossopterygeae, Greeneae, Henriqueae, Jackiae, Mussaendeae, Octotropideae, Pavetteae, Retiniphyllae, Sabiceae, Scyphiphoreae, Sherbourniae, Sipaneeae, Steenisiae, Trailliaedoxae, Vanguerieae; numerous genera) other ixoroid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Gentianales > Rubiaceae > Cinchonoideae

- RGD**- ‘CINCHONEAE’ 1. (genus *Cinchona*) quinine, cinchona, Peruvian bark, Jesuit’s bark 2. (genus *Remijia*) remijia 3. (Cinchoneae other than Stem 1 and 2) other cinchonid plant
- RGDW**- ‘CHIOCOCCEAE’ I 1. (genus *Chiococca*) milkberry, West Indian snowberry 2. (genus *Catesbaea*) lilythorn 3. (genus *Portlandia*) bell flower
- RGDY**- ‘CHIOCOCCEAE’ II 1. (genus *Scolsanthus*) Puerto Rico devilbrush, maricao 2. (Chiococceae other than named genera; several genera) other chiococcid plant
- RGDL**- ‘GUETTARDEAE’ 1. (genus *Guettarda*) velvetseed 2. (genus *Bobea*) ‘ahakea 3. (Guettardeae other than Stems 1 and 2; several genera) other guettardid plant
- RGDR**- ‘NAUCLEEAE’ 1. (genus *Cephalanthus*) buttonbrush 2. (genus *Uncaria*) gambier, cat’s claw 3. (Naucleae other than Stems 1 and 2; numerous genera) other naucleid plant
- RGDR**- ‘CINCHONOIDEAE’ 1. (Rondeletiae; numerous genera) rondeletia, Cleveland sunrise, Panama-rose, other rondeletiid plant 2. (Strumpfiae; genus *Strumpfia*) Pride of Big Pine 3. (Hameliae, Hymenodictyeae, Hilliae, Isertiae; several genera) other cichonoid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Gentianales > Rubiaceae > remaining sub-families/tribes/genera

- RGDV**- ‘RUBIACEAE’ 1. (Coptosapelteae; genera *Coptosapelta*, *Acranthera*) coptosapelta, acranthera, coptosapeltid plant 2. (Luculieae; genus *Luculia*) luculia 3. (Rubiaceae other than named genera) other rubiaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Gentianales > Gentianaceae

- GZMW-** 'GENTIANACEAE' I 1. (genera *Gentiana*, *Gentianella*, *Gentianopsis*) gentia, agueweed 2. (genus *Frasera*) fraseria, American columbo, yellow gentian, green gentian, elkweed, deer's ears / monument plant 3. (genus *Eustoma*) lisianthus, prairie gentian
- GZMY-** 'GENTIANACEAE' II 1. (genus *Centaurium*, *Sebaea*, *Zeltnera*) centaury, sebaea, quinine weed 2. (genus *Cicendia*) slender cidendia / yellow centaury 3. (genus *Exacum*) Persian violet
- GZML-** 'GENTIANACEAE' III 1. (genus *Swertia*) felwort, swertia 2. (genus *Sabatia*) slender marsh-pink, rose gentian, prairie sabatia, meadow pink 3. (genus *Obolaria*) Virginia pennywort
- GZMR-** 'GENTIANACEAE' IV 1. (genus *Voyria*) ghostplant 2. (genus *Bartonia*) screwstem 3. (genus *Fagraea*) kingwood, tembesu, perfume flower tree
- GZMR-** 'GENTIANACEAE' V 1. (genus *Orphium*) sea rose 2. (Gentianaceae other than named genera; numerous genera) other gentianaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Gentianales > Apocynaceae

- RTPW-** 'APOCYNODEAE' I 1. (genus *Apocynum*) dogbane, Indian hemp 2. (genus *Trachelospermum*) star jasmine, Confederate jasmine 3. (genus *Echites*) devil's potato
- RTPY-** 'APOCYNODEAE' II 1. (genus *Nerium*) oleander, nerium 2. (genus *Mandevilla*) rocktrumpet, mandevilla, dipladenia, Brazilian jasmine, Chilean jasmine 3. (genus *Cycladenia*) Sacramento waxdogbane
- RTPL-** 'APOCYNODEAE' III 1. (genus *Angadenia*) pineland golden trumpet 2. (genus *Pentalinon*) hammock viper's-tail / licebush / wild allamanda / wild wist yellow mandevilla / yellow dipladenia 3. (Apocynodeae other than named genera) other apocynoid plant
- RTPR-** 'ASCLEPIADOIDEAE' I 1. (genus *Asclepias*) milkweed, spider antelope horns, cow-cabbage, blood flower / cotton bush / Mexican / redhead, milkplant, milkflower, silkweed, solanoa, swallow-wort, butterfly flower, butterfly weed / pleurisy root, green antelopehorn 2. (genus *Cynanchum*) dog-strangling vine, climbing milkweed, caustic bush 3. (genus *Funastrum*) twinevine
- RTPR-** 'ASCLEPIADOIDEAE' II 1. (genus *Matelea*) milkvine 2. (genus *Marsdenia*) jungle netvine, waxflower / Madagascar jasmine / Hawaiian wedding flower / bridal wreath 3. (genus *Hoodia*) Bushman's hat
- RTPF-** 'ASCLEPIADOIDEAE' III 1. (genus *Orbea*) star flower 2. (Stapeliads; numerous genera) stapeliad 3. (Asclepiadoideae other than named genera; numerous genera) other asclepiadoid plant, other milkweed-like plant
- RTPT-** 'PERIPLOCOIDEAE' I 1. (genus *Periploca*) silkvine 2. (genus *Petopentia*) propeller vine 3. (genus *Cryptolepis*) milk rope
- RTPC-** 'PERIPLOCOIDEAE' II 1. (genus *Hemidesmus*) Indian sarsaparilla 2. (genus *Decalepis*) swallowroot 3. (Periplocoideae other than named genera; numerous genera) other periplocoid plant
- RTPH-** 'RAUVOLFIOIDEAE' I 1. (genera *Catharanthus*, *Vinca*) periwinkle 2. (genus *Rauvolfia*) devil pepper 3. (genus *Ochrosia*) yellowwood, bloodhorn / kopsia, ochrosia
- RTPV-** 'RAUVOLFIOIDEAE' II 1. (genus *Vallesia*) pearl berry / tearshrub, vallesia 2. (genus *Haplophyton*) cockroach plant 3. (genus *Aspidosperma*) wheel tree, quebracho
- RTPS-** 'RAUVOLFIOIDEAE' III 1. (genus *Alyxia*) chainfruit, sea box / dysentery bush, alyxia 2. (genus *Plumeria*) plumeria, frangipani, Singapore graveyard flower 3. (genus *Pteralyxia*) pteralyxia
- RTPS-** 'RAUVOLFIOIDEAE' IV 1. (genus *Cerbera*) cassowary plum / grey milkwood, sea mango, suicide plant 2. (genus *Carissa*) Bengal currant / Christ's thorn, carandas plum, Natal plum, num-num, conkerberry / bush plum 3. (genus *Hancornia*) mangabeira / mangaba plant
- RTPL-** 'RAUVOLFIOIDEAE' V 1. (genus *Allamanda*) allamanda, trumpetvine, golden-trumpet 2. (genus *Melodinus*) melodinus 3. (Rauvolfioideae other than named genera; numerous genera) other rauvolfioid plant

**-RTPHW-** ‘SECAMONOIDEAE’ 1. (genus *Secamone*) secamone, cork vine / corky milkvine 2. (Secamonoideae other than Stem 1; several genera) other secamoniid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Gentianales > Gelsemiaceae

**-LZN-** ‘GELSEMIACEAE’ 1. (genus *Gelsemium*) heartbreak grass, swamp jessamine / Rankin’s trumpetflower, yellow jessamine / Carolina jessamine / evening trumpetflower 2. (genera *Mostuea* and *Pteleocarpa*) other gelsemiid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Gentianales > Loganiaceae

**-LZNW-** ‘LOGANIACEAE’ I 1. (genus *Logania*) logania 2. (genus *Labordia*) labordia 3. (genus *Mitreola*) hornpod

**-LZNY-** ‘LOGANIACEAE’ II 1. (genus *Strychnos*) strychnine tree / nux vomica / poison nut / quaker buttons, clearing-nut tree, threaded boxwood, black monkey orange 2. (genus *Spigelia*) pinkroot, Indian pink 3. (Loganiaceae other than named genera; several genera) other loganiaceous tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Boraginales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Boraginales > Boraginaceae

**-FSTW-** ‘BORAGINOIDEAE’ I 1. (genus *Borago*) borage 2. (genus *Pulmonaria*) lungwort 3. (genus *Symphytum*) comfrey

**-FSTY-** ‘BORAGINOIDEAE’ II 1. (genus *Echium*) viper’s bugloss, Salvation Jane, Lady Campbell weed / Paterson’s curse, echium 2. (genus *Brunnera*) Siberian bugloss

**-FSTL-** ‘BORAGINOIDEAE’ III 1. (genus *Anchusa*) bugloss / true alkanet / corn bugloss, Cape bugloss / Cape forget-me-not 2. (genus *Alkanna*) alkanet / dyer’s alkanet / dyer’s bugloss / orchanet / Spanish bugloss / Languedoc bugloss 3. (genus *Pentaglottis*) green alkanet, evergreen bugloss

**-FSTR-** ‘BORAGINOIDEAE’ IV 1. (genus *Nonea*) monkwort 2. (genus *Asperugo*) madwort 3. (genus *Cerinth*) honeywort

**-FSTR-** ‘BORAGINOIDEAE’ V 1. (genus *Buglossoides*) gromwell, bastard alkanet 2. (genus *Lithodora*) purple gromwell, olive-leaved gromwell 3. (genus *Lithosperma*) gromwell, marbleseed, stoneseed, puccoon, Indian-paint, whiteseed

**-FSTF-** ‘BORAGINOIDEAE’ VI 1. (genus *Myosotis*) forget-me-not, scorpion grass 2. (genus *Eritrichium*) alpine forget-me-not 3. (genus *Myosotidium*) giant forget-me-not, chatham Islands forget-me-not

**-FSTV-** ‘BORAGINOIDEAE’ VII 1. (genus *Amsinckia*) fiddleneck 2. (genus *Carmona*) scorpionbush 3. (genus *Mertensia*) oysterplant, bluebells, mountain bell

**-FSTÇ-** ‘BORAGINOIDEAE’ VIII 1. (genus *Plagiobothrys*) popcorn flowers 2. (genus *Cryptantha*) cat’s eyes / popcorn flowers 3. (genus *Amebia*) Prophet’s flower

**-FSTL-** ‘BORAGINOIDEAE’ IX 1. (genus *Cynoglossum*) hounds’ tongue, wild comfrey 2. (genus *Hackelia*) stickseed, sticktight, beggar’s lice 3. (genus *Lappula*) stickseed, bluebur / bristly sheepbur / bur forget-me-not

**-FSTH-** ‘BORAGINOIDEAE’ X 1. (genus *Heliotropium*) heliotrope 2. (genus *Omphalodes*) navelwort 3. (genus *Pectocarya*) combseed

**-FSTHW-** ‘BORAGINOIDEAE’ XI 1. (genus *Cordia*) geigertree 2. (genus *Trichodesma*) camel bush / cattle bush 3. (Boraginoideae other than named genera; numerous genera) other boraginoid plant

**-FSMW-** ‘HYDROPHYLLOIDEAE’ I 1. (genus *Hydrophyllum*) waterleaf 2. (genus *Nemophila*) baby-blue-eyes, five-spot nemophila 3. (genus *Nama*) fiddleleaf

**-FSMY-** ‘HYDROPHYLLOIDEAE’ II 1. (genus *Eriodictyon*) yerba santa, Indian Knob mountainbalm, poodle-dog bush 2. (genus *Ellisia*) waterpod / false baby-blue-eyes / Aunt Lucy 3. (genus *Phacelia*) phacelia, scorpionweed, Whitlavia / wild Canterbury bells, Miami mist, lavender windows, wild heliotrope, California bluebell / desertbells

**-FSML-** ‘HYDROPHYLLOIDEAE’ III 1. (genus *Emmenanthe*) whispering bells 2. (genus *Romanzoffia*) mistmaid / mistmaiden 3. (genus *Pholistoma*) fiesta flower

**-FSMR-** ‘HYDROPHYLLOIDEAE’ IV 1. (genus *Draperia*) violet draperia 2. (genus *Eucrypta*) hideseed 3. (genus *Tricardia*) threeheart

- FSMŘ-** ‘HYDROPHYLLLOIDEAE’ V 1. (genus *Hesperochiron*) hesperochiron 2. (Hydrophyllloideae other than named genera) other hydrophyllloid plant
- FSNW-** ‘EHRETIOIDEAE’ I 1. (genus *Ehretia*) peace bush / native willow / peachwood, anacua, koda 2. (genus *Bourreria*) strongbark / strongback 3. (genus *Halgania*) halgania, blue bush
- FSNY-** ‘EHRETIOIDEAE’ II 1. (genus *Rochefortia*) greenheart ebony 2. (genus *Tiquilia*) crinklemat, Peruvian sand flower 3. (Ehretioideae other than named genera; several genera) other ehretioid plant
- FSÑW-** ‘BORAGINACEAE’ 1. (Lennooideae; three genera) desert Christmas tree / scaly-stemmed sandplant, sandfood 2. (Cordioidiae; three genera) manjack, cordioid plant 3. (Boraginaceae other than named genera) other boraginaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Solanales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Solanales > Solanaceae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Solanales > Solanaceae > Solanoideae > Solaneae

-**ZP-** ‘SOLANUM’ I 1. (*S. tuberosum*) potato plant 2. (*S. lycopersicum*) tomato plant 3. (*S. melongena*) eggplant plant / aubergine

-**ZPL-** ‘SOLANUM’ II 1. (tomato-producing *Solanum* species other than *S. lycopersicum*; *S. pimpinellifolium*, *S. peruvianum*, *S. cheesmanii*, *S. galapagense*, *S. chilense*, etc.) wild tomato, currant tomato 2. (*S. aethiopicum*) Ethiopian eggplant / gilo 3. (*S. quitoense*) naranjilla / lulo

-**ZPR-** ‘SOLANUM’ III 1. (*S. torvum*) Turkey berry / wild eggplant / pea eggplant / shoo-shoo bush / prickly nightshade / susumber 2. (*S. muricatum*) pepino melon / melon pear 3. (*S. betaceum*) tamarillo / tree tomato / blood fruit

-**ZPŘ-** ‘SOLANUM’ IV 1. (*S. lycocarpum*) wolf apple 2. (*S. sessiliflorum*) cocona 3. (edible Australian wild tomato species, including *S. aviculare*, *S. centrale*, *S. chippendalei*, *S. diversiflorum*, *S. ellipticum*, *S. laciniatum*, *S. orbiculatum*, *S. phlomoides*) kangaroo apple, desert raisin / bush raisin / bush saltana, bush tomato, potato bush, round-leaved solanum, wild tomato

-**ZPF-** ‘SOLANUM’ V 1. (*S. retroflexum*) wonderberry / sunberry 2. (*S. scabrum*) garden huckleberry 3. (*S. ferox*, a.k.a. *S. lasiocarpum*) hiary-fruited eggplant / Indian nightshade

-**ZPT-** ‘SOLANUM’ VI 1. (*S. sisymbriifolium*) vila-vila / sticky nightshade / red buffalo-bur / fire-and-ice plant, litchi tomato 2. (*S. mauritanium*) earleaf nightshade / flannel weed / bugweed / tobacco weed / kerosene plant / wild tobacco 3. (*S. dulcamara*) bittersweet / bittersweet nightshade / blue bindweed / Amara Dulcis / climbing nightshade / fellenwort / felonwood / poisonberry / poisonflower / scarlet berry / trailing bittersweet / violet bloom / woody nightshade

-**ZPL-** ‘SOLANUM’ VII 1. (*S. mammosum*) nipplefruit / cow’s udder / fox head / apple of Sodom 2. (ornamental *Solanum* species, e.g., *S. capsicastrum*, *S. crispum*, *S. laxum*, *S. pseudocapsicum*, *S. rantonnetii*, *S. seaforthianum*, *S. wendlandii*) winter cherry, Jerusalem cherry, Chilean potato tree, potato vine, Christmas cherry, blue potato bush, Italian jasmine / St. Vincent lilac, paradise flower 3. (*Solanum* species not previously named) nightshade, soda apple, popolo, horsenettle, devil’s apple, porcupine tomato, devil’s-fig, wolfpeach, wild potato

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Solanales > Solanaceae > Solanoideae > Capsiceae

-**ZPW-** ‘CAPSICUM ANUUM (BELL/SWEET PEPPER)’ 1. bell pepper plant 2. sweet/Italian pepper, pepperoncino plant 3. paprika plant

-**ZPY-** ‘CAPSICUM ANUUM (HOT PEPPER)’ 1. serrano pepper plant 2. cayenne pepper plant 3. jalapeño pepper plant

-**ZPH-** ‘OTHER CULTIVATED CAPSICUM SPECIES’ 1. (*C. chinense*) habanero pepper plant [includes 7-pot, ají dulce, datil, Scotch bonnet, Trinidad scorpion varieties] 2. (*C. baccatum*) ají chili pepper plant 3. (other domesticated/cultivated *Capsicum* species; *C. frutescens*, *C. pubescens*) tabasco chili pepper / piri piri / Hawaiian pepper / xiaomila pepper, manzano pepper / rocoto pepper / locoto pepper

**-ZPHW-** ‘CAPSICEAE’ 1. (non-cultivated *Capsicum* species; numerous species) non-domesticated/ non-cultivated capsicum species 2. (genus *Lycianthes*) blue potato bush / Paraguay nightshade, various lycianthes nightshades

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Solanales > Solanaceae > Solanoideae > Physaleae

**-ZPÇ-** ‘PHYSALIS’ 1. (*P. philadelphica* a.k.a. *P. ixocarpa*) tomatillo / Mexican husk tomato plant 2. (*P. alkekengi*) Chinese/Japanese lantern, winter-cherry plant 3. (other *Physalis* species) groundcherry, strawberry-tomato plant, Inca berry plant, golden strawberry plant

**-ZPS-** ‘PHYSALEAE’ I 1. (genus *Quincula*) lobed groundcherry, purple groundcherry 2. (genus *Chamaesaracha*) five eyes, chamaesaracha 3. (genus *Mellissia*) Saint Helena boxwood

**-ZPŠ-** ‘PHYSALEAE’ II 1. (genus *Nothocestrum*) ‘aiea 2. (genus *Withania*) Indian rennet / vegetable rennet, Indian ginseng / winter cherry 3. (Physaleae other than named genera; numerous genera) other physalid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Solanales > Solanaceae > Solanoideae remaining families

**-ŇTW-** ‘HYOSCYAMEAE’ 1. (genus *Hyoscyamus*) henbane 2. (genus *Atropa*) belladonna, deadly nightshade 3. (Hyoscyameae other than Stems 1 and 2; several genera) scopolia, other hyoscyamid plant

**-ŇTY-** ‘LYCIEAE & MANDRAGOREAE’ 1. (genus *Lycium*) box-thorn, desert-thorn, honey thorn, water-jacket, matrimony-vine / goji / goji-berry / Duke of Argyll’s teaplant, wolfberry, Christmas berry, peachthorn, squawthorn 2. (other Lycieae; genus *Grabowskia*) grabowskia, other lyciid plant 3. (Mandragoreae; genus *Mandragora*) mandrake

**-ŇTL-** ‘DATUREAE’ 1. (genus *Datura*) devil’s trumpet 2. (genus *Brugmansia*) angel’s trumpet 3. (other Datureae; genus *Trompettia*) trompettia, other daturid plant

**-ŇTR-** ‘SOLANDREAE’ 1. (genus *Solandra*) chalice vine, Hawaiian lily 2. (genus *Juanulloa*) goldfinger 3. (Solandreae other than Stems 1 and 2; several genera) other solandrian plant

**-ŇTR-** ‘OTHER SOLANOIDEAE’ 1. (Nicandreae; genus *Nicandra*) apple-of-Peru / shoo-fly plant 2. (Nolaneae; genus *Nolana*) Chilean bell flower

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Solanales > Solanaceae > Cestroideae

**-ŇTM-** ‘CESTROIDEAE’ I 1. (genus *Cestrum*) cestrum, jessamine, lady of the night, green poisonberry 2. (genus *Vestia*) Chilean box thorn 3. (genus *Salpiglossis*) painted tongue / scalloped tube tongue / velvet trumpet flower

**-ŇTN-** ‘CESTROIDEAE’ II 1. (genus *Browallia*) bush-violet, amethyst flower 2. (genus *Streptosolen*) marmalade bush / firebush 3. (Cestroideae other than named genera; several genera) other cestroid flower

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Solanales > Solanaceae > Petunioideae

**-ČVW-** ‘PETUNIOIDEAE’ I 1. (genus *Petunia*) petunia 2. (genus *Brunfelsia*) raintree, brunfelsia, lady-of-the-night 3. (genus *Fabiana*) false heath

**-ČVY-** ‘PETUNIOIDEAE’ II 1. (genus *Nierembergia*) cupflower, whitecup, nierembergia 2. (genus *Plowmania*) Chiapas red trumpet 3. (Petunioideae other than named genera; several genera) other pentunioid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Solanales > Solanaceae remaining families

**-ČVL-** ‘NICOTIANOIDEAE’ I 1. (genus *Nicotiana*) tobacco plant 2. (genus *Anthocercis*) tailflower 3. (genus *Duboisia*) corkwood tree

**-ČVR-** ‘NICOTIANOIDEAE’ II 1. (genus *Symonanthus*) symonanthus, Bailey’s symonanthus 2. (Nicotianoideae other than named genera; several genera) other nicotianoid plant

**-ČVŘ-** ‘OTHER SOLANACEAE’ 1. (Schizanthaceae; genus *Schizanthus*) butterfly flower / fringe flower / poor-man’s orchid 2. (Schwenckioideae, Goetzeoideae; several genera) other solanaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Solanales > Convolvulaceae

**-PSVW-** ‘CONVOLVULACEAE’ I 1. (genus *Convolvulus*) morning glory, bindweed, convolvulus, rhodium / rhodium-wood, scammony, silverbush 2. (genus *Calystegia*) false bindweed, heartbind / hedgebell / hedge bindweed / large bindweed, plateau morning glory, beach morning glory 3. (genus *Evolvulus*) dwarf morning glory, Australian baby blue / sapphire blue, evovulus

**-PSVY-** ‘CONVOLVULACEAE’ II 1. (genus *Bonamia*) lady’s nightcap 2. (genus *Cressa*) alkaliweed 3. (genus *Stylisma*) dawnflower

**-PSVL-** ‘CONVOLVULACEAE’ III 1. (*Ipomoea batatas*) sweet potato 2. (genus *Ipomoea* other than *I. batatas*) morning glory, moonflower, cypress vine / cardinal creeper / cardinal vine / star glory, man-of-the-earth / manroot / wild potato vine, moon vine, water spinach, railway creeper, spiderleaf, lilacbell, firevine / Spanish flag, whitestar / whitestar potato / pitted morning-glory 3. (genus *Argyreia*) Hawaiian baby woodrose

**-PSVR-** ‘CONVOLVULACEAE’ IV 1. (genus *Dichondra*) ponysfoot, dichondra 2. (genus *Jacquemontia*) clustervine, jacquemontia 3. (genus *Cuscuta*) dodder

**-PSVŘ-** ‘CONVOLVULACEAE’ V 1. (genus *Merremia*) woodrose, rock rosemary, Spanish arborvine, hogvine 2. (genus *Operculina*) turpeth / St. Thomas lidpod 3. (Convolvulaceae other than named genera; numerous genera) other convolvulaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids > Solanales remaining families

**-ŇŤŇ-** ‘OTHER SOLONALES FAMILY’ 1. (Hydroleaceae; genus *Hydrolea*) false fiddleleaf 2. (Montiniaceae; genera *Montinia*, *Grevea*, *Kaliphora*) montiniid plant 3. (Sphenocleaceae; genus *Sphenoclea*) sphenoclea

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Lamiids remaining orders: Vahliales, Garryales, Metteniusales, Icacinales

**-ŇŤMW-** ‘GARRYALES’ 1. (genus *Garrya*) silk tassel / tassel bush 2. (genus *Acuba*) spotted laurel / Japanese laurel / gold dust plant, acuba 3. (genus *Eucommia*) eucommia

**-ŇŤMY-** ‘OTHER LAMIID ORDER’ 1. (Icacinales; several genera) icacinaceous plant, oncotheca plant 2. (Vahliales; genus *Vahlia*) vahlia 3. (Metteniusales; several genera) metteniusaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Ericales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Ericales > Ericaceae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Ericales > Ericaceae > Vaccinoideae

**-ŇŤ-** ‘VACCINIUM SHRUB’ I 1. (*V.* subgenus *Vaccinium*) blueberry, sparkleberry 2. (*V.* subgenus *Oxycoccus*) cranberry 3. (*V.* subgenus *Oxycoccus*, section *Myrtillus*) huckleberry, bilberry, whortleberry, grouseberry, blaeberry / fraughan / hurtleberry, Alaska blueberry

**-ŇŤR-** ‘VACCINIUM SHRUB’ II 1. (*V.* subgenus *Oxycoccus*, section *Vitis-idaea*) partridge berry / cowberry / redberry / lingonberry / foxberry / quailberry / bearberry / beaverberry / cougarberry 2. (*V.* subgenus *Oxycoccus*, section *Polycodium*) deerberry 3. (other *Vaccinium* species) other blueberry or whortleberry

**-ŇŤL-** ‘GAULTHERIA’ 1. (*Gaultheria procumbens*) eastern teaberry [source of wintergreen flavoring] 2. (*G. shallon*) salal / shallon 3. (other *Gaultheria* species) gaultheria

**-ŇŤD-** ‘VACCINIOIDEAE’ 1. (other Vaccinieae; numerous genera) other vacciniid plant 2. (Oxydendreae; genus *Oxydendrum*) sourwood / sorrel tree 3. (Andromedae, Gaultherieae [other than genus *Gaultheria*], Lyonieae; several genera) other vaccinioid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Ericales > Ericaceae > Ericoideae

-**ÑDM-** ‘RHODODENDRON’ (genus *Rhododendron*) 1. evergreen or vireya rhododendron plant 2. evergreen azalea plant 3. deciduous azalea plant

-**ÑDMW-** ‘ERICOIDEAE’ I 1. (genus *Erica*) heath, heather 2. (genus *Phylloduce*) mountainheath, mountain heather 3. (genus *Ceratiola*) sand heath, sandhill-rosemary, Florida-rosemary

-**ÑDMY-** ‘ERICOIDEAE’ II 1. (genus *Kalmia*) sheep-laurel, lambkill, calf-kill, kill-kid, sandmyrtle, whitewicky, mountain-laurel, bog-laurel / bob kalmia 2. (genus *Daboecia*) St. Dabeoc’s heath 3. (Ericoideae other than named genera; several genera) other ericoid (heath-like) plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Ericales > Ericaceae > Arbutoideae

-**ÑDNW-** ‘ARBUTOIDEAE’ I 1. (genus *Arbutus*) madrone, strawberry tree, cane apple tree 2. (genus *Arctostaphylos*) manzanita 3. (genus *Xylococcus*) mission manzanita

-**ÑDNV-** ‘ARBUTOIDEAE’ II 1. (genus *Ornithostaphylos*) Baja birdbush 2. (genus *Comarostaphylis*) summer holly 3. (genus *Arctous*) bearberry

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Ericales > Ericaceae > Pyroloideae, Monotropeoideae, Cassiopoideae, and Harrimanelloideae

-**ÑDN-** ‘ERICACEAE’ 1. (Pyroloideae; several genera) wintergreen, shinleaf, shineleaf, prince’s pine / pipsissewa, rheumatism root 2. (Monotropeoideae; several genera) monotrope, gnome plant / cone plant, Indian pipe / ghost plant / corpse plant, Dutchman’s pipe / pinesap / yellow bird’s-nest, pygmy pipes, pinefoot, pinedrops / beechdrops / giant bird’s nest, snow plant / snow flower 3. (Cassiopoideae and Harrimanelloideae; genera *Cassiope*, *Harrimanella*) moss bell heather, other ericaceous heather

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Ericales > Actinidiaceae

-**ÑDW-** ‘ACTINIDIACEAE’ 1. (*Actinidia deliciosa*) kiwi vine / Chinese gooseberry 2. (*A. arguta*, *A. kolomikta*, *A. polygama*, *A. chinensis*) kiwi berry / grape kiwi / dessert kiwi / cocktail kiwi vine, golden kiwi vine 3. (other Actinidiaceae; genera *Clematoclethra*, *Saurauia*, plus other *Actinidia* species) actinidia, actinidiaceous plant

-**ÑDV-** ‘CLETHRACEAE & CYRILLACEAE’ 1. (Clethraceae; genera *Clethra*, *Purdiaea*) sweet pepper bush / summersweet, mountain pepper bush, lily of the valley tree, Japanese sweet shrub 2. (Cyrillaceae; genus *Cliftonia*) buck-wheat tree 3. (Cyrillaceae; genus *Cyrilla*) swamp cyrilla / swamp titi / leatherwood / ironwood

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Ericales > Ebenaceae

-**ÑDY-** ‘DIOSPYROS (PERSIMMON)’ I 1. (*D. kaki*) Japanese persimmon tree 2. (*D. lotus*) date-plum tree 3. (*D. virginiana*) American persimmon

-**ÑDÑ-** ‘DIOSPYROS (EBONY WOOD)’ 1. (black-wooded species of *Diospyros*, e.g., *D. ebenum*) ebony tree 2. (other timber species of *Diospyros*, e.g., *D. celebica*, *D. mun*, *D. marmorata*, etc.) calamander wood tree, Makassar ebony tree, marblewood tree 3. (other *Diospyros* species) other ebony/persimmon tree

-**ÑDNW-** ‘EBENACEAE’ 1. (genus *Euclea*) guarri 2. (other Ebenaceae; several genera) other ebenaceous tree/plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Ericales > remaining families

-**ÑZK-** ‘POLEMONIACEAE’ 1. (genus *Phlox*) phlox 2. (genus *Linanthus*) linanthus, desert snow, desertbeauty, evening snow, sandblossom, granite prickly-phlox 3. (Polemoniaceae other than *Phlox* and *Linanthus*) Jacob’s -ladder, gillyflower, gillia, trumpet flower, woollystars, gymnosteris, Arizona firecracker, ipomopsis, skyrocket, standing cypress, calico

-**ÑZKW-** ‘PRIMULACEAE’ I 1. (genus *Primula*) primrose, cowslip, auricula / bear’s ear, oxlip, glory-of-the-marsh, shootingstar / mosquito-bill / sailor caps Samolus) brookweed, water pimpernel, water cabbage, water rose 2. (genus *Ardisia*) ardisia, marlberry, coral bush / coralberry / spiceberry, duck’s eye 3. (genus *Anagallis*) pimpernel, weather-glass, shepherd’s clock



- ŇZKY-** 'PRIMULACEAE' II 1. (genus *Trientalis*) starflower, chickweed-wintergreen 2. (genus *Androsace*) rock-jasmine, Northern fairy candelabra, androsace 3. (genus *Cyclamen*) sowbread, swinebread
- ŇZKL-** 'PRIMULACEAE' III 1. (genus *Myrsine*) colicwood, red matipo, Cape myrtle / African boxwood 2. (genus *Lysimachia*) loosestrife, swamp candle 3. (Primulaceae other than previously named genera; numerous genera) snowbell, featherfoil, Joewood, other primulaceous plant
- ŇZKR-** 'SAPOTACEAE' I 1. (genus *Manilkara*) bulletwood / balatá / ausubo / massaranduba / cow-tree, chicle, bully tree, nispero, sapotilla, sapota / sapodilla / naseberry, wild dilly 2. (genus *Pouteria*) pouteria, eggfruit, abiu, lúcuma, mamey sapote, canistel, green sapote, shiny-leaved condoo / black plum 3. (genus *Vitellaria*) shea tree
- ŇZKŘ-** 'SAPOTACEAE' II 1. (genus *Synsepalum*) miracle berry / sweet berry plant 2. (genus *Chrysophyllum*) tar apple / star apple / golden leaf tree / milk fruit / cainito, Damson plum / wild star-apple / caimitillo, milkwood 3. (genus *Tieghemella*) makore wood tree
- ŇZKF-** 'SAPOTACEAE' III 1. (genus *Palaquium*) gutta-percha tree 2. (genus *Sideroxylon*) bully tree 3. (Sapotaceae other than named genera) other sapotaceous tree/plant
- ŇZKT-** 'SARRACENIACEAE' 1. (genus *Sarracenia*) trumpet pitcher plant 2. (genus *Darlingtonia*) California pitcher plant / cobra lily / cobra plant 3. (genus *Heliamphora*) sun pitcher plant
- ŇZKV-** 'STYRACACEAE' 1. (genus *Halesia*) silverbell / snowdrop tree 2. (genus *Pterostyrax*) epaullete tree 3. (genus *Styrax* and several other genera) storax, snowbell, other styracaceous plant
- ŇZKÇ-** 'THEACEAE' I 1. (genus *Camellia*: *C. sinensis*) tea plant 2. (genus *Camellia* other than *C. sinensis*) camellia 3. (genus *Stewartia*) stewartia
- ŇZKL-** 'THEACEAE' II 1. (genus *Franklinia*) Franklin tree 2. (genus *Schima*) needlewood tree 3. (Theaceae other than named genera; several genera) other theaceous plant/tree
- ŇZKH-** 'LECYTHIDACEAE' 1. (genus *Bertholletia*) brazil nut tree 2. (genus *Lecythis*) paradise nut tree / monkey pot tree / sapucaia 3. (genus *Barringtonia*) freshwater mangrove, mango-pine, itchytree, powder-puff tree
- ŇZKS-** 'ERICALES' I 1. (Balsaminaceae; genera *Impatiens*, *Hydrocera*) balsam, jewelweed, touch-me-not, parrot flower, Congo cockatoo, impatiens, policeman's helmet, poor man's rhododendron, busy lizzie, patience, snapweed 2. (Diapensiaceae; several genera) wandplant / wandflower / beetleweed, pixiemoss, Ocone bells / acony bell, pincushion plant 3. (Fouquieriaceae; genus *Fouquieria*) ocotillo plant, boojum tree / cirio
- ŇZKŠ-** 'ERICALES' II 1. (Roridulaceae; genus *Roridula*) dewstick / fly bush 2. (Symplocaceae; genus *Symplocos*) sweetleaf, sapphireberry 3. (Tetrameristaceae; three genera) tea mangrove
- ŇZKHW-** 'ERICALES' III 1. (other Lecythidaceae genera) other lecythidaceous tree 2. (Sladeniaceae, Marcgraviaceae, Mitrastemonaceae, Pentaphylacaceae; numerous genera) other ericales plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > asterids > Cornales

- GZG-** 'HYDRANGEACEAE' I 1. (genus *Hydrangea*) hydrangea / hortensia 2. (genus *Decumaria*) woodvamp 3. (genus *Broussaisia*) kanawao
- GZGW-** 'HYDRANGEACEAE' II 1. (genus *Philadelphus*) mock-orange 2. (genus *Whipplea*) whipplea / modesty 3. (genus *Carpenteria*) tree anemone / bush anemone
- GZGY-** 'HYDRANGEACEAE' III 1. (genus *Fendlerella*) Utah fendlerbush 2. (genus *Deutzia*) deutzia 3. (genus *Kirengeshoma*) yellow waxbell, Korean kirengeshoma
- GZGL-** 'HYDRANGEACEAE' IV 1. (genus *Fendlera*) fendlerbush 2. (genus *Jamesia*) jamesia / cliffbush / waxflower 3. (Hydrangeaceae other than named genera; several genera) other hydrangeaceous plant

- GZGR-** ‘CORNACEAE’ 1. (genus *Cornus*, subgenera *Yinquania*, *Kraniopsis*, *Mesomora*) blue- or white-fruited dogwood 2. (genus *Cornus*, all other subgenera) other dogwood tree or shrub 3. (genus *Alangium*) alangium
- GZGR-** ‘LOASACEAE’ I 1. (genus *Mentzelia*) blazingstar, stickleaf, yellowcomet, mentzelia 2. (genus *Petalonyx*) sandpaper plant 3. (genus *Eucnide*) stingbush, rock nettle
- GZGV-** ‘LOASACEAE’ II 1. (genus *Blumenbachia*) electric shock plant 2. (genus *Caiophora*) carnation nettle / ortiga / ortiguilla 3. (Loasaceae other than named genera; several genera) other loasaceous plant
- GZGD-** ‘NYSSACEAE’ 1. (genus *Nyssa*) tupelo tree, black-gum tree 2. (genus *Davidia*) dove-tree / handkerchief tree / ghost tree 3. (genus *Camptotheca*) happy tree / cancer tree / tree of life
- GZGZ-** ‘CORNALES’ 1. (Grubbiaceae; genera *Grubbia*, *Strobilocarpus*) sillyberry 2. (Curtisiaceae; genus *Curtisia*) assegai tree / Cape lancewood 3. (Hydrostachyaceae and Mastixiaceae; genera *Hydrostachys*, *Mastixia*, *Diplopanax*) other cornales plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Caryophyllaceae

- ŇZP-** ‘CARYOPHYLLEAE’ I 1. (genus *Dianthus*) carnation, pink, sweet william 2. (genus *Acanthophyllum*) chickweed baby’s breath 3. (genus *Gypsophila*) baby’s-breath, gypsophila
- ŇZPW-** ‘CARYOPHYLLEAE’ II 1. (genus *Petrorhagia*) tunica, tunic-flower / coat flower, pink 2. (genus *Psammophiliella*) cushion baby’s-breath / low baby’s-breath / annual gypsophila 3. (genus *Saponaria*) soapwort, bouncingbet / sweetie Betty, pygmy pink, tumbling-Ted
- ŇZPY-** ‘CARYOPHYLLEAE’ III 1. (genus *Vaccaria*) cowherb / cowcockle / cow basil / cow soapwort / prairie carnation 2. (Caryophylleae other than named genera; several genera) other caryophyllid plant
- ŇZPL-** ‘ALSINEAE’ I 1. (genus *Cerastium*) mouse-ear chickweed, chickweed, snow in summer 2. (genus *Holosteum*) jagged chickweed 3. (genus *Moenchia*) upright chickweed, erect chickweed
- ŇZPR-** ‘ALSINEAE’ II 1. (genus *Stellaria*) starwort, chickweed, stitchwort 2. (genus *Pseudostellaria*) false starwort, tuber starwort, robust starwort, Sierra starwort 3. (Alsineae other than Stems 1 and 2; several genera) other alsinid plant
- ŇZPŘ-** ‘PARONYCHIEAE’ 1. (genus *Paronychia*) nailwort, whitlow-wort, paronychia, chickweed 2. (genus *Herniaria*) rupturewort 3. (Paronychieae other than Stems 1 and 2; several genera) other paronychiid plant
- ŇZPF-** ‘POLYCARPEAE’ I 1. (genus *Achyronychia*) onyxflower / frost-mat 2. (genus *Pollichia*) waxberry / barley sugar bush 3. (genus *Polycarpon*) manyseed
- ŇZPT-** ‘POLYCARPEAE’ II 1. (genus *Scopulophila*) rockwort 2. (genus *Cardionema*) sandcarpet 3. (Polycarpeae other than named genera; several genera) other polycarpaeid plant
- ŇZPV-** ‘SAGINEAE’ 1. (genera *Colobanthus*, *Sagina*) pearlwort 2. (genus *Minuartia*) sandwort 3. (Sagineae other than Stems 1 and 2; several genera) other saginid plant
- ŇZPÇ-** ‘SCLERANTHEAE’ I 1. (genus *Schiedea*) schiedea, alsinidendron, Nihoa carnation 2. (genus *Scleranthus*) knawel, cushion-bush, German-knotweed 3. (genus *Geocarpon*, a.k.a. *Mononeuria*) tinytim, earth-fruit
- ŇZPL-** ‘SCLERANTHEAE’ II 1. (genus *Honckenya*) sea sandwort / seaside sandplant / sea chickweed / sea pimpernel / sea-beach sandwort / sea purslane 2. (genus *Alsinidendron*) alsinidendron 3. (Scleranthae other than Stems 1 and 2; several genera) other scleranthis plant
- ŇZPH-** ‘SPERGULEAE’ 1. (genus *Spergula*) spurry / spurrey, stickwort 2. (genus *Spergularia*) sea-spurrey / sandspurry 3. (genera *Rhodalsine*, *Sanctambrosia*) other spergulid plant

- ŇZPS-** SILENEAE' I 1. (genus *Silene*) catchfly, campion, gunpowder plant, silene, fire pink, Indian pink 2. (genus *Lychnis*) catchfly, white cockle, Maltese cross, ragged robin, flower-of-Jove, campion 3. (genus *Agrostemma*) corncockle, corn-pink
- ŇZPŠ-** 'SILENEAE' II 1. (genus *Petrocoptis*) falguera 2. (genus *Eudianthe*) rose catchfly, rose of heaven 3. (Sileneae other than named genera; several genera) other sileneid plant
- ŇZPHW-** 'CAROPHYLLACEAE' 1. (genus *Arenaria*) sandwort, golden moss / Irish moss 2. (genus *Corrigiola*) strapwort 3. (Carophyllaceae other than named genera; numerous genera) other carophyllaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Polygonaceae

- RNTW-** 'POLYGONOIDEAE' I 1. (genus *Rheum*) rhubarb plant 2. (genus *Fagopyrum*) buckwheat plant 3. (genus *Rumex*) sorrel plant, dock
- RNTY-** 'POLYGONOIDEAE' II 1. (genus *Polygonum*) knotweed, knotgrass, bindweed, birdweed / pigweed / lowgrass, wireweed, jointweed, tree hogweed, sandlace 2. (genus *Fallopia*) silver lace vine, russian vine / mile-a-minute vine / fleece vine / fleece flower, black-bindweed, copse bindweed / small-flower knotweed, climbing false buckwheat, Korean knotweed 3. (genus *Bistorta*) bistort, fleece flower, knotweed, mountain fleece
- RNTL-** 'POLYGONOIDEAE' III 1. (genus *Muehlenbeckia*) maidenhair vine, lignum, wirevine, wire weed, shrubby tororaro / wiggy-wig bush, muehlenbeckia 2. (genus *Duma*) lignum 3. (genus *Koenigia*) knotweed, wild-rhubarb
- RNTR-** 'POLYGONOIDEAE' IV 1. (genus *Oxyria*) mountain sorrel / wood sorrel / alpine sorrel 2. (genus *Persicaria*) smartweed, knotweed, willow-weed, tearthumb, amphibious bistort, water-pepper, kiss-me-over-the-garden-gate / prince's feather / princess-feather, arrowvine, Jesusplant / redshank, lady's thumb, jumpseed, Chinese indigo / polygonum-indigo, persicaria 3. (Polygonoidae other than named genera; several genera) other polygonoid plant
- RNTŘ-** 'ERIOGONOIDEAE' I 1. (genus *Eriogonum*) wild buckwheat 2. (genus *Antigonon*) lovechain, Mexican coral vine / Mexican creeper . queen's wreath / queen's jewels / chain-of-love / coralvine / beebush / San Miguelito vine 3. (genus *Aristocapsa*) Indian Valley spineflower / Indian Valley spinecap
- RNTF-** 'ERIOGONOIDEAE' II 1. (genus *Brunnichia*) redvine, Ladies' eardrops, buckwheat vine 2. (genus *Centrostegia*) Thurber's spineflower / red triangles 3. (genus *Chorizanthe*) spineflower, Turkish rugging
- RNTV-** 'ERIOGONOIDEAE' III 1. (genus *Coccoloba*) pigeonplum, seagrape, false chiggergrape 2. (genus *Dedeckera*) July gold 3. (genus *Dodecahema*) slender-horned spineflower
- RNTL-** 'ERIOGONOIDEAE' IV 1. (genus *Gilmania*) golden carpet 2. (genus *Goodmania*) yellow spinecap 3. (genus *Harfordia*) rabbit's purse
- RNTÇ-** 'ERIOGONOIDEAE' V 1. (genus *Hollisteria*) false spikeflower 2. (genus *Lastarriaea*) leather spineflower 3. (genus *Mucronea*) spineflower
- RNTH-** 'ERIOGONOIDEAE' VI 1. (genus *Nemacaulis*) woollyheads / cottonheads 2. (genus *Oxytheca*) oxytheca, round-leaf puncturebract 3. (genus *Pterostegia*) woodland threadstem / woodland pterostegia / fairy mist / fairy bowties
- RNTHW-** 'ERIOGONOIDEAE' VII 1. (genus *Systemotheca*) Vortriede's spineflower 2. (genus *Triplaris*) ant tree, devil tree 3. (Eregionoideae other than named genera, plus Symmerioideae; genus *Symmeria*) other polygonaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Amaranthaceae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Amaranthaceae > Amaranthoideae

- RNTM-** 'AMARANTHOIDEAE' I 1. (genus *Amaranthus*) amaranth, greenstripe, pigweed, careless weed, Prince-of-Wales feather / prince's feather, Joseph's-coat, love-lies-bleeding / tassel flower 2. (genus *Celosia*) woolflower, cockscomb, Lagos spinach, quail grass, celosia 3. (genus *Chamissoa*) false chaff flower
- RNTN-** 'AMARANTHOIDEAE' II 1. (genus *Aerva*) kapok bush / desert cotton, mountain knotgrass 2. (genus *Ptilotus*) foxtail, pussy tail, lamb's tail, mulla mulla 3. (genus *Achyranthes*) chaff flower

**-RNTÑ-** ‘AMARANTHOIDEAE’ III 1. (genus *Nototrichium*) rockwort 2. (Amaranthoideae other than named genera; numerous genera) other amaranthoid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Amaranthaceae > Chenopodioideae

**-RMD-** ‘CHENOPODIOIDEAE’ I 1. (genus *Spinacia*) spinach plant 2. (edible species of genus *Chenopodium*; *C. album*, *C. pallidicaule*, *C. quinoa*, *C. giganteum*) quinoa, kañiwa, fat hen / white goosefoot plant, tree spinach 3. (genus *Chenopodium*; species other than Stem 2) goosefoot, bluebush, chualar, lambsquarters, huauzontle

**-RMDW-** ‘CHENOPODIOIDEAE’ II 1. (genus *Atriplex*) saltbush / orache plant 2. (genus *Extriplex*) California saltbush / California orache plant, San Joaquin saltbush / San Joaquin orache 3. (genus *Halimione*) sea purslane

**-RMDY-** ‘CHENOPODIOIDEAE’ III 1. (genus *Blitum*) goosefoot, blite, Good-King-Henry / poor-man’s asparagus / Lincolnshire spinach / markery / English mercur, stawberry blite / stawberry spinach, poverty weed, Indian lettuce 2. (genus *Chenopodiastrum*) salt-green / sowbane / Australian-spinach 3. (genus *Oxybasis*) red goosefoot / saltmarsh goosefoot, upright goosefoot, coastblite goosefoot, oak-leaved goosefoot

**-RMDL-** ‘CHENOPODIOIDEAE’ IV 1. (genus *Stutzia*) Coville’s orach, Suckley’s orach 2. (genus *Grayia*) hop sage, siltbush 3. (genus *Lipandra*) manyseed goosefoot

**-RMDR-** ‘CHENOPODIOIDEAE’ V 1. (genus *Micromonolepis*) small povertyweed / red povertyweed 2. (genus *Proatrisplex*) four-corners orach / Mancos shadscale 3. (genus *Krascheninnikovia*) winterfat

**-RMDŘ-** ‘CHENOPODIOIDEAE’ VI 1. (genus *Dysphania*; *D. ambrosioides*) epazote 2. (genus *Dysphania*; *D. botrys*) Jerusalem oak / sticky goosefoot / feathered geranium 3. (genus *Dysphania*; species other than Stems 1 and 2) wormseed, crumbwee, goosefoot

**-RMDV-** ‘CHENOPODIOIDEAE’ VII 1. (genus *Axyris*) axyris, Russian pigweed 2. (genus *Cycloloma*) winged pigweed / tumble ringwing / plains tumbleweed 3. (Chenopodioideae other than named genera; several genera) other chenopodioid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Amaranthaceae > Betoideae

**-RMV-** ‘BETA VULGARIS (BEET)’ 1. (*B. v. vulgaris* ‘*Conditiva*’) beetroot plant (red beet) 2. (*B. v. vulgaris* ‘*Altissima*’) sugar beet plant 3. (*B. v. vulgaris* ‘*Cicla/Flavescens*’) [Swiss] chard plant

**-RMVW-** ‘BETA VULGARIS (BEET)’ 1. (*B. v. vulgaris* ‘*Crassa*’) mangelwurzel / mangold wurzel / mangold / mangel beet / fodder beet 2. (*B. v. maritima*) sea beet / wild spinach

3. (genus *Beta* other than *vulgaris* species) other beet species

**-RMVY-** ‘BETOIDEAE’ 1. (genus *Hablitzia*) Caucasian spinach 2. (genus *Aphanisma*) aphanisma, San Diego coastalcreeper 3. (other Betoideae genera; *Oreobliton*, *Patellifolia*, *Acrogloch*) other betoid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Amaranthaceae > Camphorosmoideae

**-RMVL-** ‘CAMPHOROSMOIDEAE’ I 1. (genus *Bassia*) burningbush / belvedere / Mexican fireweed / Mexican firebush, kochia, prostrate summer-cypress, five-horn smotherweed / thorn orache, bassia 2. (genus *Neokochia*) molly 3. (genus *Spirobassia*) contorted smotherweed

**-RMVR-** ‘CAMPHOROSMOIDEAE’ II 1. (genus *Enchylaena*) barrier saltbush 2. (genus *Maireana*) bluebush 3. (genus *Sclerolaena*) goathead burr, galvanized burr, tall bindii

**-RMVŘ-** ‘CAMPHOROSMOIDEAE’ III 1. (genus *Threkeldia*) coast bonefruit 2. (Camphorosmoideae other than named genera; several genera) other camphorosmoid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Amaranthaceae > Gomphrenoideae

**-RMF-** ‘GOMPHRENOIDEAE’ I 1. (genus *Gomphrena*) globe amaranth 2. (genus *Blutaparon*) silverhead / silverweed / saltweed / samphire, Galapagos amaranth 3. (genus *Froelichia*) snakecotton

**-RMFW-** ‘GOMPHRENOIDEAE’ II 1. (genus *Iresine*) bloodleaf, white snowplant, Texas shrub, Juba’s bush 2. (genus *Alternanthera*) joyweed, ruby leaf, little ruby, calico-plant, chaff-flower, washerwoman, sanguinaria, alligatorweed, rabbit-meat, Joseph’s coat 3. (genus *Tidestromia*) honeysweet, tidestromia

**-RMFY-** ‘GOMPHRENOIDEAE’ III 1. (genus *Guilleminea*) matweed 2. (genus *Pfaffia*) suma root / Brazilian ginseng 3. (Gomphrenoideae other than named genera; several genera) other gomphrenoid plant

**-RMFL-** ‘POLYCNEMOIDEAE’ 1. (genus *Polycnemum*) needleleaf 2. (genus *Nitrophila*) niterwort, boraxweed 3. (genera *Hemichroa* and *Surreya*) trailing saltstar / trailing jointweed / trailing hemichroa, surreya

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Amaranthaceae > Salicornioideae

**-RMFR-** ‘SALICORNOIDEAE’ I 1. (genus *Salicornia*) glasswort, saltwort, marsh samphire, samphire greens / sea asparagus / sea beans 2. (genus *Sarcocornia*) thick-headed glasswort, Australian samphire, Pacific swampfire / Pacific glasswort, Utah swampfire, chickenclaws / perennial glasswort 3. (genus *Tecticornia*) shrubby glasswort, shrubby samphire / grey glasswort, large-articled samphire, bead glasswort / bead samphire, blackseed glasswort / blackseed samphire, mat samphire

**-RMFR-** ‘SALICORNOIDEAE’ II 1. (genus *Allenrolfea*) iodine bush 2. (genus *Arthrocnemum*) Parish’s glasswort 3. (Salicornioideae other than named genera) other salcornoid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Amaranthaceae > Salsoloideae

**-RMFM-** ‘SALSOLOIDEAE’ I 1. (genus *Salsola*) saltwort, barilla plant 2. (genus *Kali*) Russian thistle, Tartar thistle, windwitch, tumbleweed, prickly saltwort / prickly glasswort 3. (genus *Halogeton*) saltlover, Aral barilla, halogeton

**-RMFN-** ‘SALSOLOIDEAE’ II 1. (genus *Haloxylon*) saxaul 2. (Salsoloideae other than named genera; several genera) other salsoloid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Amaranthaceae remaining families

**-RMFN-** ‘AMARANTHACEAE’ 1. (Corispermoideae; genera *Corispermum*, *Agriophyllum*, *Anthochlamys*) bugseed, tickseed, tumbleweed, other corispermoid plant 2. (Suaedoideae; genera *Suaeda*, *Bienertia*) seepweed, seablite, iodine weed, bienertia

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Aizoaceae

**-RNX-** ‘AIZOACEAE’ I 1. (genus *Tetragonia*, edible species; *T. tetragonoides*, *T. decumbens*) New Zealand spinach, dune spinach 2. (genus *Tetragonia*; species other than Stem 1) bower spinach, tetragonia 3. (genus *Scelium*) kanna / channa

**-RNXW-** ‘AIZOACEAE’ II 1. (genus *Conicosia*) narrow-leafed ice plant 2. (genus *Cleretum*) Livingstone daisy / Buck Bay vygie 3. (genus *Aloiopsis*) giant jewel plant

**-RNXL-** ‘AIZOACEAE’ III 1. (genus *Carpobrotus*) pigface, ice plant, sour fig, sea fig, beach banana 2. (genus *Delosperma*) pickle plant, ice plant 3. (genus *Disphyma*) round-leaved pigface / New Zealand iceplant / purple dewplant

**-RNXR-** ‘AIZOACEAE’ IV 1. (genus *Drosanthemum*) dew-flower, redondo creeper 2. (genus *Lapidaria*) Karoo rose 3. (genus *Malephora*) mesemb

**-RNXM-** ‘AIZOACEAE’ V 1. (genus *Muiria*) mouse-head 2. (genus *Pleiospilos*) split rock, mimicry plant 3. (Aizoaceae other than named genera; numerous genera) other Aizoaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Molluginaceae

-**RNXN**- ‘MOLLUGINACEAE’ 1. (genus *Mollugo*) carpetweed 2. (genus *Glinus*) sweetjuice 3. (Molluginaceae other than Stems 1 and 2; several genera) other molluginaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Cactaceae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Cactaceae > Cactoideae

-**FSK**- ‘CACTEAE’ I 1. (genus *Lophophora*) peyote, false peyote 2. (genus *Escobaria*) pincushion cactus / foxtail cactus 3. (genus *Epithelantha*) button cactus

-**FSKW**- ‘CACTEAE’ II 1. (genus *Echinocactus*) golden barrel cactus, devil’s head / silverbell cactus / Turk’s head cactus, horsecripler / devil’s pincushion, giant barrel cactus, cottontop cactus 2. (genus *Echinomastus*) redspine fishhook cactus / redspine butterfly cactus / needlespine pineapple cactus / red pineapple cactus / purple-spine viznagita / acuña cactus, Johnson’s beehive cactus / Johnson’s fishhook cactus, Lloyd’s fishhook cactus / golfball cactus / silver column cactus / Mariposa cactus 3. (genus *Astrophytum*) sand dollar cactus / sea urchin cactus / star peyote, goat’s horn cactus, bishop’s ca cactus / bishop’s hat / bishop’s mitre cactus, monk’s hood cactus

-**FSKY**- ‘CACTEAE’ III 1. (genus *Coryphantha*) beehive cactus, sea urchin cactus / hedghog cory cactus / rhinoceros cactus, nipple beehive cactus, Pima pineapple, bunched cory cactus / whiskerbush 2. (genus *Leuchtenbergia*) agave cactus / prism cactus 3. (genus *Mammillaria*) pincushion, finger cactus, powder-puff pincushion, green fishhook cactus, owl’s eyes, mother of hundreds, strawberry cactus / California fishhook cactus, ladyfinger cactus, twin-spined cactus, crested twin-spined cactus, Arizona fishhook cactus, nipple cactus, rattail cactus, feather cactus, red headed Irishman, bristle brush cactus, old lady cactus, mammillaria

-**FSKL**- ‘CACTEAE’ IV 1. (genus *Mammilloidia*) snowball cactus 2. (genus *Obregonia*) artichoke cactus 3. (genus *Pediocactus*) Brady’s pincushion cactus / Brady’s hedghog cactus / Marble Canyon cactus, Despain’s cactus / San Rafael cactus, Knowlton’s miniature cactus / Knowlton’s minute cactus, Navajo pincushion cactus, Winkler’s cactus, gypsum cactus

-**FSKR**- ‘CACTEAE’ V 1. (genus *Sclerocactus*) little barrel cactus 2. (genus *Stenocactus*) brain cactus 3. (Cactaceae other than named genera; several genera) other cactid plant

-**FSKŘ**- ‘PHYLLOCACTEAE’ I 1. (genus *Carnegiea*) saguaro cactus 2. (genus *Cephalocereus*) old man cactus 3. (genus *Echinocereus*) hedgehog cactus, rainbow cactus, king cup cactus / claret cup cactus, green pitaya, Mojave mound cactus, ladyfinger cactus, dahlia cactus

-**FSKF**- ‘PHYLLOCACTEAE’ II 1. (genus *Bergerocactus*) snake cactus 2. (genus *Escontria*) chiotilla / jiotilla 3. (genus *Stenocereus*) octopus cactus, creeping devil caterpillar cactus, dagger cactus, sour pitaya, organ pipe cactus

-**FSKT**- ‘PHYLLOCACTEAE’ III 1. (genus *Myrtillocactus*) bilberry cactus / whortleberry cactus / blue candle, candelabra cactus 2. (genus *Pachycereus*) Indian comb, totem cactus / senita cactus 3. (genus *Peniocereus*) desert nightblooming cereus, gearstem cactus

-**FSKV**- ‘PHYLLOCACTEAE’ IV 1. (genus *Acanthocereus*) barbed-wire cactus 2. (genus *Brachycereus*) lava cactus 3. (genus *Jasminocereus*) candelabra cactus

-**FSKÇ**- ‘PHYLLOCACTEAE’ V 1. (genus *Epiphyllum*) climbing cactus, orchid cactus, leaf cactus 2. (genus *Selenicereus*) moonlight cactus 3. (Phyllocactae other than named genera) other phyllocactid plant

-**FSKL**- ‘CEREEAE’ I 1. (genus *Cereus*) lady of the night cactus, giant club cactus / hedge cactus 2. (genus *Stetsonia*) toothpick cactus 3. (genus *Gymnocalycium*) chin cactus

-**FSKM**- ‘CEREEAE’ II 1. (genus *Melocactus*) Turk’s cap cactus 2. (genus *Pilosocereus*) tree cactus, pipe organ cactus 3. (genus *Espeotoa*) old Peruvian man

-**FSKN**- ‘CEREEAE’ III 1. (genus *Echinopsis*) hedgehog cactus, torch cactus, golden torch / golden column, Argentine saguaro, cardón, San Pedro cactus, sea-urchin cactus, Easter lily cactus, peanut cactus 2. (Cereae other than named genera) other cereid cactus

-**FSKH**- ‘RHIPSIDAEAE’ 1. (genus *Rhipsalis*) mistletoe cactus 2. (genus *Schlumbergera*) Christmas cactus, Thanksgiving cactus, crab cactus, holiday cactus, Easter cactus / Whitsun cactus, claw cactus 3. (Rhipsalideae other than named genera; several genera) other rhipsalid cactus

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Cactaceae > Opuntioideae

**-FSKS-** ‘OPUNTIEAE’ 1. (genus *Opuntia*) prickly pear, old man’s whiskers / cowboy’s red whiskers, calico cactus, brittles cactus, Aaron’s beard cactus / semaphore cactus, bunny ears cactus / polka-dot cactus, creeping cactus, red buttons opuntia 2. (genus *Consolea*) Florida semaphore cactus / semaphore pricklypear 3. (Opuntiae other than Stems 1 and 2; several genera) other opuntioid cactus

**-FSKŠ-** ‘CYLINDROPUNTIEAE’ 1. (genus *Cylindropuntia*) cholla bush 2. (genus *Grusonia*) matted cholla / Parish club cholla, sagebrush cholla 3. (Cylindropuntiae other than Stems 1 and 2; several genera) other cylindropuntioid cactus

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Cactaceae remaining sub-families

**-FSKHW-** ‘CACTACEAE’ 1. (Pereskioideae; genus *Pereskia*) lemon vine, rose cactus, leaf cactus 2. (Notocactaceae, Maihuenioideae, and Cactaceae of uncertain sub-family or tribe; several genera) other cactus

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Basellaceae

**-BVK-** ‘BASELLACEAE’ 1. (genus *Basella*) Malabar spinach / vine spinach / Ceylon spinach 2. (genus *Ullucus*) ulluco 3. (genera *Anredera*, *Tourneria*) Madeira vine, other basellaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Didiereaceae

**-BVKW-** ‘DIDIEREACEAE’ 1. (genus *Didierea*) octopus tree 2. (genus *Alluaudia*) Madagascar ocotillo 3. (Didiereaceae other than Stems 1 and 2) other didiereaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Droseraceae, Drosophyllaceae, Nepenthaceae

**-BVKY-** ‘DROSERACEAE’ 1. (genus *Drosera*) sundew 2. (genus *Dionaea*) Venus flytrap 3. (genus *Aldrovanda*) waterwheel plant

**-BVKL-** ‘DROSOPHYLLACEAE & NEPENTHACEAE’ 1. (Drosophyllaceae; genus *Drosophyllum*) Portuguese sundew / dewy pine 2. (Nepenthaceae; genus *Nepenthes*) tropical pitcher plant / monkey cup

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Montiaceae

**-BVKR-** ‘MONTIACEAE’ I 1. (genus *Montia*) miner’s lettuce, tatlily, water-blinks, montia 2. (genus *Calandrinia*) purslane, redmaid, parakeelya 3. (genus *Cistanthe*) pussypaws, sandcress

**-BVKŘ-** ‘MONTIACEAE’ II 1. (genus *Claytonia*) spring beauty, winter purslane, Indian lettuce, grass-flower / fairy spud, claytonia 2. (genus *Lewisia*) lewisia, cliff maids, bitter-root 3. (genus *Lewisiopsis*) Tweedy’s pussypaws / Tweedy’s lewisia / Tweedy’s bitterroot

**-BVKŤ-** ‘MONTIACEAE’ III 1. (genus *Lyallia*) lyallia cushion 2. (genus *Phemeranthus*) fameflower, rock rose, rock pink, sand pink, sunbright 3. (Montiaceae other than named genera; several genera) other montioid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Nyctaginaceae

**-BVKF-** ‘NYCTAGINACEAE’ I 1. (genus *Bougainvillea*) bougainvillea, paperflower 2. (genus *Phaeoptilum*) brittle thorn 3. (genus *Tripterocalyx*) sandpuff, sand-verbena

- BVKV**- ‘NYCTAGINACEAE’ II 1. (genus *Mirabilis*) four-o’clock, marvel of Peru, desert wishbone-bush, umbrella wort, maravilla 2. (genus *Abronia*) abronia, sand-verbena, heart’s delight, prairie snowball / fragrant verbena, coastal 3. (genus *Acleisanthes*) trumpets, desert moonpod
- BVKÇ**- ‘NYCTAGINACEAE’ III 1. (genus *Allionia*) windmills, trailing four o’clock 2. (genus *Anulocaulis*) ringstem 3. (genus *Boerhavia*) spiderling, alena, windflower, climbing wartclub / wishbone vine, alena, boerhavia
- BVKİ**- ‘NYCTAGINACEAE’ IV 1. (genus *Pisonia*) catchbirtree, pullback, devil’s-claws, water mampoo, birdcatcher tree, birlime tree 2. (genus *Neea*) nia, neea, saltwood 3. (Nyctaginaceae other than named genera; several genera) other nyctaginaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Petiveriaceae

- BVKH**- ‘PETIVERIACEAE’ 1. (genus *Rivina*) pigeonberry / rougeplant / baby peppers / bloodberry / coralito 2. (genus *Trichostigma*) hooopvine /black basket wythe / cooper’s wythe / basket wiss / basket with / hoop with 3. (Petiveriaceae other than Stems 1 and 2; several genera) other petiveriaceae plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Phytolaccaceae

- BVKHW**- ‘PHYTOLACCACEAE’ 1. (genus *Phytolacca*) pokeweed, poke, pokebush, pokeberry, pokeroor, poke sallet, red inkplant, inkberry 2. (genus *Agdestis*) rockroot 3. (Phytolaccaceae other than Stems 1 and 2; several genera) other phytolaccid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales > Plumbaginaceae

- BVM**- ‘PLUMBAGINACEAE’ I 1. (genus *Plumbago*) leadwort, plumbago, doctorbush, whorled plantain 2. (genus *Ceratostigma*) leadwort, plumbago 3. (genus *Armeria*) thrift, lady’s cushion / sea pink
- BVMW**- ‘PLUMBAGINACEAE’ II 1. (genus *Limonium*) sea-lavender, tree limonium, statice, caspia, marsh-rosemary 2. (Plumbaginaceae other than named genera; several genera) other plumbaginaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Caryophyllales remaining families

- BVN**- ‘CARYOPHYLLALES’ I 1. (Frankeniaceae; genus *Frankenia*) sea heath, alkali heath, Saint Helena tea, frankenia 2. (Microteaceae; genus *Microtea*) jumby pepper 2.(Portulacaceae; genus *Portulaca*) purslane, pigweed, ‘ihi 3. (Sarcobataceae; genus *Sarcobatus*) greasewood / seepwood / saltbush
- BVNW**- ‘CARYOPHYLLALES’ II 1. (Simmondsiaceae; genus *Simmondsia*) jojoba / goat nut / deer nut / pignut / wild hazel / quinine nut / coffeeberry / gray box bush 2. (Achatocarpaceae, Anacampserotaceae, Ancistrociadaceae, Asteropeiaceae, Barbeulaceae, Dioncophyllaceae, Gisekiaceae, Halophytaceae, Kewaceae, Limeaceae, Lophiocarpaceae, Macarthuraceae, Physenaceae, Rhabdodendron, Stegnospermataceae, Talinaceae, Tamaricaceae; numerous genera) other caryophyllales plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Berberidopsidales

- CXN**- ‘BERBERIDOPSIDALES’ 1. (Berberidopsidaceae; genera *Berberidopsis*, *Streptothamnus* ) montane tape vine, Chilean coral plant, streptothamnus 2. (Aextoxicaceae; genus *Aextoxicon*) olivillo / aceitunillo tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Santalales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Santalales > Santalaceae

- LFW**- ‘SANTALACEAE’ I 1. (genus *Santalum*) sandalwood, quandong, native peach, ‘iliahi 2. (genus *Comandra*) bastard toadflax, comandra 3. (genus *Geocaulon*) false toadflax / northern comandra
- LFY**- ‘SANTALACEAE’ II 1. (genus *Viscum*) mistletoe 2. (genus *Phoradendron*) mistletoe 3. (genus *Arceuthobium*) dwarf mistletoe



**-LFL-** ‘SANTALACEAE’ III 1. (genus *Buckleya*) piratebush 2. (genus *Choretrum*) sour bush 3. (genus *Exocarpos*) ballart, grass tree, dwarf cherry, slender cherry, broad-leaved cherry, cypress cherry, jointed cherry

**-LFR-** ‘SANTALACEAE’ IV 1. (genus *Korthalsella*) korthal mistletoe 2. (genus *Leptomeria*) currant bush 3. (genus *Nestronia*) leechbrush / conjurer’s-nut / Indian olive / nestronia

**-LFR-** ‘SANTALACEAE’ V 1. (genus *Osyris*) osyris, Cape sumach, wild tea plant, African sandalwood 2. (genus *Thesium*) meadowflax 3. (Santalaceae other than named genera; numerous genera) other santalid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Santalales > Lorantheaceae

**-LFS-** ‘LORANTHACEAE’ I 1. (genus *Loranthus*) showy mistletoe 2. (genus *Muellerina*) Banksia mistletoe / coast mistletoe, Cypress-pine mistletoe, creeping mistletoe, hoop pine mistletoe myrtle-leaved mistletoe 3. (genus *Anyema*) pincushion mistletoe, stalked mistletoe, wireleaf mistletoe, drooping mistletoe

**-LFŠ-** ‘LORANTHACEAE’ II 1. (genus *Nuytsia*) moodjar, Australian Christmas tree 2. (genus *Atkinsonia*) Louisa’s mistletoe 3. (genus *Psittacanthus*) parrot-flower

**-LFT-** ‘LORANTHACEAE’ III 1. (genus *Lysiana*) harlequin mistletoe, Mulga mistletoe, Northern mistletoe 2. (genus *Peraxilla*) red mistletoe 3. (genus *Macrosolen*) parasite honeysuckle

**-LFX-** ‘LORANTHACEAE’ IV 1. (genus *Dendrophthoe*) long-flowered mistletoe / apostle mistletoe, orang mistletoe 2. (genus *Agelanthus*) African mistletoe 3. (Loranthaceae other than named genera) other showy mistletoe

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Santalales > Balanophoraceae

**-LFM-** ‘BALANOPHORACEAE’ I 1. (genus *Balanophora*) coral plant, fungus root 2. (genus *Dactylanthus*) wood rose 3. (genus *Thonningia*) ground pineapple

**-LFN-** ‘BALANOPHORACEAE’ II 1. (genus *Hechettea*) hechettea 2. (Balanophoraceae other than named genera; several genera) other balanophorid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superasterids > Santalales remaining families

**-LFÑ-** ‘SANTALALES’ 1. (Misodendraceae; genus *Misodendrum*) feathery mistletoe 2. (Schoepfiaceae; genus *Schoepfia*) arana, schoepfia 3. (Olacaceae, Opiliaceae; several genera) other santalales plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > Saxifragales

**-LŠW-** ‘SAXIFRAGACEAE’ I 1. (genus *Saxifraga*) saxifrage, rockfoil, Dovedale moss, Madeira breakstone, fair maids of France, spider plant, Saint Patrick’s cabbage, strawberry geranium, London pride 2. (genus *Micranthes*) saxifrage, brook lettuce 3. (genus *Heuchera*) alumroot, jill-of-the-rocks, jack-o’the-rocks, coral bells

**-LŠY-** ‘SAXIFRAGACEAE’ II 1. (genus *Chrysosplenum*) golden saxifrage 2. (genus *Astilbe*) false goat’s beard, false spirea 3. (genus *Saxifragopsis*) strawberry saxifrage

**-LŠL-** ‘SAXIFRAGACEAE’ III 1. (genus *Tiarella*) foamflower 2. (genus *Tolmiea*) youth on age / pick-a-back-plant / piggyback plant / thousand mothers 3. (genus *Boykinia*) brookfoam, boykinia

**-LŠR-** ‘SAXIFRAGACEAE’ IV 1. (genus *Sullivantia*) coolwort 2. (genus *Bolandra*) false coolwort 3. (genus *Jepsonia*) jepsonia

**-LŠŘ-** ‘SAXIFRAGACEAE’ V 1. (genus *Lithophragma*) woodland star 2. (genus *Mitella*) miterwort, bishop’s cap 3. (genus *Tellima*) fringe cups

**-LŠF-** ‘SAXIFRAGACEAE’ VI 1. (genus *Bergenia*) elephant’s ears / elephant-eared saxifrage, gergenia, pigsqueak / Siberian tea / Mongolian tea 2. (genus *Darmera*) Indian rhubarb / umbrella plant 3. (genus *Bensoniella*) Oregon bensoniella

**-LŠT-** ‘SAXIFRAGACEAE’ VII 1. (genus *Tankakaea*) Japanese foam flower 2. (Saxifragaceae other than named genera; several genera) other saxifragaceous plant

- LŠM**- 'GROSSULARIACEAE [genus RIBES]' I 1. (*Ribes rubrum*) redcurrant 2. (cultivar of *R. rubrum*) white currant 3. (*R. nigrum*) blackcurrant
- LŠN**- 'GROSSULARIACEAE [genus RIBES]' II 1. (*R. uva-crispa* / *grossularia*) gooseberry 2. (*R. nidigrolaria*) jostaberry 3. (*R. aureum*) golden currant / clove currant / pruterberry / buffalo currant
- LŠŇ**- 'GROSSULARIACEAE [genus RIBES]' III 1. (*Ribes* species cultivated as ornamental plants; several species) ornamental currant/gooseberry plant 2. (wild/non-cultivated *Ribes* species; numerous species) wild currant/gooseberry plant
- LŠV**- 'CRASSULACEAE' I 1. (genus *Crassula*) jade plant, pygmyweed, silver dollar plant, rattlesnake tail, stonecrop, silver beads, crassula, tailor's patch, watch chain / lizard's tail / zipper plant, string of buttons, red carpet, rosary plant / kebab bush / concertina plant 2. (genus *Sedum*) stonecrop, orpine, wallpepper, prick-madam / trip-madam 3. (genus *Sedella*) mock stonecrop
- LŠX**- 'CRASSULACEAE' II 1. (genus *Kalanchoe*) velvet leaf / felt plant / felt bush, flaming katy / Madagascar widow's-thrill, devil's backbone / Mexican-hat plant, donkey ears / life plant, penwiper, paddle plant, silver teaspoons, pies from heaven, flapjacks / desert cabbage / white lady, chandelier plant / mother of millions 2. (genus *Andromischus*) andromischus, calico hearts 3. (genus *Cotyledon*) silver crown / silver ruffles, pig's ear / rounded-leafed navel-wort, bear's paw
- LŠFW**- 'CRASSULACEAE' III 1. (genus *Hylotelephium*) stonecrop, live-forever, livelong / frog's-stomach / life-everlasting / midsummer-men / harping Johnny / orphan John / witch's moneybags 2. (genus *Rhodiola*) redpod stonecrop / queen's crown, golden root / rose root / Aaron's rod / Arctic root / king's crown / orpin rose, western roseroot / ledge stonecrop 3. (genus *Umbilicus*) Venus' navel, navelwort, gold drop, umbilicus
- LŠFY**- 'CRASSULACEAE' IV 1. (genus *Sempervivum*) houseleek, liveforever, hen and chicks, Jupiter's beard 2. (genus *Jovibarba*) hen-and-chickens, rolling hen-and-chicks 3. (genus *Aeonium*) tree houseleek
- LŠTW**- 'CRASSULACEAE' V 1. (genus *Dudleya*) dudleya, live-forever, sea lettuce, fingertips, alabaster plant 2. (genus *Echeveria*) echeveria, Mexican hens-and-chicks, Mexican firecracker, desert savior, painted lady, Mexican snowball / Mexican gem / white Mexican rose 3. (genus *Graptopetalum*) leatherpetal, lavender pebbles / jewel-leaf plant, mother of pearl plant / ghost plant
- LŠTY**- 'CRASSULACEAE' V 1. (genus *Pachyphytum*) sugar-almond plant, moonstone, pachyphytum 2. (Crassulaceae other than named genera; numerous genera) other crassulaceous plant
- LŠŠ**- 'HALORAGACEAE' I 1. (genus *Haloragis*) seaberry, haloragis 2. (genus *Gonocarpus*) raspwort 3. (genus *Glischrocaryon*) golden pennants, popflower
- LŠXW**- 'HALORAGACEAE' II 1. (genus *Myriophyllum*) water-milfoil, parrot's-feather 2. (genus *Proserpinaca*) mermaid-weed 3. (Haloragaceae other than Stems 1 and 2; several genera) other haloragid plant
- LŠVW**- 'HAMAMELIDACEAE' I 1. (genus *Hamamelis*) witch-hazel, winterbloom 2. (genus *Fothergilla*) witch alder, fothergilla 3. (genus *Parrotia*) Persian ironwood, Chinese ironwood
- LŠVY**- 'HAMAMELIDACEAE' II 1. (genus *Corylopsis*) winter-hazel 2. (genus *Rhodoleia*) Hong Kong rose 3. (Hamamelidaceae other than named genera) other hamamelid plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > Saxifragales remaining families

- LŠMW**- 'SAXIFRAGALES' I 1. (Iteaceae; genera *Itea*, *Pterostemon*) sweetspire, pterostemon 2. (Aphanopetalaceae; genus *Aphanopetalum*) gum vine 3. (Paeoniaceae; genus *Paeonia*) peony
- LŠMY**- 'SAXIFRAGALES' II 1. (Altingiaceae; genus *Liquidambar*) sweetgum / stargum, redgum, satin-walnut, american storax 2. (Cercidiphyllaceae; genus *Cercidiphyllum*) katsura 3. (Tetracarpaea, Penthoraceae, Daphniphyllaceae, Peridiscaceae; several genera) other saxifragales plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > Vitales

**-ṬN-** ‘VITUS [GRAPE]’ 1. (*Vitis vinifera*) European grapevine 2. (culinary/cultivated *Vitis* species other than *V. vinifera*; several species, e.g., *V. labrusca*, *V. riparia*, *V. aestivalis*, *V. rotundifolia*) other grapevine [used for wine-making, table grapes, or preserve-making] 3. (wild or ornamental *Vitis* species; numerous species) wild grapevine, ornamental grapevine

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Brassicales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Brassicales > Brassicaceae [a.k.a., Cruciferae]

**-ŽK-** ‘BRASSICA OLERACEA (BROCCOLI & RELATED SPECIES)’ I 1. (*B.o. Italica* group) broccoli plant 2. (*B.o. Bortrytis* group) cauliflower plant, romanesco plant, broccoflower hybrid plant 3. (*B.o. Alboglabra* group) Chinese broccoli plant / gai lan, broccolini hybrid

**-ŽKW-** ‘BRASSICA OLERACEA (BROCCOLI & RELATED SPECIES)’ II 1. (*B.o. Capitata* group) cabbage plant 2. (*B.o. Gemmifera* group) brussel sprout plant 3. (*B.o. Gongylodes* group) kohlrabi plant

**-ŽKY-** ‘BRASSICA OLERACEA (BROCCOLI & RELATED SPECIES)’ III 1. (*B.o. Acephala* group 1) kale plant 2. (*B.o. Acephala* group 2) collard plant 3. (*B.o. Acephala* group 3) spring greens

**-ŽKL-** ‘BRASSICA OLERACEA (BROCCOLI & RELATED SPECIES)’ IV 1. (*B.o. sabauda*) savoy cabbage plant 2. (*B.o.* hybrid with *B. rapa rapa*) rutabaga plant 3. (*B.o.* non-edible varieties) ornamental kale

**-ŽKR-** ‘BRASSICA RAPA’ I 1. (*B.r. rapa*) turnip plant 2. (*B.r. pekinensis*) Napa cabbage plant 3. (*B.r. chinensis*) bok choy

**-ŽKŘ-** ‘BRASSICA RAPA’ II 1. (*B.r. oleifera*) (field) mustard plant 2. (*B.r. rapifera*) rapini / broccoli rabe plant 3. (*B.r. perviridis*) komatsuna plant / Japanese mustard spinach

**-ŽKT-** ‘BRASSICA RAPA’ III 1. (*B.r. nipposinica*) mizuna 2. (*B.r. parachinensis*) choy sum / flowering cabbage 3. (*B.r. oleifera*) canola

**-ŽKH-** ‘BRASSICA (OTHER SPECIES)’ I 1. (*B. juncea*) brown mustard, wrapped heart mustard cabbage 2. (*B. hirta*) white mustard 3. (*B. nigra*) black mustard

**-ŽKÇ-** ‘BRASSICA (OTHER SPECIES)’ II 1. (*B. napus*) Siberian kale 2. (*B. rosularis*) tatsoi

**-ŽKF-** ‘BRASSICEAE’ I 1. (genus *Raphanus*) radish plant, daikon 2. (genus *Nasturtium*) watercress plant 3. (genus *Eruca*) arugula/rocket plant

**-ŽKV-** ‘BRASSICEAE’ II 1. (genus *Wasabia/Eutremia*) wasabi plant 2. (genus *Lepidum*) garden cress, field cress / field pepperweed / field pepperwort, maca / Peruvian ginseng 3. (genus *Diplotaxis*) wild arugula / perennial wall-rocket

**-ŽKM-** ‘BRASSICEAE’ III 1. (genus *Erucastrum*) dogmustard 2. (genus *Coincya*) star mustard, Isle of Man cabbage, wallflower cabbage, Lundy cabbage 3. (genus *Hirschfeldia*) shortpod mustard / burchanweed / hoary mustard / Mediterranean mustard

**-ŽKN-** ‘BRASSICEAE’ IV 1. (genus *Rapistrum*) bastard cabbage 2. (genus *Cakile*) searocket 3. (Brassicaceae other than named species; numerous genera) other brassicean plant

**-ŽGW-** ‘THELYPODIEAE’ I 1. (genus *Thelypodium*) thelypody 2. (genus *Sibara*) winged rockcress 3. (genus *Sibaropsis*) Hammit’s clay-cress

**-ŽGY-** ‘THELYPODIEAE’ II 1. (genus *Streptanthus*) twistflower, jewelflower, shieldplant 2. (genus *Streptanthella*) longbeak streptanthella 3. (genus *Glaucocarpum*) waxfruit mustard / toad-flax cress / shrubby reed-mustard / Uinta Basin waxfruit

**-ŽGL-** ‘THELYPODIEAE’ III 1. (genus *Caulostramina*) cliffdweller 2. (genus *Caulanthus*) jewelflower, wild cabbage 3. (genus *Thysanocarpus*) fringe pod, lacepod

**-ŽGR-** ‘THELYPODIEAE’ IV 1. (genus *Stanleya*) prince’s plume 2. (genus *Phlebotobium*) Falkland rock-cress 3. (Thelypodieae other than named genera; numerous genera) other thelypodiid plant

- ŽGŘ-** 'CARDAMINEAE' I 1. (genus *Barbarea*) winter cress / yellow rocket, land cress / American cress / bank cress / black wood cress / Bermuda cress / scurvy cress / upland cress / creasy greens, bittercress / herb barbara / rocketcress / winter rocket / wound rocket 2. (genus *Armoracia*) horseradish 3. (genus *Cardamine*) toothwort, bittercress
- ŽGV-** 'CARDAMINEAE' II 1. (genus *Leavenworthia*) glade cress 2. (genus *Iodanthus*) purpleroCKET 3. (Cardamineae other than named genera; several genera) other cardamineid plant
- ŽFW-** 'BRASSICACEAE' I 1. (genus *Isatis*) woad / dyer's woad / glastum / Asp of Jerusalem 2. (genus *Hugueninia*) tansy-leaved rocket 3. (genus *Thlaspi*) penny-cress
- ŽFY-** 'BRASSICACEAE' II 1. (genus *Conringia*) hare's ear mustards 2. (genus *Lunaria*) honesty 3. (genus *Arabis*) rockcress
- ŽFL-** 'BRASSICACEAE' III 1. (genus *Athysanis*) sandweed 2. (genus *Draba*) whitlow-grass 3. (genus *Heterodraba*) ladiestongue mustard
- ŽFR-** 'BRASSICACEAE' IV 1. (genus *Cochlearia*) scurvy-grass, spoonwort 2. (genus *Hesperis*) dame's rocket / damask-violet / dame's-violet / dames-wort / gilliflower / summer lilac / mother-of-the-evening, hesperis 3. (genus *Erysimum*) wallflower
- ŽFŘ-** 'BRASSICACEAE' V 1. (genus *Iberis*) candytuft 2. (genus *Teesdalia*) shepherds cress 3. (genus *Idahoia*) scalepod / oldstem idahoia
- ŽVW-** 'BRASSICACEAE' VI 1. (genus *Coronopus*) swinecress, wartcress 2. (genus *Descurainia*) tansymustard 3. (genus *Subularia*) awlwort
- ŽVY-** 'BRASSICACEAE' VII 1. (genus *Arabidopsis*) rockcress 2. (genus *Boechera*) rockcress 3. (genus *Cusickiella*) cusickiella
- ŽVL-** 'BRASSICACEAE' VIII 1. (genus *Phoenicaulis*) daggerpod, phoenicaulis 2. (genus *Anelsonia*) daggerpod 3. (genus *Halimolobos*) fissurewort
- ŽVR-** 'BRASSICACEAE' IX 1. (genus *Physaria*) twindpod, bladderpod 2. (genus *Dithyrea*) shieldpod 3. (genus *Paysonia*) bladderpod
- ŽVŘ-** 'BRASSICACEAE' X 1. (genus *Aethionema*) stonecress 2. (genus *Berteroa*) false madwort 3. (Brassicaceae other than named genera; numerous genera) other brassicaceous plant

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- ŽŽP-** 'CAPPARACEAE' I 1. (genus *Capparis*) caper bush / caper shrub, karir / kirir, wild orange, devil's guts, wild passionfruit, mabinlang 2. (genus *Boscia*) shepherd tree, hanza 3. (genus *Cadaba*) swartstorm, cadaba
- ŽŽPW-** 'CAPPARACEAE' II 1. (genus *Apophyllum*) warrior bush / broom bush 2. (genus *Cladostemon*) three-finger bush 3. (genus *Crateva*) sacred barna, sacred garlic pear / temple plant
- ŽŽPY-** 'CAPPARACEAE' II 1. (genus *Maerua*) rough-skinned bush cherry 2. (Capparaceae other than named genera; numerous genera) other capparaceous plant
- ŽŽPL-** 'CLEOMACEAE' I 1. (genus *Cleome*) spider flower, spider plant, spiderwisp / cat's whiskers / African cabbage, justago, cleome, mouse whiskers, bladderpod / burro-fat, bee plant, Navajo spinach / stinking-clover / skunk weed / beeweed / guaco, tick weed 2. (genus *Cleomella*) cleomella, stinkweed 3. (genus *Oxystylis*) spiny caper
- ŽŽPR-** 'CLEOMACEAE' II 1. (genus *Polanisia*) clammyweed 2. (genus *Wislizenia*) spactacle fruit, jackass clover 3. (Cleomaceae other than named genera; several genera) other cleomaceous plant
- ŽŽPŘ-** 'RESEDACEAE' 1. (genus *Reseda*) mignonette, weld, dyer's rocket, bastard rocket 2. (Resedaceae other than Stem 1; several genera) other resedaceous plant
- ŽŽPF-** 'GYROSTEMONACEAE' 1. (genus *Gyrostemon*) camel poison, corkybark 2. (genus *Codonocarpus*) bell-fruit tree, camel poison 3. (Gyrostemonaceae other than Stems 1 and 2; several genera) button creeper, other gyrostemonaceous plant
- ŽŽPT-** 'CARICACEAE' 1. (genus *Carica*) papaya / pawpaw 2. (genus *Vasconcellea* [other than *V. pubescens*]) babaco tree 3. (*V. pubescens*) mountain papaya / mountain pawpaw
- ŽŽPČ-** 'LIMNANTHACEAE' 1. (*Limnanthes alba*) white meadowfoam 2. (*Limnanthes* other than *L. alba*; several genera) meadowfoam 3. (genus *Floerkea*) false mermaid, floerkea

- ŽŽPL-** ‘SALVADORACEAE’ 1. (genus *Salvadora*) toothbrush tree, mustard tree 2. (genus *Azima*) azima, bee sting bush 3. (genus *Dobera*) dobera
- ŽŽPS-** ‘BRASSICALES’ I 1. (Akaniaceae; genera *Akania*, *Bretschneidera*) turnipwood, bretschnidera 2. (Bataceae; genus *Batis*) turtleweed / saltwort / beachwort / pickleweed 3. (Koeberliniaceae; genus *Koeberlinia*) crown of thorns / allthorn / crucifixion thorn
- ŽŽPŠ-** ‘BRASSICALES’ II 1. (Moringaceae; genus *Moringa*) drumstick tree / horseradish tree / ben oil tree / benzolive tree, bottle tree, moringa 2. (Tropaeolaceae; genus *Tropaeolum*) nasturtium / nasturtian, canary creeper, flame flower, three-coloured Indian cress, mashua 3. (Tovariaceae, Pentadiplandraceae, Emblingiaceae, Setchellanthaceae; several genera) other brassicales plant
- Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Malvales
- Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Malvales > Malvaceae
- LCK-** ‘MALVOIDEAE’ I 1. (genus *Malva*) mallow, cheeseweed / cheeseplant 2. (genus *Alcea*) hollyhock, alcea 3. (genus *Althaea*) marshmallow, hemp-leaved hollyhock
- LCKW-** ‘MALVOIDEAE’ II 1. (genus *Lavatera*) tree-mallow 2. (genus *Iliamna*) globe-mallow, wild hollyhock, Peter’s mountain mallow 3. (genus *Malacothamnus*) bush-mallow, chaparral mallow
- LCKY-** ‘MALVOIDEAE’ III 1. (genus *Abutilon*) Indian mallow, room maple / parlor maple / flowering maple, abutilon, Indian lantern-flower / monkeybush, desert Chinese-lantern, butterprint / abutilon- hemp / China-jute / velvetleaf 2. (genus *Wissadula*) velvetleaf 3. (genus *Allowissadula*) false Indianmallow
- LCKL-** ‘MALVOIDEAE’ IV 1. (genus *Herissantia*) bladder mallow, curly abutilon 2. (genus *Akrosida*) bigleaf akrosida 3. (genus *Malvella*) scurfy mallow, alkali mallow, arrowleaf mallow
- LCKR-** ‘MALVOIDEAE’ V 1. (genus *Sphaeralcea*) globemallow, desertmallow, false mallow 2. (genus *Eremalche*) white mallow, Parry’s mallow, desert five-spot 3. (genus *Napaea*) glade mallow
- LCKŘ-** ‘MALVOIDEAE’ VI 1. (genus *Callirhoe*) poppy mallow, winecup 2. (genus *Sidalcea*) checkerbloom, checkermallow, prairie mallow, miniature hollyhock, sidalcea 3. (genus *Anoda*) anoda, violetta
- LCKF-** ‘MALVOIDEAE’ VII 1. (genus *Hoheria*) houhere, lacebark, ribbonwood, New Zealand mallow 2. (genus *Lawrencia*) lawrencia, dunna dunna 3. (genus *Malope*) mallow-wort / purple Spanish mallow, malope
- LCKŤ-** ‘MALVOIDEAE’ VIII 1. (genus *Modiola*) bristly-fruited mallow / Carolina bristlemallow / babosilla / redflower mallow 2. (genus *Gynatrix*) hemp bush, aboriginal hemp 3. (genus *Horsfordia*) velvetmallow
- LCKÇ-** ‘MALVOIDEAE’ IX 1. (genus *Gossypium*) cotton plant 2. (genus *Kokia*) treecotton 3. (genus *Thespesia*) portia tree / Pacific rosewood / milo, maga
- LCKĽ-** ‘MALVOIDEAE’ X 1. (genus *Hibiscus*) hibiscus, rosemallow, rosella, comfortroot, roselle, fousapate marron, mahoe, mandrinette, pale face, flower-of-an-hour, rose of sharon 2. (genus *Abelmoschus*) okra, musk mallow, abelmosk / ambrette / musk okra / rose mallow 3. (genus *Kosteletzkya*) seashore mallow / sweat weed / saltmarsh mallow
- LCKV-** ‘MALVOIDEAE’ XI 1. (genus *Malvaviscus*) wax mallow / Turkcap / Turk’s turban / ladies teardrop / Scotchman’s purse, Turk’s cap mallow, sleeping hibiscus, mazapan 2. (genus *Pavonia*) swampmallow, gingerbush, pavonia 3. (genus *Lagunaria*) pyramid tree / Norfolk Island hibiscus / Queensland white oak / sally wood / itchy bomb tree / cow itch tree
- LCKH-** ‘MALVOIDEAE’ XII 1. (genus *Radyera*) desert rose mallow / bush hibiscus 2. (genus *Hibiscadelphus*) hau kuahiwi
- LCKHW-** ‘MALVOIDEAE’ XIII 1. (genus *Alyogyne*) coastal hibiscus, lilac hibiscus, sand hibiscus 2. (Malvoideae other than named genera; numerous genera) other malvoid plant
- LČK-** ‘BOMBACOIDEAE’ I 1. (genus *Bombax*) silk cotton tree, red cotton tree, kapok-tree, bombax 2. (genus *Chirantodendron*) devil’s hand tree / monkey’s hand tree / Mexican hand tree / hand-flower 3. (genus *Fremontodendron*) flannel bush, fremontia

- LČKW**- ‘BOMBACOIDEAE’ II 1. (genus *Ochroma*) balsa tree / balsa wood tree 2. (genus *Pachira*) Malabar chestnut tree / French peanut tree / Provision tree, saba nut, pochote 3. (genus *Pseudobombax*) soroché, shaving brush tree
- LČKY**- ‘BOMBACOIDEAE’ III 1. (genus *Quararibea*) south American sapote / chupa-chupa, wild palm, swizzlestick tree 2. (Bombacoideae other than named genera; several genera) other bombacoid plant
- LČKL**- ‘HELICTEROIDEAE’ I 1. (genus *Durio*) durian tree 2. (genus *Helicteres*) Indian screw tree 3. (genus *Kostermansia*) krepal, durian tuang
- LČKR**- ‘HELICTEROIDEAE’ II 1. (genus *Triplochiton*) African whitewood tree 2. (Helicteroideae other than named genera) other helicteroid tree
- LČKŘ**- ‘BROWNLOWIOIDEAE’ 1. (genus *Berrya*) trincomalee wood tree 2. (Brownlowioideae other than Stem 1; several genera) other brownlowioid plant/tree
- LČKF**- ‘DOMBEYOIDEAE’ 1. (genus *Dombeya*) dombeya, pinkball / tropical hydrangea, dikba / South African wild pear, bois bete 2. (genus *Pentapetes*) noon flower 3. (Dombeyoideae other than Stems 1 and 2; several genera) other dombeyoid plant
- LČKT**- ‘STERCULIOIDEAE’ I 1. (genus *Sterculia*) tropical chestnut, sterculia, Panama tree / manduvi tree, mopopaja tree, bastard poon tree / wild almond tree, China chestnut / seven sister’s fruit, lowveld chestnut, gorarbar, ulumbu tree, gulu, broad-leaved bottle tree 2. (genus *Cola*) kola tree / kola nut, hairy cola / Zulu coshwood 3. (genus *Brachychiton*) kurrajong, couramyn, illawarra flame tree, lacebark tree, bottletree
- LČKÇ**- ‘STERCULIOIDEAE’ II 1. (genus *Franciscodendron*) tulip sterculia / tulip kurrajong / cabbage crow’sfoot 2. (genus *Argyrodendron*) booyong, tulip oak, crow’sfoot, blackjack 3. (genus *Pterygota*) buddha coconut, koto
- LČKL**- ‘STERCULIOIDEAE’ III 1. (genus *Heritiera*) looking-glass mangrove, dungon 2. (genus *Scaphium*) malva nut tree / Taiwan sweet gum tree 3. (Sterculioideae other than named genera; several genera) other sterculioid plant/tree
- LČKV**- ‘GREWIOIDEAE’ 1. (genus *Grewia*) falsa / phalsa, crossberry, emu-berry / dog’s balls / turkey bush / diddle diddle / dysentery bush 2. (genus *Triumfetta*) burbark, Chinese bur 3. (Grewioideae other than Stems 1 and 2; several genera) other grewioid plant
- LČKH**- ‘TILLIOIDEAE’ 1. (genus *Tillia*) linden / lime tree / limebush / basswood 2. (genera *Craigia*, *Mortoniadendron*) other tillioid plant/tree
- LČKHW**- ‘BYTTNERIOIDEAE’ I 1. (genus *Theobroma*) cacao tree / cocoa tree 2. (genus *Commersonia*) kerrawang 3. (genus *Abroma*) devil’s cotton
- LČKS**- ‘BYTTNERIOIDEAE’ II 1. (genus *Waltheria*) sleepy morning 2. (genus *Hannafordia*) grey felt-bush 3. (genus *Seringia*) crinkle-leaved firebush
- LČKŠ**- ‘BYTTNERIOIDEAE’ III 1. (genus *Lasiopetalum*) velvet bush, lasiopetalum 2. (genus *Ayenia*) ayenia 3. (Byttnerioideae other than named genera) other byttnerioid plant

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- LCT**- ‘CISTACEAE’ I 1. (genus *Cistus*) rockrose, cistus 2. (genus *Halimium*) basil-leaved rock rose, woolly rock rose / false sun-rose, halimium 3. (genus *Fumana*) needle sunrose
- LCTW**- ‘CISTACEAE’ II 1. (genus *Helianthemum*) rock rose / sunrose / rushrose / frostweed 2. (genus *Crocianthemum*) peak rockrose / peak rushrose, low rockrose / low frostweed, island rush-rose, bushy rockrose / bushy frostweed, rock frost / frostplant / frostwort / Canada frost weed / longbranch frostweed 3. (genus *Hudsonia*) goldenheather / povertygrass
- LCTY**- ‘CISTACEAE’ III 1. (genus *Tuberaria*) spotted rock-rose / annual rock-rose 2. (genus *Lechea*) pinweed
- LCTL**- ‘THYMELAEACEAE’ I 1. (genus *Thymelaea*) sparrow-wort, spurge flax 2. (genus *Daphne*) daphne, garland flower, Nepalese paper plant, spurge-laurel, spurge olive / mezereum / mezereon 3. (genus *Lagetta*) lacebark tree / gauze tree
- LCTR**- ‘THYMELAEACEAE’ II 1. (genus *Dirca*) leatherwood / moosewood / ropebark / wicopy 2. (genus *Wikstroemia*) false ohelo 3. (genus *Pimelea*) rice flower, bootlace bush, taranga, scrub kurrajong, pinatoro, New Zealand daphne / Strathmore weed, bunjong, banjine, Flinders poppy, pimelea
- LCTŘ**- ‘THYMELAEACEAE’ III 1. (genus *Gonystylus*) ramin, melawis 2. (genus *Aetoxylon*) crocodile eaglewood / gaharu buaya 3. (genera *Aquilaria*, *Gyrinops*) lign-aloe tree

- LCTF**- ‘THYMELAEACEAE’ IV 1. (genus *Phaleria*) God’s crown / pau 2. (Thymelaeaceae other than named genera; numerous genera) other thymelaeaceous plant/tree
- LCTÇ**- ‘DIPTEROCARPACEAE’ I 1. (genus *Dipterocarpus*) keruing, gurjan 2. (genus *Neobalanocarpus*) chengal 3. (genus *Shorea*) lauan, Philippine mahogany
- LCTL**- ‘DIPTEROCARPACEAE’ II 1. (genus *Parashorea*) white seraya / white lauan 2. (genus *Vateria*) white dammar 3. (Dipterocarpaceae other than named genera; several genera) other dipterocarpaceous plant/tree
- LCTH**- ‘BIXACEAE’ 1. (genus *Bixa*) achiote, lipstick tree 2. (genus *Amoreuxia*) yellowshow, Santa Rita throwup weed 3. (genera *Cochlospermum*, *Diegodendron*) yellow cotton tree, kapok, diegodendron
- LCTHW**- ‘MALVALES’ 1. (Muntingiaceae; genera *Muntingia*, *Neotessmannia*, *Dicraspidia*) calabur tree / capulin / Jamaica cherry / Panama berry / Singapore cherry / West Indian cherry / ornamental cherry / jamfruit tree, neotessmannia, dicraspidia 2. (Cytinaceae, Neuradaceae, Sarcolaenaceae, Sphaerosepalaceae; several genera) other malvales plant/tree

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- VST**- ‘HIPPOCASTANOIDEAE’ 1. (genus *Acer*) maple tree, box elder tree, moosewood, sycamore 2. (genus *Aesculus*) horse chestnut, buckeye 3. (genera *Billia*, *Dipteronia*, *Handeliodendron*) other hippocastanoid plant/tree

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- VSTW**- ‘SAPINDOIDEAE’ I 1. (genus *Litchi*) lychee tree 2. (genus *Dimocarpus*) longan, alupag 3. (genus *Nephelium*) rambutan, korlan, pulasan

- VSTY**- ‘SAPINDOIDEAE’ II 1. (genus *Blighia*) blighia tree, ackee fruit tree 2. (genus *Allphylus*) titberry, bastard taaibos, dune false crowberry / dune false currant 3. (genus *Diploglottis*) native tamarind, small-leaved tamarind

- VSTL**- ‘SAPINDOIDEAE’ III 1. (genus *Melicoccus*) mamoncillo / Spanish lime / genip / quenette / limoncillo 2. (genus *Talisia*) pitomba tree 3. (genus *Alectryon*) hairy bird’s eye / hairy alectryon, boonaree, titoki, beach bird’s eye

- VSTR**- ‘SAPINDOIDEAE’ IV 1. (genus *Guioa*) glossy tamarind 2. (genus *Castanospora*) brown tamarind 3. (genus *Pappea*) jacket plum / indaba tree / bushveld cherry

- VSTR**- ‘SAPINDOIDEAE’ V 1. (genus *Sapindus*) soapberry / soapnut 2. (genus *Jagera*) foambark / ferntree / pink foambark / ferntop / pink tamarind, daintree foambark 3. (genus *Mischocarpus*) woolly bush apple

- VSTF**- ‘SAPINDOIDEAE’ VI 1. (genus *Sarcopteryx*) steelwood tree / corduroy 2. (genus *Toechima*) blunt-leaved steelwood, cape tamarind 3. (genus *Ungnadia*) Mexican buckeye

- VSTÇ**- ‘SAPINDOIDEAE’ VII 1. (genus *Arytera*) coogera 2. (Sapindoideae other than named genera; numerous genera) other sapindoid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Sapindaceae > Dodonaeoideae & Xanthoceroideae

- PSXW**- ‘DODONAEOIDEAE’ I 1. (genus *Dodonaea*) hop-bush 2. (genus *Diplopeltis*) pepperflower 3. (genus *Harpulia*) tulipwood

- PSXL**- ‘DODONAEOIDEAE’ II 1. (genus *Felicium*) ferntree / fern leaf tree 2. (genus *Ganophyllum*) scaly ash / scaly bark ash / Daintree hickory / honeywood 3. (genus *Hypelate*) inkwood / white ironwood

- PSXR**- ‘XANTHOCEROIDEAE & OTHER DODONAEOIDEAE’ 1. (genus *Zanha*) velvet-fruited zanha 2. (Dodonaeoideae other than named genera; several genera) other dodonaeoid plant/tree 3. (Xanthoceroideae; genus *Xanthoceras*) yellowhorn / shiny leaf yellowhorn / goldenhorn / Chinse flowering chestnut

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Rutaceae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Rutaceae > Rutoideae

-**MFKW**- 'RUTOIDEAE' I 1. (genus *Ruta*) rue 2. (genus *Cneoridium*) bushrue 3. (genus *Thamnosma*) desert rue, turpentinebroom, sandboegoe

-**MFKY**- 'RUTOIDEAE' II 1. (genus *Dictamnus*) burning bush / dittany / gas plant / fraxinella 2. (genus *Corymborkis*, a.k.a. *Macrostylis*) cinnamon orchid 3. (genus *Calodendrum*) Cape chestnut

-**MFKL**- 'RUTOIDEAE' III 1. (genus *Diosma*, a.k.a. *Coleonema*) diosma, confetti bush, buchu, boegoe, Cape May 2. (genus *Adenandra*) buchu, China flower 3. (genus *Agathosma*) buchu / boegoe / bucco / bookoo / diosma

-**MFKR**- 'RUTOIDEAE' IV 1. (genus *Angostura*, a.k.a. *Cusparia*) angostura 2. (genus *Esenbeckia*) esenbeckia, jopoy, limoncillo, cruceilla, coya / cuala-cuala, hueso de tigre, gasparillo 3. (genus *Pilocarpus*) jaborandi

-**MFKŘ**- 'RUTOIDEAE' V 1. (genus *Boronia*) boronia, native rose, granite rose 2. (genus *Acradenia*) whitey wood / wirewood, yellow satinheart / bonewood 3. (genus *Asterolasia*) starbush

-**MFKF**- 'RUTOIDEAE' VI 1. (genus *Chorilaena*) karri oak / chorilaena 2. (genus *Correa*) correa, Dunally correct, native fuschia 3. (genus *Crowea*) crowea, waxflower

-**MFKT**- 'RUTOIDEAE' VII 1. (genus *Diplolaena*) Yanchep rose, wild rose, diplolaena 2. (genus *Eriostemon*) pink wax flower 3. (genus *Microcybe*) microcybe

-**MFKÇ**- 'RUTOIDEAE' VIII 1. (genus *Nematolepis*) nematolepis, satinwood / lancewood / bobie bobie / satin box 2. (genus *Phebalium*) phebalium, St. Helens wax flower 3. (genus *Zieria*) zieria, twiggy midge bush, stinkbush

-**MFKM**- 'RUTOIDEAE' IX 1. (genus *Zanthoxylum*, including genus *Fagara*) prickly ash, toothache, yellowwood, Chinese pepper / Sichuan pepper, Hercules' club / pepperbark, coco / cochucho / smelly sauco, forest knobwood, West Indian satinwood, yellow prickly, Japanese pepper / Korean pepper / chopi, Indian pepper / Indian ivy-rue, niaragato, zanthoxylum 2. (genus *Tetradium*) euodia / evodia / bee bee tree 3. (genus *Platydesma*) Hawai'i pilo kea

-**MFKN**- 'RUTOIDEAE' X 1. (genus *Pitavia*) pitao / pitran 2. (genus *Pentaceras*) penta ash / bastard crows ash / black teak 3. (genus *Orixa*) Japanese orixa / East Asian orixa

-**MFKS**- 'RUTOIDEAE' XI 1. (genus *Melicope*) doughwood / corkwood, melicope, pelea, wharangi, poataniwha, Maui ruta, catafaille, 'alani, mokihana 2. (genus *Bosistoa*) bosistoa / bonewood 3. (genus *Choisya*) Mexican orange

-**MFKŠ**- 'RUTOIDEAE' XII 1. (genus *Geijera*) Australian willow / native willow / wilga, axebreaker 2. (genus *Medicosma*) pinkheart / bonewood 3. (Ruteae other than named genera; numerous genera) other rutoid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Rutaceae > Aurantioideae

-**NŁ**- 'GENUS *CITRUS* HYBRID' I 1. (*C. sinensis*) sweet orange 2. (*C. aurantium*) bitter orange / Seville orange 3. (*C. aurantiifolia*) key lime

-**NŁN**- 'GENUS *CITRUS* HYBRID' II 1. (*C. limon*) lemon 2. (*C. meyeri*) Meyer lemon 3. (*C. paradisi*) grapefruit

-**NŁNY**- 'GENUS *CITRUS* HYBRID' III 1. (*C. clementina*) clementine 2. (*C. tangelo*) tangelo 3. (*Citrus* hybrid other than previously named) other citrus hybrid

-**NŁŃ**- 'GENUS *CITRUS*' I 1. (*C. hystrix*) Kaffir lime / makrut 2. (*C. reticulata*) mandarin orange 3. (*C. medica*) citron

-**NŁNW**- 'GENUS *CITRUS*' II 1. (*C. glauca*, *C. australasica*, *C. australis*, *C. garrawayae*, *C. inodora*, *C. gracilis*, *C. warburgiana*, *C. wintersii*) Australian lime, finger lime, round lime, desert lime, wild lime 2. (*C. trifoliata*) trifoliate orange 3. (*C. platymamma*) byeonggyul

-**NŁŃW**- 'GENUS *CITRUS*' III 1. (*C. japonica*) kumquat 2. (*C. maxima*) pomelo / shaddock 3. (*Citrus* plant other than named species; numerous species) other citrus plant/tree

-**NŁMW**- 'AURANTIOIDEAE' I 1. (genus *Citropsis*) African cherry orange 2. (genus *Burkillanthus*) Malay ghostlime 3. (genus *Clymenia*) clymenia, a-mulis



- NŁMY**- ‘AURANTIOIDEAE’ II 1. (genus *Pleiospermium*) Banguay Island orangeaster 2. (genus *Triphasia*) limeberry / sweet lime 3. (genus *Oxanthera*) oxanthera / false orange
- NŁML**- ‘AURANTIOIDEAE’ III 1. (genus *Aegle*) bael / Bengal quince / golden apple / Japanese bitter orange / stone apple / wood apple 2. (genus *Limonia*) curd fruit / wood-apple / elephant-apple 3. (genus *Feroniella*) feroniella / ka sang / cra san / kawista-krikil / krasang / mak sang / canthan
- NŁMR**- ‘AURANTIOIDEAE’ IV 1. (genus *Monanthocitrus*) monanthocitrus / spotseed-lime 2. (genus *Merrillia*) flowering merrillia / katinga / Malay lemon 3. (genus *Murraya*) curry tree / curry leaf, orange jessamine / Hawaiian mock orange / bartree / cosmetic-bark-tree / Chinese box / Burmese-boxwood, murraya
- NŁMR**- ‘AURANTIOIDEAE’ V 1. (genus *Glycosmis*) orangeberry / gin berry, glycosmis, red-tangerine 2. (genus *Clausena*) horsewood, wampi / wampee, clausena
3. (Aurantioideae other than named genera; numerous genera) other aurantioid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Rutaceae > Spathelioideae

- FXM**- ‘SPATHELIOIDEAE’ 1. (genus *Ptaeroxylon*) sneezewood tree 2. (genus *Cneorum*) spurge olive 3. (Spathelioideae other than named genera; several genera) other spathelioid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Rutaceae > Toddalioideae

- PSMW**- ‘TODDALIOIDEAE’ I 1. (genus *Toddalia*) orange climber 2. (genus *Acronychia*) achronychia, silver aspen, hairy aspen, white aspen, doughwood, acid berry / plasticine tree, lemon aspen, hard aspen 3. (genus *Sarcomelicope*) yellowwood / yellow aspen / sarcomelicope
- PSMY**- ‘TODDALIOIDEAE’ II 1. (genus *Ptelea*) hoptree 2. (genus *Phellodendron*) cork-tree 3. (genus *Skimmia*) skimmia
- PSML**- ‘TODDALIOIDEAE’ III 1. (genus *Hortia*) bush orange 2. (genus *Casimiroa*) sapote, matasano 3. (genus *Amyris*) torchwood, chapotillo
- PSMR**- ‘TODDALIOIDEAE’ IV 1. (genus *Vepris*) white ironwood 2. (Toddalioideae other than named genera; numerous genera) other toddalioid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Rutaceae > [remaining sub-families: Flindersioideae & Dictyolomatoideae]

- PSMR**- ‘FLINDERSIOIDEAE & DICTYOLOMATOIDEAE’ 1. (Flindersioideae, genus *Flindersia*) silver silkwood / silver maple, Australian teak / crows ash, scented maple / rose ash, leopardwood / leopard tree, mountain silkwood, maple silkwood / rose silkwood, silver ash / cudgerie / bumpy ash, yellowwood / long Jack, hickory ash / Cairns hickory, Queensland maple / maple silkwood, scented maple, Bennett’s ash 2. (Flindersioideae, genus *Chloroxylon*) East Indian satinwood / Sri Lanka satinwood, Madagascar satinwood 3. (Dictyolomatoideae, genus *Dictyoloma*) dictyoloma

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Anacardiaceae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Anacardiaceae > Anacardioideae

- NŁK**- ‘ANACARDIOIDEAE’ I 1. (genus *Pistacia*) pistachio, American pistachio / Mexican pistache, mastic, Chinese pistache, betoum / wild pistachio / Persian turpentine tree / Mount Atlas mastic tree 2. (genus *Anacardium*) cashew, wild cashew 3. (genus *Mangifera*) mango tree
- NŁKW**- ‘ANACARDIOIDEAE’ II 1. (genus *Rhus*) sumac 2. (genus *Malosma*) laurel sumac 3. (genus *Protorhus*) red beech
- NŁKY**- ‘ANACARDIOIDEAE’ III 1. (genus *Comocladia*) maidenplum, poison ash / hogwood / thumbtack, guao 2. (genus *Cotinus*) smoketree / smokebush, chittamwood, Venetian sumach / dyer’s sumach 3. (genus *Schinus*) pepper tree
- NŁKL**- ‘ANACARDIOIDEAE’ IV 1. (genus *Amphipterygium*) cuachalalate 2. (genus *Toxicodendron*) poison oak, poison ivy, poison sumac, lacquer tree / varnish tree, wax tree 3. (genus *Metopium*) poisonwood / Florida poisons tree

- ŃĹKR**- ‘ANACARDIOIDEAE’ V 1. (genus *Astronium*) kingwood / locustwood / tigerwood / zebrawood, glassywood, urunday 2. (genus *Blepharocarya*) bollygum / rose butternut  
(genus *Bouea*) plum mango / mango plum / gandaria 3. (genus *Euroschinus*) pink poplar / ribbonwood / maiden’s blush / blush cudgerie
- ŃĹKŘ**- ‘ANACARDIOIDEAE’ VI 1. (genus *Buchanania*) chirauli-nut, green plum, satinwood / lightwood 2. (genus *Gluta*) rengas, ringas / Burmese lacquer / theetsee / thitsi 3. (genus *Pachycormus*) Baja elephant tree / torote blanco / copalquín
- ŃĹKF**- ‘ANACARDIOIDEAE’ VII 1. (genus *Rhodospaera*) deep yellowwood / yellow cedar / tulip satinwood 2. (genus *Schinopsis*) red quebrado 3. (genus *Searsia*) African sumac / willow rhus / karee
- ŃĹKT**- ‘ANACARDIOIDEAE’ VIII 1. (genus *Semecarpus*) Australian cashew nut, marking nut tree / phobi nut tree / varnish tree, Chuuk poisontree, velvet badulla 2. (genus *Smodingium*) African poison ivy 3. (Anacardioidae other than named genera; numerous genera) other anacardioid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Anacardiaceae > Spondioidae

- ŃĹKČ**- ‘SPONDIADOIDEAE’ I 1. (genus *Spondias*) hog plum / Spanish plum / golden apple, mombin, Tahitian apple, gully plum / ashanti plum / Java plum, Brazil plum 2. (genus *Choerospondias*) Nepali hog plum / lapsi 3. (Spondioidae other than Stems 1 and 2; numerous genera) other spondioid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Nitrariaceae

- FXN**- ‘NITRARIACEAE’ 1. (genus *Nitraria*) nitre bush / dillon bush 2. (genus *Peganum*) wild rue / Syrian rue / African rue / esfand / harmel 3. (genus *Tetradiclis*) tetradiclis

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Simaroubaceae

- NZXM**- ‘SIMAROUBACEAE’ I 1. (genus *Simarouba*) paradise-tree / dysentery-bark / bitterwood / Lakshmi Taru 2. (genus *Quassia*) quassia, amargo / bitter-ash / bitter-wood 3. (genus *Ailanthus*) ailanthus, tree of heaven
- NZXN**- ‘SIMAROUBACEAE’ II 1. (genus *Leitneria*) corkwood 2. (genus *Eurycoma*) Malaysian ginseng / tongkat ali / pasak bumi 3. (Simaroubaceae other than named genera: numerous genera) other simaroubaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Meliaceae

- MSFW**- ‘MELIOIDEAE’ I 1. (genus *Melia*) chinaberry tree / Persian lilac / white cedar / Pride of India / bread-tree / syringa bertrree 2. (genus *Azadirachta*) neem tree / nimtree / Indian lilac 3. (genus *Sandoricum*) santol tree / sentul / cotton tree
- MSFY**- ‘MELIOIDEAE’ II 1. (genus *Guarea*) bossé, guarea, pink mahogany, cramantee, American muskwood 2. (genus *Turraeanthus*) African satinwood / African white mahogany 3. (genus *Aphanamixis*) pithraj tree
- MSFL**- ‘MELIOIDEAE’ II 1. (genus *Aglaia*) aglaia, Pacific maple, droopy leaf / priyangu 2. (genus *Lansium*) langsung / lanzones / duku / dokong 3. (genus *Dysoxylum*) rosewood, ivory mahogany, pink mahogany, spicy mahogany, yellow mahogany, hairy rosewood, New Zealand mahogany
- MSFR**- ‘MELIOIDEAE’ IV 1. (genus *Nymania*) Chinese lantern 2. (genus *Owenia*) emu apple, onion cedar / bog onion 3. (genus *Trichilia*) Natal-mahogany, bariaco
- MSFŘ**- ‘MELIOIDEAE’ V 1. (genus *Synoum*) scentless rosewood 2. (Melioidae other than named genera; numerous genera) other melioid plant/tree
- MSXW**- ‘CEDRELOIDEAE’ I 1. (genus *Swietenia*) mahogany tree 2. (genus *Cedrela*) Argentine cedar, Spanish cedar / Cuban cedar 3. (genus *Toona*) redcedar / toon / toona
- MSXL**- ‘CEDRELOIDEAE’ II 1. (genus *Carapa*) crabwood / andiroba, tangare 2. (genus *Khaya*) African mahogany 3. (genus *Chukasia*) Indian mahogany / bastard cedar / white cedar / Indian redwood / Burma almond wood / chickrassy / chittagong wood

**-MSXR-** ‘CEDRELOIDEAE’ III 1. (genus *Entandrophragma*) sapele mahogany / sapelli, sipo / utile, kosipo, tiama 2. (genus *Lovoa*) brown mahogany / Kilimanjaro mahogany 3. (Cedreloideae other than named genera; several genera) other cedreloid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Sapindales > Burseraceae and remaining Sapindales sub-families [i.e., Biebersteiniaceae & Kirkiaceae]

**-PFXW-** ‘BURSERACEAE’ I 1. (genus *Boswellia*) frankincense tree, luban / Yigaar tree, Indian oli-banum / Salai gugul 2. (genus *Commiphora*) myrrh plant, opopanax plant, bdellium plant, commiphora, rock corkwood, gugal / guggul / Mukul myrrh tree 3. (genus *Bursera*) torchwood copal / fragrant bursera, gumbo-limbo / copperwood / chaca / turpentine tree, elephant tree, palo santo

**-PFXL-** ‘BURSERACEAE’ II 1. (genus *Aucoumea*) gaboon / angouma / okoumé 2. (genus *Canarium*) Chinese white olive, mango bark / brown cudgerie / parsnip wood, scrub turpentine / carrot wood / Melville Island white beech, Chinese black olive, African canarium, black dhup / Raal dhup / black dammar 3. (genus *Dacryodes*) African pear / bush pear / bush plum / bush butter tree / butterfruit tree

**-PFXR-** ‘BURSERACEAE’ III & REMAINING SAPINDALES 1. (genus *Protium*) copal tree 2. (Burseraceae other than named genera; several genera) other burseraceous plant/tree 3. (Biebersteiniaceae and Kirkiaceae; several genera) other Sapindales plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Huerteales

**-PFXM-** ‘HUERTEALES’ 1. (Dipentodontaceae; genera *Dipentodon*, *Perrottetia*) 2. (Tapisciaceae; genera *Tapiscia*, *Huertia*) 3. (Gerrardinaceae and Petenaeaceae; genera *Gerrardina*, *Petenaea*)

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Picramniales

**-PFXN-** ‘PICRAMNACEAE’ 1. (genus *Picramnia*) bitterbush 2. (genus *Alvaradoa*) Mexican alvaradoa, alvaradoa 3. (genus *Nothotalisia*) nothotalisia

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Crossosomatales

**-RTL̄M-** ‘CROSSOSOMATALES’ I 1. (genus *Crossosoma*) California rockflower, ragged rockflower 2. (genus *Glosspetalon*, a.k.a., *Forsellesia*) greasebush 3. (genus *Apacheria*) Chiricahua rock flower / cliff brittlebush / Apache bush

**-RTL̄MW-** ‘CROSSOSOMATALES’ II 1. (genus *Staphylea*) bladder nut 2. (genus *Geissoloma*) guyalone 3. (genus *Ixerba*) tawari / whakou

**-RTL̄MY-** ‘CROSSOSOMATALES’ III 1. (genus *Stachyurus*) stachyurus 2. (genera *Velascoa*, *Guamatela*, *Aphloia*, *Dalrympelea*, *Strasburgia*) other crossosomatales plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Geraniales

**-TÇMW-** ‘GERANIACEAE’ I 1. (genus *Geranium*) geranium, cranesbill, giant herb robert 2. (genus *Erodium*) filaree / heron’s bill, storksbill / pinweed 3. (genus *California*) roundleaf stork’s bill

**-TÇMY-** ‘GERANIACEAE’ II 1. (genus *Pelargonium*) geranium, pelargonium, storksbill 2. (genus *Monsonia*) monsonia, sarcocaulon 3. (genus *Hypseocharis*) hypseocharis

**-TÇNW-** ‘FRANCOACEAE’ I 1. (genus *Francoa*) bridalwreath 2. (genus *Melianthus*) honey flower 3. (genus *Greyia*) Kei bottlebrush, Natal bottlebrush, woolly bottlebrush

**-TÇNY-** ‘FRANCOACEAE’ II 1. (genus *Viviana*, a.k.a. *Cissarobryon*) té de burro / oreganillo 2. (Francoaceae other than named genera; several genera) other francoaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Myrtales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Myrtales > Myrtaceae

-**NDK** - 'MYRTEAE' I 1. (genus *Psidium*) guava / yellow guava / lemon guava, Costa Rican guava / cas, Jamaican guava, Cattley guava / strawberry guava / cherry guava, mountain guava, Galápagos guava, little guava, purple guava, araçá 2. (genus *Pimenta*) allspice / myrtle pepper / pimenta / pimento, West Indian bay tree / bay rum tree / ciliment 3. (genus *Rhodomyrtus*) finger cherry / Cooktown loquat, native guava, rose myrtle

-**NDKW**- 'MYRTEAE' II 1. (genus *Acca*) feijoa / pineapple guava / guavasteen 2. (genus *Hexachlamys*) ubajay 3. (genus *Plinia*) Brazilian grapetree / jaboticaba

-**NDKY**- 'MYRTEAE' III 1. (genus *Myrtus*) myrtle 2. (genus *Archirhodomyrtus*) rose myrtle 3. (genus *Eugenia*) needle-leaf cherry, rainforest plum, dune myrtle, mountain cherry, cherry of the Rio Grande, cerrado pear, pitomba, guayabilla, bush cherry, pitanga, bush orange, mountain stopper / Cedar Bay cherry / beach cherry, agatelang

-**NDKL**- 'MYRTEAE' IV 1. (genus *Luma*) Chilean myrtle / arrayán, chequén / huillipeta 2. (genus *Pilidistigma*) plum myrtle 3. (genus *Myrcianthes*) twinberry / twinberry stopper, arrayán, guabiyu, lucumillo

-**NDKR**- 'MYRTEAE' V 1. (genus *Austromyrtis*) midgen berry / midyim / silky myrtle, narrow-leaf myrtle 2. (genus *Calypttranthes*) lidflower, spicewood, mountainbay 3. (genus *Gossia*) scrub ironwood, python tree, Cape ironwood, sweet myrtle / small-leaved myrtle

-**NDKŘ**- 'MYRTEAE' VI 1. (genus *Lithomyrtus*) beach myrtella 2. (genus *Lophomyrtus*) ramarama, rohutu 3. (genus *Rhodamnia*) smooth scrub turpentine, brush turpentine, cliff malletwood

-**NDKF**- 'MYRTEAE' VII 1. (genus *Myrcia*) red rodwood, pedro hume de caá 2. (genus *Myrciaria*) rumberry / guavaberry, camu-camu, cabeludinha, blue grape 3. (Myrteae other than named genera; numerous genera) other myrtean plant / tree

-**NDKT**- 'MYRTACEAE' I 1. (genus *Syzygium*) clove tree, satinash, riberry, Malay apple / Malacca apple / Malay rose apple / Otaheite cashew / water apple, coolamon / durobby, lilly pilly, magenta cherry, onionwood, bellfruit, water cherry, hute / waterbessie, sour cherry, purple cherry / black water gum, jambul / jambolan / black plum Damson plum / Duhat plum / Portuguese plum, Indian bay leaf / Indonesian bay leaf / Salam leaf / Indonesian laurel, java apple / makopa / Samarang rose apple / wax jambu / wax apple, lady apple, Malabar plum / plum rose, sea apple 2. (genus *Waterhousea*) weeping lilli pilli 3. (genus *Syncarpia*) turpentine tree, satinay, yanderra

-**NDKÇ**- 'MYRTACEAE' II 1. (genus *Allosyncarpia*) an-binik 2. (genus *Eucalyptus*) eucalyptus, wattle-leaved peppermint, Badgingarra box, mallee, white mahogany, Lakefield coolibah, gum, stringybark, whitebark, blackbutt, apple-box, soak yate, mallet, ironbark 3. (genus *Angophora*) rough-barked apple, dwarf apple, Charmhaven apple, rusty gum, Coolabah apple, sandstone apple, broad-leaved apple, smudgee, red gum / smooth-barked apple, narrow-leaved apple

-**NDKS**- 'MYRTACEAE' III 1. (genus *Corymbia*) bloodwood tree, ghost gum tree, spotted gum tree, yellow jack / yellowjacket, range gum, snappy gum, apple gum / cabbage gum, mountain marri, Gilbert River box, rustyjacket, carbeen / Moreton Bay ash, cadaga / cadaghi 2. (genus *Stockwellia*) stockwellia, Vic Stockwell's puzzle 3. (genus *Backhousia*) curry myrtle, Johnstone river hardwood, lemon scented myrtle / sweet berbena tree / lemon scented verbena / lemon ironwood, stonewood / limewood / greay teak / stony backhousia, grey myrtle / carrol / neverbreak / iron myrtle / cinnamon myrtle / ironwood, shatterwood / boomerang tree, giant ironwood / scrub ironwood / lancewood / ironwood box

-**NDKŠ**- 'MYRTACEAE' IV 1. (genus *Tristania*) water gum 2. (genus *Xanthostemon*) golden penda, bridal tree / northern penda, Philippine ironwood, crimson penda / red penda 3. (genus *Metrosideros*) rātā, lehua, mountain rose, tepual

-**NDKM**- 'MYRTACEAE' V 1. (genus *Astartea*) astartea 2. (genus *Babingtonia*) camphor myrtle, broom baeckea, babingtonia 3. (genus *Baeckea*) heath-myrtle, baeckea

-**NDKN**- 'MYRTACEAE' VI 1. (genus *Balaustion*) native pomegranate 2. (genus *Calytrix*) starflower, snow myrtle, fringe-myrtle, Kimberley heather, calytrix 3. (genus *Chamelaucium*) waxflower

-**NDKSW**- 'MYRTACEAE' VII 1. (genus *Cheyniana*) bush pomegranate 2. (genus *Darwinia*) darwinia, bell 3. (genus *Homoranthus*) homoranthus, fairy bells, mouse bush, eastern feather flower

- NDKSY**- ‘MYRTACEAE’ VIII 1. (genus *Hypocalymma*) white myrtle, large myrtle, Swan River myrtle 2. (genus *Micromyrtus*) heath-myrtle 3. (genus *Pileanthus*) coppercups
- NDKŠW**- ‘MYRTACEAE’ IX 1. (genus *Rinzia*) rinzia, desert rock myrtle 2. (genus *Sannantha*) tall baeckia, fern-leaf baeckia, sannantha 3. (genus *Scholtzia*) scholtzia
- NDKŠY**- ‘MYRTACEAE’ X 1. (genus *Thryptomene*) thryptomene 2. (genus *Verticordia*) verticordia, feather flower, pixie ears, pink brownii / pink cauliflower, cauliflower bush, little chrysantha, landu, lambswool / native cauliflower / wild cauliflower, native tea, china cups, Morrison / Morrison-flower / Christmas Morrison, little grandiflora, Eurardy magenta 3. (genus *Lophostemon*) brush box / Queensland box / Brisbane box, Northern swamp box, milky box, swamp mahogany / swamp turpentine / swamp box
- NDKSM**- ‘MYRTACEAE’ XI 1. (genus *Agonis*) Western Australian peppermint / Swan River peppermint / willow myrtle, summer snowflakes 2. (genus *Asteromyrtus*) liniment-tree 3. (genus *Kunzea*) tick bush, rawiritoa, kunzea, spearwood / pondil, kanuka, manuka, muntries
- NDKSN**- ‘MYRTACEAE’ XII 1. (genus *Leptospermum*) tea-tree, tanton / jellybush, turkey bush, manuka, wurunuru 2. (genus *Texandria*) wattie / native cedar / juniper myrtle, teatree, swamp peppermint 3. (genus *Melaleuca*) paperbark, honey-myrtle, teatree, mock olive, cajuput / white samet, umbrella bush, bottlebrush, karnbor, totem poles, hillock bush, moonah, gorada, robin redbreast bush, snow-in-summer / budjur, broom bush, banbar, boree, claw flower, mindiyed, melaleuca
- NDKŤW**- ‘MYRTACEAE’ XIII 1. (genus *Callistemon*) bottlebrush 2. (genus *Calothamnus*) bottlebrush, claw flower, blood-flower 3. (genus *Beaufortia*) beaufortia, bottlebrush
- NDKŤY**- ‘MYRTACEAE’ XIV 1. (genus *Lysicarpus*) brown hazelwood / budgeroo 2. (genus *Regelia*) regelia 3. (Myrtaceae other than named genera; numerous genera) other myrtaceous plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Myrtales > Melastomataceae

- NDXW**- ‘MELASTOMATACEAE’ I 1. (genus *Melastoma*) blue tongue / native lasiandra, Asian melastome, Singapore rhododendron / Malabar melastome, Straits rhododendron, fox-gongued melastoma / blood-red melastoma / red melastome 2. (genus *Dissotis*) pink lady / Spanish shawl / rockrose 3. (genus *Medinilla*) medinilla, rose grape, tagimaucia, chandelier tree
- NDXL**- ‘MELASTOMATACEAE’ II 1. (genus *Henriettea*) camasey 2. (genus *Rhexia*) meadow-beauty, handsome Harry 3. (genus *Tetrazygia*) clover ash, West Indian lilac
- NDXR**- ‘MELASTOMATACEAE’ III 1. (genus *Clidemia*) soapbush / Koster’s curse 2. (Melastomataceae other than named genera; numerous genera) other melastomataceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Myrtales > Lythraceae

- ŇŇP**- ‘LYTHRACEAE’ I 1. (genus *Punica*) pomegranate 2. (genus *Trapa*) water caltrop / buffalo nut / bat nut / devil pod / ling nut / mustache nut 3. (genus *Sonneratia*) mangrove apple, sonneratia, apple mangrove
- ŇŇPW**- ‘LYTHRACEAE’ II 1. (genus *Lythrum*) loosestrife, lythrum, grass-poly, water purslane 2. (genus *Rotala*) Indian toothcup, rotala 3. (genus *Lawsonia*) henna tree / hina / mignonette tree / Egyptian privet
- ŇŇPY**- ‘LYTHRACEAE’ III 1. (genus *Lagerstroemia*) crape myrtle / crêpe myrtle 2. (genus *Heimia*) sun opener / shrubby yellowcrest 3. (genus *Decodon*) swamp loosestrife / waterwillow
- ŇŇPL**- ‘LYTHRACEAE’ IV 1. (genus *Cuphea*) cuphea, cigar plant, tarweed / blue waxweed, waxweed, false heather / Mexican heather 2. (genus *Ammannia*) redstem, ammannia 3. (Lythraceae other than named genera; numerous genera) other lythraceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Myrtales > Combretaceae

-**ÑÑPL**- ‘COMBRETACEAE’ I 1. (genus *Combretum*) bushwillow, leadwood tree, orange flame vine / chameleon vine, combretum 2. (genus *Conocarpus*) buttonwood / button mangrove 3. (genus *Terminalia*) white afara, white olive, crocodile tree, white arudah / arjuna / koha, palo amarillo / tanimbú, silver greywood, jalool, Indian almond / tropical almond / umbrella tree, myrobalan / inknut, pindang quondong, billygoat plum / kakadu plum / gubinge, idigbo / black afara /; blackbark / brimstone wood / shingle wood, okari nut, Madagascar almond tree, rosewood, marool, damson, limba, terminalia

-**ÑÑPR**- ‘COMBRETACEAE’ II 1. (genus *Laguncularia*) white mangrove 2. (genus *Lumnitzera*) black mangrove, Tonga mangrove 3. (genus *Bucida*) bullet tree, spiny black olive

-**ÑÑPŘ**- ‘COMBRETACEAE’ III 1. (genus *Buchenavia*) buchenavia, granadillo 2. (Combretaceae other than named genera; several genera) other combretaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Myrtales > Onagraceae

-**ÑÑPF**- ‘ONAGRACEAE’ I 1. (genus *Fuchsia*) fuchsia 2. (genus *Circaea*) enchanter’s nightshade 3. (genus *Ludwigia*) primrose-willow, water-purslane, water-primrose, ludwigia, bushy seedbox / rattlebox, marsh seedbox, mosaic flower / false loosestrife

-**ÑÑPT**- ‘ONAGRACEAE’ II 1. (genus *Epilobium*) willowherb, spike-primrose, boisduvalia, hummingbird flower / hummingbird trumpet / California-fuchsia 2. (genus *Chamaenerion*) willowherb, fireweed, Saint Anthony’s laurel 3. (genus *Taraxia*) goldeneggs / sun cup

-**ÑÑPÇ**- ‘ONAGRACEAE’ III 1. (genus *Camissonia*) suncup, evening primrose 2. (genus *Calylophus*) sundrops, evening-primrose 3. (genus *Camissoniopsis*) suncup, evening primrose

-**ÑÑPS**- ‘ONAGRACEAE’ IV 1. (genus *Chylisma*) browneyes / brown-eyed primrose, yellow cups, suncup, evening primrose 2. (genus *Chylismiella*) wingfruit suncup 3. (genus *Oenothera* [including previous genus *Gaura*) suncup, sundrop, evening primrose, gaura, beeblossum

-**ÑÑPŠ**- ‘ONAGRACEAE’ V 1. (genus *Clarkia*) clarkia, godetia, mountain garland, farewell-to-spring, fairyfan, red ribbons, pink fairies / ragged robin 2. (genus *Gayophytum*) groundsmoke 3. (Onagraceae other than named genera; several genera) other onagraceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Myrtales > Vochysiaceae

-**ÑÑPH**- ‘VOCHYSIACEAE’ 1. (genus *Qualea*) jacaré, pau-terra 2. (Vochysiaceae other than Stem 1; several genera) other vochysiaceous plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > malvids > Myrtales > remaining families: Alzateaceae, Crypteroniaceae & Penaeaceae [including Oliniaceae and Rhynchocalycaceae]

-**ÑÑPHW**- ‘OTHER MYRTALES’ 1. (Alzateaceae; genus *Alzatea*) alzatea 2. (Crypteroniaceae; 3 genera) crypteroniaceous plant/tree 3. (Penaeaceae:several genera) penaeaceous plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fabales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fabales > Fabaceae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fabales > Fabaceae > Faboideae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fabales > Fabaceae > Faboideae > Phaseoleae

-**JPW**- ‘PHASEOLUS VULGARIS (COMMON BEAN)’ I 1. kidney/red bean plant 2. white/navy bean plant 3. cannellini bean plant

-**JPY**- ‘PHASEOLUS VULGARIS (COMMON BEAN)’ II 1. pinto bean plant 2. black turtle bean plant 3. flageolet bean plant



- JPL-** 'OTHER PHASEOLUS SPECIES' I 1. (*P. coccineus*) runner bean plant 2. (*P. acutifolius*) tepary bean plant 3. (*P. dumosus*) year bean plant
- JPR-** 'OTHER PHASEOLUS SPECIES' II 1. (*P. lunatus*) lima/butter bean plant 2. (*P. maculatus*) spotted bean plant 3. (*Phaseolus* other than named species) slimjim bean plant, other *Phaseolus* bean plant
- JPR-** 'VIGNA SPECIES' I 1. (*V. unguiculata*) cowpea, black-eyed pea, crowderpea, Chinese long-bean / pea-bean 2. (*V. angularis*) adzuki bean 3. (*V. radiata*) mung bean / green gram / golden gram / mash bean / green soybean / celera-bean / Jerusalem-pea
- JPF-** 'VIGNA SPECIES' II 1. (*V. mungo*) black gram / black lentil / white lentil / urd-bean / urad bean 2. (*V. umbellata*) rice bean / red bean / climbing mountain bean / mambi bean / Oriental-bean 3. (*Vigna* other than named species; numerous species) moth bean / mat bean / Turkish gram, creole-bean, jungle mat bean / jungli-bean / African gram / three-lobe-leaved cowpea, zombi pea / wild cowpea, sarawak-bean, Dalrymple vigna, Bambara groundnut / Congo goober /hog-peanut / jugo bean, pencil yam / Maloga-bean / parsnip-bean, dune-bean / notched cowpea / sea-bean, Oahu cowpea, creeping vigna, other *Vigna* bean
- JPC-** 'PHASEOLINAE' I 1. (genus *Cochliasanthus*) corkscrew vine / snail vine / snail creeper / snailflower / snail bean 2. (genus *Dipogon*) okie bean / Cape sweet-pea / dolichos pea / mile-a-minute vine 3. (genus *Lablab*) lablab-bean / hyacinth bean, bonavist bean / bonavist pea / Egyptian kidney bean / Indian bean / Australian pea / bawaw
- JPT-** 'PHASEOLINAE' II 1. (genus *Macroptilium*) purple bush-bean, supine bean 2. (genus *Macrotyloma*) ground bean / Kersting's groundnut, horse gram / kulthi 3. (genus *Psophocarpus*) winged bean / goa bean / four-angled bean / four-cornered bean / manila bean / princess bean / asparagus bean / dragon bean / cigarrillas
- JPL-** 'PHASEOLINAE' III 1. (genus *Sphenostylis*) wild sweet-pea, African yam bean 2. (genus *Strophostyles*) wild bean, fuzzybean, amberique-bean / annual sand bean 3. (*Phaseolinae* other than named genera/species [including *Phaseolus* other than named species]; numerous genera/species) other phaseoline bean
- JFW-** 'PHASEOLEAE' I 1. (genus *Glycine*) soybean / soya bean, wild soybean, glycine, love creeper 2. (genus *Pachyrhizus*) jicama plant / yam bean, ahipa / Andean yam bean, goiteño / nupe / jacatupe / Amazonian yam bean 3. (genus *Pueraria*) kudzu / Japanese arrowroot, puero, East Asian arrowroot
- JFY-** 'PHASEOLEAE' II 1. (genus *Clitoria*) pigeon wings, blue pea / butterfly pea / cordofan pea / Darwin bea / bluebellvine 2. (genus *Centrosema*) butterfly pea / wild blue vine / blue bell, centro 3. (genus *Amphicarpea*) hogpeanut
- JFL-** 'PHASEOLEAE' III 1. (genus *Cajanus*) pigeon pea / Congo pea 2. (genus *Rhynchosia*) snout-bean, jumby-bean / burn-mouth-vine 3. (genus *Flemingia*, a.k.a. *Thunbergia*) Bengal clockvine / Bengal trumpet / blue skyflower /blue thunbergia / blue trumpetvine / skyvine, luck plant / wild hops, sohphlang
- JFR-** 'PHASEOLEAE' IV 1. (genus *Dioclea*) clusterpea 2. (genus *Canavalia*) jack-bean, barbicou-bean, giant stock-bean /gotani-bean / horse-bean / seaside-bean / wonder-bean, sword bean / scimitar-bean, Cathie's bean, bay bean / beach-bean / fire-bean / Mackenzie-bean 3. (genus *Galactia*) milk pea / beach pea / wild pea
- JFR-** 'PHASEOLEAE' V 1. (genus *Kennedia*) kennedia, coral vine, black coral pea, purple running pea, running postman, dusky coral pea 2. (genus *Hardenbergia*) native lilac / wild sarsaparilla / wisteria climber, false sarsaparilla / purple coral pea / happy wanderer / waraburra 3. (genus *Butea*) flame-of-the-forest / bastard teak
- JFM-** 'PHASEOLEAE' VI 1. (genus *Erythrina*) coral tree, flame tree, cock's spur, coral bean / Cherokee bean / red cardinal / cardinal spear, lucky bean tree, mulungu, mandara, tiger's claw / sunshine tree / roluos tree, ploughbreaker, erythrina 2. (genus *Mucuna*) deer-eye bean / donkey-eye bean / ox-eye bean / hamburger seed 3. (genus *Strongylodon*) jade vine / emerald vine
- JFN-** 'PHASEOLEAE' VII 1. (genus *Apios*) potato bean / Indian potato / American groundnut / cinnamon vine / America-hoidomo / groundnut 2. (*Phaseoleae* other than named genera/species; numerous genera/species) other phaseolean bean

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fabales > Fabaceae > Faboideae > tribes other than Phaseoleae

- RJP-** 'PISUM SATIVUM (PEA)' 1. (*P. sativum*) common pea plant 2. (*P. s. macrocarpon*) snap pea plant 3. (*P. s. saccharatum*) snow pea plant
- RJPW-** 'FABOIDEAE' I 1. (*Vicia faba*) fava bean plant 2. (*Vicia* species other than *V. faba*; numerous species) vetch 3. (genus *Lens*) lentil
- RJPY-** 'FABOIDEAE' II 1. (genus *Lathyrus*) peavine, vetchling, Indian pea, red pea, tuberous pea 2. (genus *Cicer*) chickpea/garbanzo bean plant 3. (genus *Sesbania*) riverhemp, poisonbean, rattlebox / rattlebush, vegetable hummingbird, sesbania
- RJPL-** 'FABOIDEAE' III 1. (genus *Arachis*) peanut plant 2. (genus *Inocarpus*) Tahitian chestnut 3. (genus *Stylosanthes*) pencilflower

- RJPR**- ‘FABOIDEAE’ IV 1. (genus *Tipuana*) tipa / rosewood / pride of Bolivia 2. (genus *Centrolobium*) canarywood, amarillo de Guayaquil 3. (genus *Pterocarpus*) padauk, klat, muninga / barwood, Indian kino / Malabar kino, mututi, red sandalwood / red sanders, African coralwood
- RJPR**- ‘FABOIDEAE’ V 1. (genus *Dalbergia*) Madagascar rosewood, Brazilian tulipwood, Hluhluwe creeper, Bahia rosewood, climbing flat bean, fragrant rosewood, coin vine, kingwood, tracwood, Bombay blackwood / East Indian rosewood / Indian palisandre / Java palisandre, palisander, Siamese rosewood, Amazon rosewood, Honduras rosewood, Guatemalan rosewood, African blackwood / African ebony / African grenadio; zebrawood, moneybush 2. (genus *Aeschynomene*) jointvetch, sola / sola pith plant, shyleaf, ambatch 3. (genus *Nissolia*) yellowhood
- RJPF**- ‘FABOIDEAE’ VI 1. (genus *Andira*) angelin / cabbagebark / cabbage tree, St. Martin rouge 2. (genus *Hovea*) purple pea, hovea, rusty pods, mountain beauty, devil’s pins 3. (genus *Templetonia*) cockies tongues, centipede bush, templetonia
- RJPC**- ‘FABOIDEAE’ VII 1. (genus *Calpurnia*) wild laburnum 2. (genus *Liparia*) orange nodding-head / mountain dahlia 3. (genus *Virgilia*) tree-in-a-hurry / cape lilack / blossom tree / pink blossom tree
- RJPT**- ‘FABOIDEAE’ VIII 1. (genus *Ammodendron*) sand acacia 2. (genus *Baphia*) African sandalwood 3. (genus *Castanospermum*) blackbean / Moreton Bay chestnut
- RJPL**- ‘FABOIDEAE’ IX 1. (genus *Cladrastis*) yellowwood 2. (genus *Dermatophyllum*) mescal bean 3. (genus *Haplormosia*) Liberian black grum
- RJPS**- ‘FABOIDEAE’ X 1. (genus *Luetzelburgia*) sucupira / angelim 2. (genus *Ormosia*) horse-eye bean, ormosia 3. (genus *Pericopsis*) African teak, nandu wood
- RJPS**- ‘FABOIDEAE’ XI 1. (genus *Sophora*) kohwhai, ku shen, mamane, sophora root, necklace pod, toromiro, mayo / mayú, pelú, lignum vitae 2. (genus *Styphnolobium*) necklacepod, coralbean / Eve’s necklace 3. (genus *Xanthocercis*) Mashatu tree / Nyala tree
- RJPH**- ‘FABOIDEAE’ XII 1. (genus *Genista*) broom, petty whin / needle furze, aulaga, talavera, greenweed, woodwaxen 2. (genus *Argyrocystis*) pineapple broom / Moroccan broom 3. (genus *Calicotome*) thorny broom, spiny broom
- RJPHW**- ‘FABOIDEAE’ XIII 1. (genus *Cytisus*) broom, Scotch broom, Spanish broom / French broom / Portuguese broom / hairy-fruited broom 2. (genus *Chamaecytisus*) Portuguese broom / white broom, big-flower broom / clustered broom, tagasaste, purple broom 3. (genus *Lembotropis*) black broom
- RJPSW**- ‘FABOIDEAE’ XIV 1. (genus *Laburnum*) golden chain / golden rain / laburnum 2. (genus *Laburnocytisus*) groom laburnum / Adam’s laburnum 3. (genus *Petteria*) Dalmatian laburnum
- RJPSY**- ‘FABOIDEAE’ XV 1. (genus *Lupinus*) lupin, lupine 2. (genus *Retama*) bridal broom 3. (genus *Spartium*) Spanish broom / rush broom / weaver’s broom
- RJPSW**- ‘FABOIDEAE’ XVI 1. (genus *Ulex*) gorse, furze, whin 2. (genus *Crotalaria*) rattlepod / rattlebox, chipilin, devil-bean / rattleweed / shack-shack, harebells / rabbit-bells, giant striata / chique chique, brown hemp / Indian hemp / Madras hemp / sunn hemp, green birdflower / regal birdflower 3. (genus *Cyclopia*) honeybush / honeybush tea plant
- RJPSY**- ‘FABOIDEAE’ XVII 1. (genus *Amorpha*) false indigo 2. (genus *Dalea*) prairie clover, purpletassels, summer farewell, dalea, white tassel-flower, whitetassels, Gentry’s indigobush 3. (genus *Eysenhardtia*) kidneywood tree
- RJPTW**- ‘FABOIDEAE’ XVIII 1. (genus *Marina*) false prairie-clover 2. (genus *Parryella*) common dunebroom 3. (genus *Psoralea*) indigo bush, dalea, smoketree / smokethorn
- RJPTY**- ‘FABOIDEAE’ XIX 1. (genus *Thermopsis*) goldenbanners / false-lupines 2. (genus *Baptisia*) wild indigo, galse indigo, catbells, scareweed, rattleweed, gopherweed, horseflyweed / indigo-broom / yellow broom 3. (genus *Wisteria*) wisteria
- RJKW**- ‘FABOIDEAE’ XXI 1. (genus *Indigofera*) indigo plant 2. (genus *Cyamopsis*) guar / Lond bean 3. (genus *Lonchocarpus*) lancepod, philenoptera / apple leaf / rain tree
- RJKY**- ‘FABOIDEAE’ XXII 1. (genus *Millettia*) millettia, panga panga, Indian beech / Pongam oiltree / pongamia 2. (genus *Piscidia*) fishpoison tree, Jamaican dogwood / fishfuddle 3. (genus *Tephrosia*) hoarypea, tephrosia, Flinders River poison, sandhill tippitoes, goat-rue / catgut / rabbit pea, fish-poison-bean



- RJKL**- 'FABOIDEAE' XXIII 1. (genus *Alysicarpus*) moneywort, alys, alyce clover, buffalo clover / one-leaf clover 2. (genus *Desmodium*) tick-trefoil, tick clover, beggarweed, Kaimi clover, dollar leaf, silverleaf, hitchhikers, beggar lice 3. (genus *Pseudarthria*) pink velvet bean
- RJKR**- 'FABOIDEAE' XXIV 1. (genus *Kummerowia*) Korean bushclover, Japanese bushclover 2. (genus *Lespedeza*) lespedeza, bush clover, Japanese clover 3. (genus *Abrus*) jequirity bean / rosary pea
- RJKŘ**- 'FABOIDEAE' XXV 1. (genus *Bituminaria*) Arabian pea / pitch trefoil 2. (genus *Hoita*) scurfpea / leather-root 3. (genus *Orbexilum*) leather-root, French-grass / lanceleaf scurfpea, Sampson's snakeroot
- RJKF**- 'FABOIDEAE' XXVI 1. (genus *Pedimelum*) Indian breadroot, skunktop, turniproot, buckroot, buffalo pea / tall-bread scurf-pea 2. (genus *Psoralea*) white tumbleweed, prairie turnip / timpsula
3. (genus *Psoralidium*) lemon scurfpea / wild lemonweed / dune scurfpea, slimflower scurfpea
- RJKÇ**- 'FABOIDEAE' XXVII 1. (genus *Rupertia*) California tea / rupertia, forest scurfpea 2. (genus *Syrmatium*) Bentham's broom / Bentham's deerweed, bird's-foot trefoil, Haydon's lotus / pygmy lotus, rush broom / rush deervetch, beach lotus / Nuttall's lotus, island broom 3. (genus *Dipteryx*) tonka bean, almendro, baru, almendrillo
- RJKŢ**- 'FABOIDEAE' XXVIII 1. (genus *Swartzia*) Brazilian ebony / panococo 2. (genus *Cordyla*) wild mango 3. (genus *Pickeringia*) chaparral pea
- RZP**- 'FABOIDEAE' XXIX 1. (genus *Astragalus*) milkvetch, locoweed, goat's-thorn, cock's-head, woollypod 2. (genus *Carmichaelia*) North Island broom, South Island broom, leafy broom, coral broom, dwarf broom, scented broom, large-flowered broom, pink broom, whip broom, weeping broom / tree broom, giant-flowered broom 3. (genus *Galega*) goat's rue
- RZPW**- 'FABOIDEAE' XXX 1. (genus *Clianthus*) kakabeak / parrot's beak / parrot's bill / lobster claw 2. (genus *Colutea*) bladder senna 3. (genus *Montigena*) scree pea
- RZPY**- 'FABOIDEAE' XXXI 1. (genus *Glycyrrhiza*) licorice / American licorice 2. (genus *Oxytropis*) locoweed, oxytrope, oxytropis 3. (genus *Sphaerophysa*) alkali swainsonpea / Austrian peaewad / red bladdervetch
- RZPL**- 'FABOIDEAE' XXXII 1. (genus *Sutherlandia*) cancer bush / balloon pea / sutherlandia 2. (genus *Swainsona*) swainson-pea, desert pea, darling pea 3. (genus *Sphinctospermum*) hourglass peaseed
- RZPR**- 'FABOIDEAE' XXXIII 1. (genus *Lotus*) bird's-foot trefol / bacon-and-eggs, deervetch, trefoil 2. (genus *Acmispon*) bird's-foot trefoil, silver lotus, Spanish clover, deervetch, silky deerweed, Heermann's lotus, Chile lotus 3. (genus *Ornithopus*) bird's foot, yellow serradella
- RZPŘ**- 'FABOIDEAE' XXXIV 1. (genus *Ottleya*) shrubby deervetch / desert rock-pea, stiff-haired lotus / strigose bird's foot trefoil, Wright's deervetch 2. (genus *Anthyllis*) kidneyvetch / woundwort 3. (genus *Coronilla* [including genus *Securigera*]) crown vetch, scorpion vetch
- RZPF**- 'FABOIDEAE' XXXV 1. (genus *Hippocrepis*) horseshoe vetch, scorpion senna 2. (genus *Hosackia*) big deervetch / broad-leafed lotus, bird's-foot trefoil, meadow lotus, thicket trefoil 3. (genus *Scorpiurus*) scorpion's-tail / caterpillar-plant
- RZPÇ**- 'FABOIDEAE' XXXVI 1. (genus *Coursetia*) babybonnets 2. (genus *Genistidium*) brushpea 3. (genus *Gliricidia*) quickstick
- RZPT**- 'FABOIDEAE' XXXVII 1. (genus *Olneya*) ironwood / desert ironwood / palo fierro 2. (genus *Peteria*) spine-noded milkvetch / Thompson's peteria 3. (genus *Robinia*) locust, false acacia
- RZPL**- 'FABOIDEAE' XXXVIII 1. (genus *Hedysarum*) sweetvetch, sweet-broom, alpine sainfoin 2. (genus *Alhagi*) camelthorn / camelthorn-bush, manna tree / mannaplant 3. (genus *Caragana*) Siberian peashrub / Siberian pea-tree / caragana
- RZPS**- 'FABOIDEAE' XXXIX 1. (genus *Ebenus*) Cretan ebony 2. (genus *Halimodendron*) common salt tree / Russian salt tree 3. (genus *Onobrychis*) sainfoin
- RZPŠ**- 'FABOIDEAE' XL 1. (genus *Trifolium*) clover, trefoil 2. (genus *Melilotus*) melilot, sweet clover 3. (genus *Medicago*) alfalfa plant, medick, burclover, button clover, nonesuch, hop clover, moon trefoil, alfalfa arborea
- RZPH**- 'FABOIDEAE' XLI 1. (genus *Ononis*) restharrow 2. (genus *Parochetus*) shamrock pea / blue oxalis 3. (genus *Trigonella*) blue fenugreek / blue melilot

- RZPHW**- ‘FABOIDEAE’ XLII 1. (genus *Aotus*) aotus, golden pea 2. (genus *Gompholobium*) glory pea / wedge-pea 3. (genus *Daviesia*) bitter-pea, bookleaf, marno
- RZPSW**- ‘FABOIDEAE’ XLIII 1. (genus *Oxylobium*) shaggy pea 2. (genus *Podolobium*) shaggy pea 3. (genus *Pultenaea*) bush-pea
- RZPSY**- ‘FABOIDEAE’ XLIV 1. (genus *Chorizema*) heart-leaf flame pea / Australian flame pea, holly flame pea 2. (genus *Dillwynia*) parrot-pea 3. (genus *Stonesiella*) clubmoss bush-pea
- RZPŠW**- ‘FABOIDEAE’ XLV 1. (genus *Sphaerolobium*) globe-pea 2. (genus *Isotropis*) poison sage, granny bonnets, lamb poison 3. (genus *Gastrolobium*) poison plant, brother-brother, breelya, Swan River pea, mountain pea, cranbrook pea
- RZPŠY**- ‘FABOIDEAE’ XLVI 1. (genus *Callistachys*) wonnich / native willow 2. (genus *Jacksonia*) stinkwood, dogwood, waldjumi 3. (genus *Viminaria*) native broom
- RZPTW**- ‘FABOIDEAE’ XLVII 1. (genus *Bossiaea*) bossiaea, water bush, cactus pea 2. (genus *Goodia*) golden-tip 3. (genus *Platylobium*) flat-pea, eggs-and-bacon pea
- RZPTY**- ‘FABOIDEAE’ XLVIII 1. (genus *Eutaxia*) eutaxia 2. (genus *Mirbelia*) mirbelia 3. (Faboideae other than named genera; numerous genera) other faboid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fabales > Fabaceae > Cercidoideae

- RZTM**- ‘CERCIDOIDEAE’ I 1. (genus *Cercis*) redbud, Judas tree 2. (genus *Barklya*) leather jacket / crown of gold tree 3. (genus *Piliostigma*) camel’s foot tree / monkey bread / monkey biscuit tree, purple orchid tree
- RZTN**- ‘CERCIDOIDEAE’ II 1. (genus *Bauhinia*) orchid tree, bauhinia, bidi leaf tree 2. (genus *Lysiphyllum*) bauhinia / jigal tree, mountain ebony / Queensland ebony, northern beantree 3. (genus *Schnella*) granny backbone, monkey ladder vine
- RZTŇ**- ‘CERCIDOIDEAE’ III 1. (genus *Phanera* [including genus *Cheniella*]) bauhinia, butterfly tree, orchid tree / mountain ebony 2. (genus *Tylosema*) marama bean / gemsbok bean 3. (Cercidoideae other than named genera; several genera) other cercidoid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fabales > Fabaceae > Caesalpinoideae

- RZTW**- ‘CAESALPINEAE’ I 1. (genus *Caesalpinia*) peacock flower / poinciana / red bird of paradise / Mexican bird of paradise / pride of Barbados / flos pavonis, nicker 2. (genus *Biancaea*) shoofly / Mauritius thorn / Mysore thorn / cat’s claw, sappanwood / Indian redwood 3. (genus *Cordeauxia*) yeheb bush
- RZTY**- ‘CAESALPINEAE’ II 1. (genus *Denisophytum*) fewflower holdback 2. (genus *Erythrostemon*) tailed nicker, bird of paradise, Mexican holdback 3. (genus *Guilandina*) nicker, nicker nut
- RZTL**- ‘CAESALPINEAE’ III 1. (genus *Haematoxylum*) logwood, peachwood / brazilette 2. (genus *Hoffmannseggia*) rushpea, holdback, nicker, pig-nut / hog potato 3. (genus *Libidibia*) Brazilian ironwood / leopard tree, divi-divi, Argentinian brown ebony, quebrachacha
- RZTR**- ‘CAESALPINEAE’ IV 1. (genus *Moullava*) teri pod 2. (genus *Paubrasilia*) brazilwood / pernambuco wood 3. (genus *Pomaria*) holdback, nicker
- RZTŘ**- ‘CAESALPINEAE’ V 1. (genus *Pterolobium*) redwing, camp siege / bhoca 2. (genus *Tara*) tara 3. (Caesalpineae other than named genera; several genera) other caesalpine plant/vine
- RZFW**- ‘CAESALPINOIDEAE’ I 1. (genus *Cassia*) cassia, wishing-tree, gold medallion tree, sjambok pod, native laburnum, golden shower, Palawan cherry, drumstick tree 2. (genus *Senna*) senna, candlebush / Christmas candle / empress candle plant / ringworm shrub / candelabra bush, cassia, false sicklepod, avaram / Matara-tea, West Indian showertree, Christmas bush / money bush / yellow candlewood, coffee-weed / java-bean / American sicklepod, antbush / coffee-senna / septicweed / stinkingweed, monkey pod, Argentine wild sensitive plant, kassodtree / Thailand shower, arsenic-bush / Dooleyweed, New Mexico wild sensitive plant 3. (genus *Chamaecrista*) sensitive pea

- RZFY**- ‘CAESALPINOIDEAE’ II 1. (genus *Burkea*) wild syringa tree 2. (genus *Erythrophleum*) Cooktown ironwood, ordeal tree 3. (genus *Melanoxylum*) brauna wood tree
- RZFL**- ‘CAESALPINOIDEAE’ III 1. (genus *Delonix*) poinciana 2. (genus *Parkinsonia*, a.k.a. *Cercidium*) palo verde, brea 3. (genus *Schizolobium*) Brazilian firetree / Brazilian fern tree
- RZFR**- ‘CAESALPINOIDEAE’ IV 1. (genus *Ceratonia*) carob tree 2. (genus *Tachigali*) suicide tree 3. (genus *Acrocarpus*) pink cedar
- RZFR**- ‘CAESALPINOIDEAE’ V 1. (genus *Gleditsia*) honey locust, water locust / swamp locust, Caspian locust 2. (genus *Gymnocladus*) coffee tree, dekan tree, soap tree / Chinese coffee tree 3. (Caesalpinoideae other than named genera) other caesalpinoid plant/tree
- RJTW**- ‘MIMOSOIDEAE’ I 1. (genus *Mimosa*) mimosa, sensitive plant, sensitive tree, sensitive-briar, catclaw briar 2. (genus *Anadenanthera*) calcium tree, yopo 3. (genus *Parkia*) African locust bean
- RJTY**- ‘MIMOSOIDEAE’ II 1. (genus *Acacia*) wattle, acacia, jam, raspberry jam / fine leaf jam, gidgee, mulga, salwood, ashburton willow / moondyne tree, creekline miniritchi, boobialla / native willow, yalgoo, prickly Moses, currawang, lancewood, Minni Ritchie, needlewood, myall, false bowgada, pin bush, bendee, motherumbah, soap bush, old man wodjil, brown spearwood / ringy rosewood, wantan / milhan, sugar brother, curracabah, granite bush, mountain hickory / broad-leaved hickory, scrub ironbark, New England hickory, dead finish / kurara / curara, wirilda, alumaru / nyalanyalara, gundabluey, waddy-wood / waddy, kangaroo thorn, kanji bush, broombush, camel bush / corky canji, bluebush, two-veined hickory, buehan blue, motherumbung, Broughton willow / cooba / Doolan, billy blue, umbrella bush wirra, wait-a-while / Bohemia, mamoose tree, gidyea, bowyacka, dwarf nealie, lightwood, yarran, brugalow / brugalow spearwood / orkor, boree / balaar / nilyah, bank catclaw, spine bush, desert oak / wirewood / dogwood, womel, eumong / dunthy / belalei / munumula / balkura / gurley / gooralee, catbush 2. (genus *Vachellia*) acacia, wattle, thorn tree 3. (genus *Senegalia*) acacia, catclaw, monkey thorn, cutch tree, visco / viscote / arca, catechu tree
- RJTL**- ‘MIMOSOIDEAE’ III 1. (genus *Ebenopsis*) Texas ebony, ebano 2. (genus *Pitecellobium*) blackbead, everfresh 3. (genus *Havardia*) chucum / cuisache, huajillo
- RJTR**- ‘MIMOSOIDEAE’ IV 1. (genus *Acaciella*) acacia, wattle, yellow tamarind 2. (genus *Albizia*) silk plant, silk tree, siris, acle / akle, albizia, musase, kalkora mimosa, lebbeck / lebbek tree / frywood / koko / woman’s-tongue tree, monkey’s earring, rain tree / saman / monkey pod 3. (genus *Archidendron*) lace flower, tulip siris, djenkol / jengkol / jering, bacon wood
- RJTŘ**- ‘MIMOSOIDEAE’ V 1. (genus *Calliandra*) powder-puff plant, fairy duster, soldierwood 2. (genus *Enterolobium*) monkey-ear tree / elephant-ear tree / guanacaste, pacara earpod tree 3. (genus *Faidherbia*) apple-ring acacia / winter thorn / ana tree
- RJFW**- ‘MIMOSOIDEAE’ VI 1. (genus *Lysiloma*) false tamarind, sabicu / horseflesh 2. (genus *Pararchidendron*) snow-wood / tulip siris / monkey’s earrings 3. (genus *Samanea*) rain tree
- RJFY**- ‘MIMOSOIDEAE’ VII 1. (genus *Abarema*) abarema, shadbark, crabwood / jumbie head / soapy-soapy / wild tamarind 2. (genus *Entada*) sea bean / seaheart / monkey-ladder, St. Thomas bean, snuff box bean 3. (genus *Elephantorrhiza*) elephant root / sumach bean, eland’s wattle
- RJFL**- ‘MIMOSOIDEAE’ VIII 1. (genus *Adenanthera*) red lucky seed / acacia coral / bead tree / Circassian seed, curly bean / jumbi-bead / red bead tree, peacock flower fence 2. (genus *Prosopis*) mesquite tree, algarrobo, alpataco, tamarugo, Argentine screwbean, American carob, tornillo 3. (genus *Desmanthus*) bundleflower, wild tantan, donkey bean
- RJFR**- ‘MIMOSOIDEAE’ IX 1. (genus *Leucaena*) leadtree, leucania 2. (genus *Schleinitzia*) strand tangantangan 3. (genus *Dichrostachys*) sicklebush / Bell mimosa / Chinese lantern tree / Kalahari Christmas tree
- RJFR**- ‘MIMOSOIDEAE’ X 1. (genus *Neptunia*) sensitive plant, yellow puff, water mimosa, neptunia 2. (Mimosoideae other than named genera; numerous genera) other mimosoid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fabales > Fabaceae > Detarioideae

**-RZX-** ‘DETARIOIDEAE’ I 1. (genus *Detarium*) tallow tree, sweet detar / sweet dattock 2. (genus *Guibourtia*) Rhodesian teak, African rosewood, Rhodesian copalwood / false mopane, black hyedua, tiete rosewood / Patagonian cherry / sirari 3. (genus *Peltogyne*) purpleheart, violet wood

**-RZXW-** ‘DETARIOIDEAE’ II 1. (genus *Baikiaea*) African teak / Rhodesian teak / Zambian teak / Zambesi redwood 2. (genus *Colophospermum*) mopane / balsam tree / butterfly tree / turpentine tree

(genus *Copaifera*) diesel tree / kerosene tree, cabimo 3. (genus *Daniellia*) West African copal tree / African copaiba balsam tree

**-RZXL-** ‘DETARIOIDEAE’ III 1. (genus *Saraca*) ashoka tree, saraca tree, sorrowless tree, asoca, ashok 2. (genus *Intsia*) Johnstone River teak / Pacific teak / scrub mahogany, Borneo teak / Malacca teak / Moluccan ironwood / merbau 3. (genus *Brachystegia*) miombo, mountain acacia, zebrawood

**-RZXR-** ‘DETARIOIDEAE’ IV 1. (genus *Brownea*) mountain rose / scarlet flame bean / rose of Venezuela / copper hoop 2. (genus *Cynometra*) Uganda iron wood / muhimbi 3. (genus *Gilbertiodendron*) Liberian red oak

**-RZXM-** ‘DETARIOIDEAE’ V 1. (genus *Tamarindus*) tamarind 2. (genus *Maniltoa*) handkerchief tree / pokok sapu tangan, cascading bean 3. (genus *Julbernardia*) congo zebrawood, mnono, muchesa

**-RZXN-** ‘DETARIOIDEAE’ VI 1. (genus *Schotia*) weeping boerbean 2. (genus *Barnebydendron*) monkey-flower tree / fire of Pakistan 3. (Detarioideae other than named generap; numerous genera) other detarioid plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fabales > Fabaceae > remaining sub-families: Dialioideae and Duparquetia

**-RJL-** ‘DIALIOIDEAE & DUPARQUETIOIDEAE’ 1. (genus *Dialium*) velvet tamarind, tamarind-plum 2. (Dialioideae other than Stem 1; numerous genera) other dialioid plant 3. (Duparquetioideae; genus *Duparquetia*) duparquetia

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fabales > Polygalaceae

**-RJFM-** ‘POLYGALACEAE’ I 1. (genus *Polygala*) milkwort, snakeroot, butterfly-bush / parrotbush / cascade curse, senega, senega-root 2. (genus *Comesperma*) pyramid flower, comesperma, love creeper, milkwort 3. (genus *Polygaloides*) gaywings / fringed polygala, shrubby milkwort

**-RJFN-** ‘POLYGALACEAE’ II 1. (genus *Habecarpa*) glandleaf milkwort, New Mexico milkwort, habecarpa 2. (genus *Rhinotropis*) desert polygala / thorn milkwort, California milkwort, Sierra milkwort, beaked spiny polygala / notch-beaked milkwort, intermountain milkwort, spiny milkwort 3. (Polygalaceae other than named genera) other polygalaceous plant, other milkwort

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fabales > Surianaceae

**-RJTM-** ‘SURIANACEAE’ 1. (genus *Cadellia*) ooline 2. (genus *Suriana*) bay cedar 3. (Surianaceae other than Stems 1 and 2; genera *Recchia*, *Guilfoylia*, *Stylobasium*) other surianceous plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fabales > Quillajaceae

**-RJTN-** ‘QUILLAJACEAE’ 1. (*Quillaja saponaria*) soap bark tree 2. (*Quillaja brasiliensis*) Brazilian quillaja tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Celastrales

-**ÇFW**- ‘CELASTRALES’ I 1. (genus *Celastrus*) staff vine / staff tree, bittersweet, orange boxwood 2. (genus *Canotia*) crucifixion thorn, canotia 3. (genus *Cassine*) Cape saffron / bastard saffron / forest spoonwood, Bermuda olivewood

-**ÇFY**- ‘CELASTRALES’ II 1. (genus *Elaeodendron*) olive berry / red fruited olive plum / cassine 2. (genus *Catha*) khat / qat 3. (genus *Crossopetalum*) Christmas-berry, maiden berry

-**ÇFL**- ‘CELASTRALES’ III 1. (genus *Euonymus*) spindle, spindle tree, burning-bush, strawberry-bush, dingle-dangle tree, wahoo, wintercreeper, euonymus 2. (genus *Gymnosporia*) common spike-thorn 3. (genus *Hartogiella*) spoonwood

-**ÇFR**- ‘CELASTRALES’ IV 1. (genus *Lydenburgia*) bushman’s tea 2. (genus *Maurocenia*) Khoi cherry / vulture-berry 3. (genus *Maytenus*) mayten, orangebark, koonkara, white cinnamon, orange bush, Indian’s salt, maytenus, rock false candlewood, orange boxwood

-**ÇFŘ**- ‘CELASTRALES’ V 1. (genus *Mortonia*) saddlebush, sand paper bush, mortonia 2. (genus *Lepuropetalum*) petiteplant 3. (genus *Parnassia*) grass of Parnassus, bog-star

-**ÇFM**- ‘CELASTRALES’ VI 1. (genus *Paxistima*) Canby’s mountain-lover / rat-stripper / cliff green, Oregon boxleaf / hedge / box / false box / myrtle box leaf 2. (genus *Pterocelastrus*) candlewood / cherrywood 3. (genus *Putterlickia*) spikethorn, false spikethorn, mock spike thorn, bastard spikethorn

-**ÇFN**- ‘CELASTRALES’ VII 1. (genus *Robsonodendron*) white silky bark 2. (genus *Salacia*) salacia, lolly berry 3. (genus *Schaefferia*) Florida boxwood, desert yaupon

-**ÇFÑ**- ‘CELASTRALES’ VIII 1. (genus *Stackhousia*) stackhousia, creamy candles, Gunn’s mignonette / grasslands candles 2. (genus *Tripterygium*) threewingnut, thunder god vine 3. (Celestrales other than named genera; numerous genera) other celestrales plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Malpighiaceae

-**PȚC**- ‘MALPIGHIACEAE’ I 1. (genus *Malpighia*) Singapore holly, Barbados cherry / acerola, bristly stingingbush, cowhage 2. (genus *Acridocarpus*) moth fruit 3. (genus *Banisteriopsis*) ayahuasca plant

-**PȚZ**- ‘MALPIGHIACEAE’ II 1. (genus *Bunchosia*) peanut butter fruit, friar’s plum, usama / bush tomato paste, yellow usama / yellow coffee of the bush 2. (genus *Brysonima*) locustberry, serret, nance / golden spoon, clam cherry / gooseberry 3. (genus *Galphimia*) gold shower / shower-of-gold / slender goldshower / thryallis

-**PȚČ**- ‘MALPIGHIACEAE’ III 1. (genus *Stigmaphyllon*) amazonvine 2. (Malpighiaceae other than named genera; numerous genera) other malpighiaceae plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Elatinaceae & Centroplacaceae

-**PȚJ**- ‘ELATINACEAE & CENTROPLACACEAE’ 1. (Elatinaceae; genus *Elatina*) waterwort 2. (Elatinaceae; genus *Bergia*) bergia 3. (Centroplacaceae; genera *Bhesa*, *Centroplacus*) centroplacaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Euphorbioideae

-**GZBW**- ‘EUPHORBIACEAE’ I 1. (genus *Euphorbia*) spurge, rattlesnake weed / white-margined sandmat, candelilla, sweet tabaiba, Hercules club, Medusa’s head, copper tree, fire-on-the-mountain, African milk bush, desert poinsettia / fireplant / paint leaf, asthma-plant, African milk barrel, candelabra tree, frilled fan / elkhorn, gopher plant / mole plant, Madagascar jewel, snow on the mountain, crown-of-thorns / Christ plant, donkey tail, bonfire, Mexican flame leaf / Christmas star / winter rose, milk bush / pencil tree / firestick, devil’s backbone / redbird cactus, African milk tree / cathedral cactus, poison tree, euphorbia 2. (genus *Homalanthus*) bleeding heart / native poplar / Queensland poplar 3. (genus *Ditrysinia*) Gulf Sebastian-bush

-**GZBY**- ‘EUPHORBIACEAE’ II 1. (genus *Neoshirakia*) milktree, tallow tree 2. (genus *Triadica*) Chinese tallowtree / Florida aspen ; chicken tree / gray popcorn tree / candleberry tree 3. (genus *Sapium*) milktree / gumtree

- GZBL-** ‘EUPHORBIACEAE’ III 1. (genus *Sclerocroton*) duiker berry 2. (genus *Sebastiana*) “Mexican jumping bean” tree, sebastiana 3. (genus *Stillingia*) toothleaf, queen’s-root, corkwood, queen’s delight
- GZBR-** ‘EUPHORBIACEAE’ IV 1. (genus *Mercurialis*) mercury 2. (genus *Ricinus*) castor bean plant / castor oil plant 3. (genus *Argythamnia*) silverbush
- GZBŘ-** ‘EUPHORBIACEAE’ V 1. (genus *Chrosophora*) turnsole plant / dyer’s croton / giradol 2. (genus *Omphalea*) Jamaican cobnut / popnut 3. (genus *Codiaeum*) fire croton / variegated croton
- GZBZ-** ‘EUPHORBIACEAE’ VI 1. (genus *Croton*) croton, rushfoil, hogwort / goatweed, cascarilla, encinilla, grannybush, prairie-tea, dove weed / turkey mullein, forest fever-berry  
2. (genus *Elateriospermum*) perah tree 3. (genus *Cnidoscolus*) tree spinach / chaya, mala mujer, bull nettle / spurge nettle / tread-softly / finger rot
- GZBŽ-** ‘EUPHORBIACEAE’ VII 1. (genus *Hevea*) rubber plant / rubber tree 2. (genus *Schinziophyton*) maongongo tree / mongongo nut tree / manketti tree 3. (Euphorbiaceae other than named genera; numerous genera) other euphorbiaceous plant/tree
- GZBD-** ‘PERACEAE’ 1. (genus *Clusia*) lightning bush 2. (genus *Chaetocarpus*) hedoke 3. (Peraceae other than Stems 1 and 2) other peraceous plant
- GZXW-** ‘PICRODENDRACEAE’ I 1. (genus *Androstachys*) lebombo ironwood 2. (genus *Austrobuxus*) pink cherry / hairybark 3. (genus *Micrantheum*) box micrantheum, western tridentbush
- GZXL-** ‘PICRODENDRACEAE’ II (genus *Oldfieldia*) African oak 2. (genus *Petalostigma*) quinine berry / quinine bush / quinine tree, long-leaved bitter bark 3. (genus *Piranhea*) three-leaf piranhea
- GZXR-** ‘PICRODENDRACEAE’ III 1. (genus *Oldfieldia*) African oak 2. (genus *Tetracoccus*) scrubby-spurge, tetracoccus, hollybush 3. (Picrodendraceae other than named genera; numerous genera) other picrodendraceous plant
- BZXW-** ‘PHYLLANTHACEAE’ I 1. (genus *Phyllanthus*) gooseberry, leafflower, red root floater, scrubby spurge, gale of the wind / stonebreaker / seed-under-leaf, mousetail plant, brush sauropus, chamberbitter, sand riverchonia, gripeweed / shatterstone 2. (genus *Flueggea*) bushweed, mehamehame 3. (genus *Margaritaria*) pheasant-berry / egossa red pear / bushveld peacock-berry, bastard hogberry
- BZXL-** ‘PHYLLANTHACEAE’ II 1. (genus *Baccaurea*) Burmese grape, rambi / rambai, tampoi 2. (genus *Bridelia*) coastal golden-leaf / mitzeeri, brush ironbark / scrub ironbark 3. (genus *Pseudolachnostylis*) kudu berry
- BZXR-** ‘PHYLLANTHACEAE’ III 1. (genus *Leptopus*) maidenbush 2. (genus *Poranthera*) poranthera 3. (Phyllanthaceae other than named genera; numerous genera) other phyllantaceous plant
- GŽXW-** ‘LINACEAE’ 1. (genus *Linum*) flax 2. (genus *Hesperolinon*) dwarf-flax / western flax 3. (genus *Reinwardtia*) yellow flax / pyoli
- GŽXL-** ‘RAFFLESIIACEAE’ 1. (genus *Rafflesia*) corpse lilly, rafflesia 2. (genus *Rhizanthus*) rhizanthus 3. (genus *Sapria*) sapria
- GŽXR-** ‘OTHER LINACEAE & IXONANTHACEAE’ 1. (genus *Scerolinon*) northwestern yellowflax 2. (Linaceae other than named genera; several genera) other linaceous plant 3. (Ixonanthaceae; four genera) ixonanthaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Salicaceae (including Samydaceae)

- BZF-** ‘GENUS *POPULUS*’ 1. poplar tree 2. cottonwood tree 3. aspen tree
- BZFW-** ‘SALICACEAE’ I 1. (genus *Salix*) willow tree, osier, sallow 2. (genus *Xylosma*) brushholly, logwood, xylosma 3. (genus *Oncoba*) snuff-box tree / fried egg tree / fried-egg flower
- BZFY-** ‘SALICACEAE’ II 1. (genus *Azara*) azara 2. (genus *Dovyalis*) kei apple / kai apple / kau apple 3. (genus *Flacourtia*) Batoko plum, Indian coffee plum, rukam
- BZFL-** ‘SALICACEAE’ III 1. (genus *Scolopia*) flintwood / mountain cherry / brown birch / scolopia, mountain saffron / red pear 2. (genus *Casearia*) sword-leaf 3. (Salicaceae other than named genera; numerous genera) other salicaceous plant/tree



Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Passifloraceae (including Turneraceae and Malesherbiaceae)

**-BZFR-** 'PASSIFLORACEAE' I 1. (genus *Passiflora*) passion flower, passion vine, grenadilla, passionfruit, maypop, water lemon / Jamaican honeysuckle, sweet calabash, bell apple, tumbo, goatsfoot 2. (genus *Adenia*) monkey rope / snake climber / wild granadilla, hondala, adenia 3. (genus *Turnera*) damiana, white buttercup sulphur alder / politician's flower / dark-eyed turnera / white alder, turnera, ramgoat dashalong / yellow alder

**-BZFŘ-** 'PASSIFLORACEAE' II 1. (genus *Barteria*) ant tree 2. (Passifloraceae other than named genera; numerous genera) other passifloraceous plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Violaceae

**-BZFM-** 'VIOLACEAE' 1. (genus *Viola*) violet, pansy, heartsease 2. (genus *Melicytus*, a.k.a. *Hymenanthera*) porcupine shrub, mahoe, whitey-wood, tree violet 3. (Violaceae other than Stems 1 and 2; numerous genera) other violaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Achariaceae and Humiriaceae

**-BZFN-** 'ACHARIACEAE & HUMIRIACEAE' 1. (genus *Hydnocarpus*) chaulmoogra 2. (Achariaceae other than Stem 1; numerous genera) other achariaceous plant/tree 3. (Humiriaceae; several genera) humiriaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Clusiaceae

**-GZFW-** 'CLUSIACEAE' I 1. (genus *Clusia*) autograph tree / copey / cupey / balsam apple / pitch-apple / Scotch attorney 2. (genus *Allanblackia*) tallow tree 3. (genus *Garcinia*) saptree, mangosteen, gambooge / brindleberry / brindall berry / Malabar tamarind, garcinia

**-GZFY-** 'CLUSIACEAE' II 1. (genus *Platonia*) bacuri / pakuri / maniballi / naranjillo 2. (genus *Symphonia*) chewstick / chestick / manni 3. (Clusiaceae other than named genera; several genera) other clusiaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Calophyllaceae

**-GZFL-** 'CALOPHYLLACEAE' I 1. (genus *Calophyllum*) mastwood / Alexandrian laurel / beauty leaf, Nicobar canoetree, pink touriga, poonspar / sirpoontree 2. (genus *Mammea*) mamee apple / mamey apple / Santo Domingo apricot / tropical apricot / South American apricot 3. (genus *Mesua*) Ceylon ironwood / Indian rose chestnut / cobra saffron

**-GZFR-** 'CALOPHYLLACEAE' II 1. (genus *Kielmeyera*) malva-do-campo, pau santo 2. (Calophyllaceae other than named genera; several genera) other calcophyllaceous plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Hypericaceae & Podostemaceae

**-GZFŘ-** 'HYPERICACEAE' I 1. (genus *Hypericum*) St. John's wort, goatweed, goldwire, sweet-amber, tutsan, pineweed / orangegrass, curry bush, sangrenaria, sanguinaria 2. (genus *Triadenum*) marsh St. John's wort / bog St. John's wort 3. (genus *Harungana*) dragon's blood tree / orange-milk tree / haronga

**-GZFM-** 'HYPERICACEAE' II & PODOSTEMACEAE 1. (Hypericaceae other than genera named in Hypericaceae I; several genera) other hypericaceous plant 2. (Podostemaceae; numerous genera) riverweed, podostemaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Ochnaceae (including Quiinaceae & Medusagynaceae)

**-GZFN-** 'OCHNACEAE (including QUIINACEAE & MEDUSAGYNACEAE)' I 1. (genus *Ochna*) ochna, plane, yellow mai flower, Mickey Mouse bush, bird's-eye bush 2. (genus *Lophira*) red ironwood tree 3. (genus *Brackenridgea*) yellow peeling plane

**-GZFÑ-** 'OCHNACEAE (including QUIINACEAE & MEDUSAGYNACEAE)' II 1. (genus *Medusagyne*) jellyfish tree 2. (Ochnaceae other than named genera; several genera) other ochnaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Irvingiaceae and Pandaceae

-**ÇTMW**- ‘IRVINGIACEAE & PANDACEAE’ 1. (genus *Irvingia*) wild mango / African mango / bush mango, wild almond / barking deer’s mango 2. (Irvingiaceae other than Stem 1; genera *Allantospermum*, *Klainedoxa*) other irvingiaceae plant 3. (Pandaceae; genera *Panda*, *Microdesmis*, *Galearia*) pandaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Erythroxylaceae, Ctenolophonaceae, and Rhizophoraceae

-**ÇTMY**- ‘ERYTHROXYLACEAE & CTENOLOPHONACEAE’ 1. (genus *Erythroxylum*) coca plant, catuaba plant, brown plum, kerosene wood / turpentine tree 2. (Erythroxylaceae other than Stem 1; other erythroxylaceous plant 3. (Ctenolophonaceae; genus *Ctenolophon*) ctenolophon)

-**ÇTML**- ‘RHIZOPHORACEAE’ I 1. (genus *Rhizophora*) true mangrove, red mangrove 2. (genus *Ceriops*) yellow mangrove, spurred mangrove / Indian mangrove 3. (genus *Bruguiera*) orange mangrove, oriental mangrove / black mangrove / mangrove bean

-**ÇTMR**- ‘RHIZOPHORACEAE’ II 1. (genus *Carallia*) corkwood / butterfly plant 2. (Rhizophoraceae other than named genera; numerous genera) other rhizophoraceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Dichapetalaceae

-**ÇTMR**- ‘DICHAPETALACEAE’ 1. (genus *Dichapetalum*) poison-leaf 2. (genus *Tapura*) tapura 3. (genus *Stephanopodium*) stephanopodium

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Chrysobalanaceae

-**ÇKMW**- ‘CHRYSOBALANACEAE’ I 1. (genus *Chrysobalanus*) coco plum / paradise plum 2. (genus *Couepia*) sweet angelim, pajurá 3. (genus *Licania*) gopher apple / ground oak, merecure, sansapote

-**ÇKMY**- ‘CHRYSOBALANACEAE’ II 1. (genus *Parinari*) Annamese burda, mobola plum, nonda plum, guinea plum 2. (genus *Atuna*) tabon-tabon 3. (Chrysobalanaceae other than named genera) other chrysobalanaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > Caryocaraceae, Putranjivaceae, Lophopyxidaceae, Balanopaceae

-**ÇKML**- ‘CARYOCARACEAE & LOPHOPYXIDACEAE’ 1. (genus *Caryocar*) souari tree, butter-nut of Guiana / pekea-nut tree 2. (genus *Anthodiscus*) anthodiscus 3. (Lophopyxidaceae; genus *Lophopyxis*) lophopyxis

-**ÇKMŘ**- ‘PUTRANJIVACEAE & BALANOPACEAE’ 1. (Putranjivaceae; genus *Drypetes*) ironplum, forest ironwood/ bastard white ironwood, yellow tulipwood / grey boxwood / white myrtle / grey bark 2. (Putranjivaceae; genus *Putranjiva*) putranjiva 3. (Balanopaceae; genus *Balanops*) balanops

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Malpighiales > remaining families

-**ÇKMŘ**- ‘OTHER MALPIGHIALES’ 1. (Scyphostegiaceae, Lacistemataceae, Goupiaceae; several genera) scyphostegiaceous, lacistemataceous, or goupiceous plant 2. (Bonnetiaceae; four genera) bonnetiaceous plant 3. (Trigoniaceae, Euphroniaceae; several genera) trigoniaceous or euphroniaceous plant



Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Oxilidales

- LMSKW**- ‘OXALIDACEAE’ 1. (genus *Oxalis*) wood sorrel, yellow sorrel, pink sorrel, false shamrock, sourgrass, stabwort, Cape shamrock, lavender sorrel, alpine sorrel, sleeping beauty, finger-leaf, Mexican shamrock, redwood sorrel / Oregon sorrel, love plant, spiral sorrel, coamo, oca/ oka / New Zealand yam, volcanic sorrel, oxalis  
2. (genus *Averrhoa*) starfruit tree / carambola / five-corner tree, bilimbi 3. (Oxalidaceae other than Stems 1 and 2; several genera) other oxalidaceous plant/tree
- LMSKY**- ‘CONNARACEAE & HUACEAE’ 1. (genus *Connarus*) Indian zebrawood 2. (Connaraceae other than Stem 1; numerous genera) other connaraceous plant  
3. (Huaceae; genera *Hua*, *Afrostryax*) huaceous plant
- LMSKL**- ‘CUNONIACEAE’ I 1. (genus *Cunonia*) butterspoon tree / butterknife tree / African red alder, cunonia 2. (genus *Vesselowskyia*) marara 3. (genus *Weinmannia*) tawhero / towai, kamahi, encenillo, tineo
- LMSKR**- ‘CUNONIACEAE’ II 1. (genus *Anodopetalum*) horizontal scrub 2. (genus *Ceratopetalum*) coachwood / scented satinwood / tarwood, New South Wales Christmas bush 3. (genus *Schizomeria*) Australian white birch / crab apple / white cherry / snowberry / humbug / squeaker
- LMSKŘ**- ‘CUNONIACEAE’ III 1. (genus *Karrabina*) red carabeen / leather jacket / brush mahogany / red bean / pink marara / bush marara 2. (genus *Pseudoweinmannia*) rose marara / mararie / scrub rosewood / red carabeen 3. (genus *Caldcluvia*) soft corkwood / rose-leaf marara / brown alder / sugarbark, tiaca
- LMSKF**- ‘CUNONIACEAE’ IV 1. (genus *Callicoma*) black wattle / butterwood / silver leaf / wild quince / callicoma 2. (genus *Pullea*) hard alder 3. (genus *Bauera*) bauera, dog rose / river rose
- LMSKÇ**- ‘CUNONIACEAE’ V 1. (genus *Davidsonia*) Davidson plum, mullumbimby plum, ooray 2. (genus *Eucryphia*) leatherwood, pinkwood / plumwood 3. (Cunoniaceae other than named genera; several genera) other cunoniaceous plant
- LMSKT**- ‘ELAEOCARPACEAE’ I 1. (genus *Elaeocarpus*) quandong, whitewood / pigeonberry ash, grey carabeen / freckled oliveberry, blueberry ash, yoga tree, blue marble tree / blue fig, kalia, rudraksha tree 2. (genus *Aceratium*) carabeen 3. (genus *Aristotelia*) mountain wineberry, Chilean wineberry / maqui, wineberry
- LMSKS**- ‘ELAEOCARPACEAE’ II 1. (genus *Peripentadenia*) grey quandong / buff quandong 2. (genus *Sloanea*) maiden’s blush, bullwood / montillo, acomat boucan, yellow carabeen 3. (genus *Tetratheca*) pink-bells, black-eyed susan, shy susan
- LMSKŠ**- ‘ELAEOCARPACEAE’ III 1. (genus *Tremandra*) tremandra 2. (Elaeocarpaceae other than named genera; several genera) other elaeocarpaceous plant
- LMSKH**- ‘BRUNELLIACEAE & CEPHALOTACEAE’ 1. (genus *Brunellia*) West Indian sumac 2. (genus *Cephalotus*) Albany pitcher plant / Australian pitcher plant / fly-catcher plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Rosales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Rosales > Rosaceae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Rosales > Rosaceae > Rosoideae

- ŘTMW**- ‘ROSOIDEAE’ I 1. (genus *Rosa*) rose 2. (genus *Agrimonia*) agrimony 3. (genus *Aremonia*) bastard-agrimony
- ŘTMY**- ‘ROSOIDEAE’ II 1. (genus *Hagenia*) African redwood / East African rosewood, hagenia 2. (genus *Leucosidea*) oldwood 3. (genus *Filipendula*) meadowsweet, mead wort, dropwort, queen-of-the-prairie
- ŘTML**- ‘ROSOIDEAE’ III 1. (genus *Acaena*) bidibid, biddy-biddy, pirri-pirri-bur, sheep’s burr, New Zealand-bur, burnet, liliwai 2. (genus *Cliffortia*) caperose 3. (genus *Margyricarpus*) pearl-fruit
- ŘTMR**- ‘ROSOIDEAE’ IV 1. (genus *Polylepis*) queñoa 2. (genus *Sanguisorba*) burnet, burnet bloodwort 3. (genus *Sarcopoterium*) prickly burnet / spiny burnet / thorny burnet
- ŘTMRř**- ‘ROSOIDEAE’ V 1. (genus *Fallugia*) Apache plume / ponil 2. (genus *Geum*) avens, herb bennet, prairie smoke, Tasmanian snowrose 3. (genus *Waldsteinia*) barren strawberry

- ŘTNW**- 'ROSOIDEAE' VI 1. (genus *Alchemilla*) lady's mantle 2. (genus *Aphanes*) parsley-piert, parsley breakstone, Australian piert, dew cup / lady's mantle 3. (genus *Chamaerhodos*) little-rose
- ŘTNY**- 'ROSOIDEAE' VII 1. (genus *Comarum*) purple marshlocks / swamp cinquefoil / marsh cinquefoil 2. (genus *Dasiphora*) woody cinquefoil 3. (genus *Drymocallis*) sticky cinquefoil, tall cinquefoil / cream cinquefoil, rock cinquefoil
- ŘTNL**- 'ROSOIDEAE' VIII 1. (genus *Argentina*) silverweed 2. (genus *Horkelia*) horkelia 3. (genus *Ivesia*) mousetail, rock whitefeather, ivesia
- ŘTNR**- 'ROSOIDEAE' IX 1. (genus *Sibbaldia*) sibbaldia, creeping sibbaldia 2. (genus *Potentilla*) cinquefoil, barren strawberry, tormentil, fan-foil, old-field five-fingers 3. (genus *Sibbaldiopsis*) three-toothed cinquefoil / shrubby fivefingers, wineleaf
- ŘTNŘ**- 'ROSOIDEAE' X 1. (genus *Duchesnea*) mock strawberry / Indian-strawberry / false strawberry 2. (Rosoideae other than named genera or *Fragaria* or *Rubus* below) other rosoid plant
- ŘŽ**- 'STRAWBERRY (genus *Fragaria*)' 1. (wild) strawberry plant 2. strawberry cultivar 3. strawberry hybrid
- ŘT**- 'BERRY (genus *Rubus*)' I 1. raspberry plant 2. blackberry plant 3. dewberry plant
- ŘTW**- 'BERRY (genus *Rubus*)' II 1. cloudberry plant 2. salmonberry plant 3. thimbleberry plant
- ŘTY**- 'BERRY (genus *Rubus* [HYBRID])' I 1. loganberry plant 2. boysenberry plant 3. tayberry plant
- ŘTL**- 'BERRY (genus *Rubus* [HYBRID])' II 1. marionberry plant 2. youngberry plant 3. olallieberry plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Rosales > Rosaceae > Amygdaloideae

- NŽ**- 'MALEAE' I 1. (*Malus domestica*) apple 2. (genus *Malus* except *M. domestica*) crabapple 3. (genus *Pyrus*) pear
- NŽW**- 'MALEAE' II 1. (genus *Cydonia*) quince 2. (genus *Pseudocydonia*) Chinese quince 3. (genus *Chaenomeles*) Japanese quince, Chinese flowering quince, Tibetan quince
- NŽY**- 'MALEAE' III 1. (genus *Sorbus*) rowan / mountain-ash 2. (genus *Chamaemespilus*) false medlar / dwarf whitebeam 3. (genus *Amelanchier*) serviceberry, juneberry, shadbush, snowy mespilus, saskatoon berry, shadbush, shadwood, shadblow, sarvisberry, sugarplum / wild-plum, chuckley pear
- NŽL**- 'MALEAE' IV 1. (genus *Aria* [including *Micromeles*]) whitebeam 2. (genus *Cornus*) [true] service-tree / sorb tree 3. (genus *Torminalis*) wild service-tree, chequers / checker tree
- NŽR**- 'MALEAE' V 1. (genus *Crataegus*) hawthorn, quickthorn, thornapple, May-tree, whitethorn, hawberry 2. (genus *Rhaphiolepis*) India hawthorn / Hong Kong hawthorn 3. (genus *Eriobotrya*) loquat
- NŽŘ**- 'MALEAE' VI 1. (genus *Mespilus*) medlar 2. (genus *Malacomeles*) false serviceberry 3. (genus *Peraphyllum*) squaw apple / wild crab apple
- NŽV**- 'MALEAE' VII 1. (genus *Aronia*) chokeberry 2. (genus *Heteromeles*) toyon / Christmas berry / California holly 2. (genus *Cotoneaster*) cotoneaster
- NŽT**- 'GENUS PRUNUS' I (subgenus *P. Amygdalus*) 1. almond tree 2. peach tree 3. peach tree bearing nectarine fruit / "nectarine tree"
- NŽTW**- 'GENUS PRUNUS' II (subgenus *P. Prunus*) 1. plum tree 2. apricot tree 3. plum-apricot hybrid (pluot, plumcot, apriplum)
- NŽTY**- 'GENUS PRUNUS' III 1. (subgenus *P. Cerasus*) cherry tree 2. (subgenus *P. Lithocerasus*) sand cherry shrub 3. (subgenera *P. Padus* and *P. Laurocerasus*) bird cherry, cherry-laurel, bitter-berry, chokeberry
- NŽTL**- 'AMYGDALOIDEAE' I 1. (genus *Kerria*) Japanese marigold bush / miracle marigold bush / kerria 2. (genus *Rhodotypos*) jetbead, rhodotypos 3. (genus *Coleogyne*) blackbrush
- NŽTR**- 'AMYGDALOIDEAE' II 1. (genus *Neviusia*) snow-wreath 2. (genus *Osteomeles*) Hawaiian rose / Hawaiian hawthorn 3. (genus *Pyracantha*) firethorn, pyracantha
- NŽTŘ**- 'AMYGDALOIDEAE' III 1. (genus *Photinia*) photinia 2. (genus *Stranvaesia*) Chinese photinia 3. (genus *Vauquelinia*) Arizona rosewood, slimleaf rosewood
- NŽTF**- 'AMYGDALOIDEAE' IV 1. (genus *Neillia*) lace shrub 2. (genus *Physocarpus*) ninebark 3. (genus *Gillenia*) Indian physic, Bowman's root

- ŇŽŤÇ**- ‘AMYGDALOIDEAE’ V 1. (genus *Lyonothamnus*) Catalina ironwood 2. (genus *Exochorda*) pearlbush 3. (genus *Oemleria*) osoberry / Indian plum
- ŇŽŤĹ**- ‘AMYGDALOIDEAE’ VI 1. (genus *Sorbaria*) false spiraea / false goat’s beard 2. genus *Chamaebatiaria*) fern bush / desert sweet 3. (genus *Adenostoma*) chamise, redshanks / ribbonwood / ribbon bush
- ŇŽTV**- ‘AMYGDALOIDEAE’ VII 1. (genus *Spiraea*) spiraea, bridewort, meadowsweet, hardhack / steeplebush 2. (genus *Petrophytum*) rockmat, mat rock spiraea 3. (genus *Luetkea*) partridgefoot / luetkea
- ŇŽTH**- ‘AMYGDALOIDEAE’ VIII 1. (genus *Holodiscus*) ocean spray / creambush, mountain spray / rock-spiraea 2. (genus *Aruncus*) goatsbeard 3. (Amygdaloideae other than named genera or genus *Prunus* below; numerous genera) other amygdaloid plant/tree/shrub

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Rosales > Rosaceae > Dryadoideae

- ŇŽMW**- ‘DRYADOIDEAE’ 1. (genus *Dryas*) avens 2. (genus *Chamaebatia*) mountain misery, bearclover / kit-kit-dizze 3. (genus *Cercocarpus*) mountain mahogany
- ŇŽMY**- ‘DRYADOIDEAE’ 1. (genus *Purshia*) cliffrose, bitterbrush 2. (genus *Cowania*) evergreen cliffrose

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Rosales > Moraceae

- ŘÇ**- ‘MORACEAE’ I 1. (genus *Ficus*) fig tree 2. (genus *Morus*) mulberry tree 3. (genus *Treculia*) African breadfruit tree
- ŘÇW**- ‘MORACEAE’ II – (genus *Artocarpus*) 1. (*A. altilis*) breadfruit 2. (*A. heterophyllus*) jackfruit 3. (*A. lacucha*) monkey fruit / lakoocha
- ŘÇL**- ‘MORACEAE’ III 1. (genus *Milicia*) iroko / African teak 2. (genus *Bagassa*) cow wood 3. (genus *Streblus*) milk tree, Siamese rough bush
- ŘÇR**- ‘MORACEAE’ IV 1. (genus *Antiaris*) bark cloth tree, antiaris, false iroko, upas tree 2. (genus *Trilepisium*) urnfig / false-fig 3. (genus *Maclura*, a.k.a. *Cudrania*) Osage orange, old fustic / dyer’s mulberry, cudrang / mandarin melon berry / silkworm thorn / Chinese mulberry, cockspur thorn
- ŘÇŘ**- ‘MORACEAE’ V 1. (genus *Brosimum*) snakewood, breadnut / Maya nut, satine bloodwood, mama-cadela 2. (genus *Broussonetia*) paper mulberry 3. (genus *Fatoua*) mulberry weed / crabweed
- ŘÇÇ**- ‘MORACEAE’ VI 1. (genus *Dorstenia*) dorstenia 2. (Moraceae other than named genera; numerous genera) other moraceous plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Rosales > Urticaceae

- ŇŽK**- ‘URTICACEAE’ I 1. (genus *Urtica*) nettle, stinging nettle, creeping nettle, swamp nettle 2. (genus *Dendrocnide*) nettle tree, stinging tree, bympie-bympie, lip tree 3. (genus *Hesperocnide*) Hawaii nettle, western nettle
- ŇŽKW**- ‘URTICACEAE’ II 1. (genus *Laportea*) woodnettle 2. (genus *Urera*) flameberry, hopue, scratchbush, climbing-nettle 3. (genus *Elatostema*) New Zealand begonia / parataniwha
- ŇŽKY**- ‘URTICACEAE’ III 1. (genus *Soleirolia*) baby’s tears / angel’s tears / bits and pieces / bread and cheese / Corsican creeper / Corsican curse / friendship plant ; mind-your-own-business / mother of thousands / Paddy’s wig / Pollyanna vine 2. (genus *Parietaria*) pellitory, lichwort, asthma 3. (genus *Pilea*) silver sprinkles , friendship plant, artillery plant / gunpowder plant, Moon Valley plant / creeping Charlie , chinese money plant / missionary plant, Canadian clearweed, black-leaf panamiga
- ŇŽKL**- ‘URTICACEAE’ IV 1. (genus *Pourouma*) Amazon grape / Amazon tree-grape / uvilla 2. (genus *Myrianthus*) giant yellow mulberry / monkey fruit 3. (genus *Cecropia*) pumpwood, cecropia, trumpet tree, guarumo
- ŇŽKR**- ‘URTICACEAE’ V 1. (genus *Pipturis*) mamaki, Waimea pipturus 2. (genus *Neraudia*) ma’olola 3. (Urticaceae other than named genera) other urticaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > supperrosids > rosids > eurosids > fabids > Rosales > Cannabaceae

-NŽKŘ- ‘CANNABACEAE’ I 1. (genus *Cannabis*) cannabis, hemp, marijuana plant 2. (genus *Humulus*) hop plant 3. (genus *Celtis*) hackberry, nettle tree, lote tree, white stinkwood, cottonwood, tala, almex

-NŽKF- ‘CANNABACEAE’ II 1. (genus *Pteroceltis*) blue sandalwood / Tara wingceltis 2. (genus *Chaetachme*) thorny elm 3. Cannabaceae other than named genera; several genera) other cannabaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > supperrosids > rosids > eurosids > fabids > Rosales > Ulmaceae

-NŽKÇ- ‘ULMACEAE’ I 1. (genus *Ulmus*) elm 2. (genus *Zelkova*) zelkova 3. (genus *Hemiptelea*) thorn-elm

-NŽKŤ- ‘ULMACEAE’ II 1. (genus *Holoptelea*) Indian elm / jungle cork tree 2. (genus *Planera*) planertree / water elm 3. (Ulmaceae other than named genera; genera *Ampelocera* and *Phyllostylon*) other ulmaceous tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > supperrosids > rosids > eurosids > fabids > Rosales > Rhamnaceae

-NŽP- ‘RHAMNACEAE’ I 1. (genus *Rhamnus*) buckthorn, redberry, Avignon berry, staddo 2. (genus *Frangula*) buckthorn, coffeeberry, Indian cherry, black dogwood 3. (genus *Berchemia*) bird plum, supplejack, rattan vine, pink ivory

-NŽPW- ‘RHAMNACEAE’ II 1. (genus *Condalia*) bluewood, snakewood, purple haw, logwood, yana yana, condalia 2. (genus *Karwinskia*) coyotillo / cacachila 3. (genus *Krugiodendron*) black ironwood / leadwood

-NŽPY- ‘RHAMNACEAE’ III 1. (genus *Reynosa*) darlingplum 2. (genus *Sageretia*) mock buckthorn, sageretia 3. (genus *Scutia*) cat-thorn

-NŽPL- ‘RHAMNACEAE’ IV 1. (genus *Ventilago*) vine tree, whip vine, supplejack 2. (genus *Maesopsis*) umbrella tree 3. (genus *Gouania*) chewstick, toothbrush tree

-NŽPR- ‘RHAMNACEAE’ V 1. (genus *Adolphia*) California prickbush / California pineshrub, junco 2. (genus *Colletia*) crucifixion thorn, thorn of the creoss / anchor plant 3. (genus *Discaria*) hairy anchor plant / Australian anchor plant, matagouri

-NŽPŘ- ‘RHAMNACEAE’ VI 1. (genus *Hovenia*) Japanese raisin tree / oriental raisin tree 2. (genus *Pailurus*) Jerusalem thorn / garland thorn / Christ’s thorn / crown of thorns 3. (genus *Ziziphus*) jujube, buffalo thorn, lotebush, hinap, red date / Chinese date, Chinese apple / Indian plum / dunks, mistol, graythorn / gumdrop tree / Texas buckthorn, zunna berry, ziziphus

-NŽPF- ‘RHAMNACEAE’ VII 1. (genus *Noltea*) soapbush / soap dogwood 2. (genus *Phyllica*) Saint Helena rosemary 3. (genus *Cryptandra*) cryptandra

-NŽPÇ- ‘RHAMNACEAE’ VIII 1. (genus *Pomaderris*) pomaderris, kumarahou / gum-digger’s soap, dogwood 2. (genus *Spyridium*) basket bush, dusty miller, spyridium 3. (genus *Trymalium*) karri hazel

-NŽPT- ‘RHAMNACEAE’ IX 1. (genus *Alphitonia*) soap bush / red ash, pink ash / white ash, kauila, sarsaparilla tree 2. (genus *Ceanothus*) ceanothus, Jersey tea, New Jersey tea / red root, buckbrush, pinemat, blueblossom, chaparral whitethorn, Barranca brush, coast whitethorn, California lilac 3. (genus *Colubrina*) nakedwood, snakewood, greenheart, Texan hogplum, mabi / soldierwood, Pondo weeping thorn

-NŽPL- ‘RHAMNACEAE’ IX 1. (genus *Lasiodiscus*) red-hair bush 2. (genus *Emmenosperma*) yellow ash / bonewood 3. (Rhamnaceae other than named genera; numerous genera) other rhamnaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > supperrosids > rosids > eurosids > fabids > Rosales > Elaeagnaceae

-NŽPS- ‘ELAEAGNACEAE’ 1. (genus *Elaeagnus*) silverberry, oleaster, wolf-willow, Russian olive, lingaro berry, silverthorn, autumn olive 2. (genus *Shepherdia*) buffaloberry / bullberry 3. (genus *Hippophae*) sea-buckthorn / seaberry / sallowthorn / sandthorn

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Rosales > remaining families: Barbeyaceae & Dirachmaceae

**-NŽPŠ-** ‘BARBEYACEAE & DIRACHMACEAE’ 1. (Barbeyaceae; genus *Barbeya*) barbeya 2. (Dirachmaceae; genus *Dirachma*) dirachma

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fagales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fagales > Fagaceae

**-ŘNTW-** ‘FAGACEAE’ I 1. (genus *Fagus*) beech tree 2. (genus *Quercus*) oak tree 3. (genus *Castanea*) chestnut

**-ŘNTY-** ‘FAGACEAE’ II 1. (genus *Castanopsis*) chinquapin / chinkapin 2. (genus *Chrysolepis*) golden chinquapin 3. (genus *Trigonobalanus*) trigonobalanus

**-ŘNTL-** ‘FAGACEAE’ III 1. (genus *Lithocarpus*) stone oak 2. (genus *Notholithocarpus*) tanoak / tanbark oak

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fagales > Nothofagaceae

**-ŘNTR-** ‘NOTHOFAGACEAE’ 1. (genus *Nothofagus*, subgenera *Nothofagus* and *Brassospora*) Antarctic beech, Magellan’s beech, Dombey’s beech, lenga beech, New Guinea beech, New Caledonian beech 2. (genus *Nothofagus*, subgenus *Fuscospora*) ruil, mountain beech, red beech, tanglefoot-beech, black beech, hard beech 3. (genus *Nothofagus*, subgenus *Lophozonia*) rauli, myrtle beech, hualo, Santiago’s oak, silver beech, Antarctic beech, Patagonian oak / roble beech

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fagales > Myricaceae

**-ŘNTŘ-** ‘MYRICACEAE’ 1. (genus *Myrica* [including *Morella*]) bayberry / bay-rum tree, wax-myrtle, sweet gale / bog-myrtle, yumberry, candleberry 2. (genus *Comptonia*) sweet-fern 3. (genus *Canacomyrica*) canacomyrica

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fagales > Juglandaceae

**-ŘNTF-** ‘JUGLANDACEAE’ I 1. (genus *Juglans*) walnut tree, butternut tree 2. (genus *Pterocarya*) wingnut tree 3. (genus *Cyclocarya*) wheel wingnut tree

**-ŘNTÇ-** ‘JUGLANDACEAE’ II 1. (genus *Carya* other than section *Apocarya*) hickory tree, pignut, kingnut, shellbark 2. (genus *Carya*, section *Apocarya*) pecan tree, bitternut hickory, bitter pecan / water hickory, Mexican hickory 3. (genus *Annamocarya*) Chinese hickory / beaked hickory

**-ŘNTL-** ‘JUGLANDACEAE’ III 1. (genus *Oreomunnea*) gavián, guayaba amarillo 2. (genus *Rhoiptelea*) horsetail tree 3. (Juglandaceae other than named genera; several genera) other juglandaceous tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fagales > Casuarinaceae

**-ŘNTM-** ‘CASUARINACEAE’ 1. (genus *Casuarina*) she-oak, swamp oak, grey oak / river oak, common ironwood / Australian pine tree / whistling pine tree, belah 2. (genus *Allocasuarina*) she-oak, bull-oak, tamma, desert oak, karri oak, hairy oak 3. (Casuarinaceae other than Stems 1 and 2: genera *Gymnostoma*, *Ceuthostoma*) other casuarinaceous tree

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Fagales > Betulaceae & Ticodendraceae

**-ŘNTN-** ‘BETULACEAE’ I 1. (genus *Betula*) birch tree 2. (genus *Alnus*) alder tree 3. (genus *Corylus*) hazel tree, filbert tree

**-ŘNTÑ-** ‘BETULACEAE’ II 1. (genus *Carpinus*) hornbeam tree 2. (genus *Ostrya*) hop-hornbeam, ironwood 3. (genus *Ostryopsis* and Ticodendraceae; genus *Ticodendron*) hazel-hornbeam, ticodendron

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Cucurbitales

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Cucurbitales > Cucurbitaceae

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Cucurbitales > Cucurbitaceae > Benincaseae

**-BĐ-** ‘GENUS CUCUMIS’ I – MUSKMELON & ASSOCIATED CULTIVARS 1. European cantaloupe plant 2. North American cantaloupe plant 3. muskmelon plant

**-BĐW-** ‘GENUS CUCUMIS’ II – MUSKMELON & ASSOCIATED CULTIVARS 1. honeydew melon plant 2. Crenshaw melon plant 3. casaba melon plant

- BDY-** ‘GENUS CUCUMIS’ III 1. cucumber vine 2. cackrey / West Indian gherkin vine 3. aardvark cucumber / aardvark pumpkin
- BDN-** ‘BENINCASEAE’ I 1. (genus *Citrullus*) watermelon 2. (genus *Benincasa*) winter melon / wax gourd / ash gourd / white gourd / tallow gourd / Chinese preserving melon 3. (genus *Praecitrullus*) tinda / Indian squash / round melon
- BDM-** ‘BENINCASEAE’ II 1. (genus *Acanthosicyos*) nara melon, gemsbok cucumber 2. (genus *Coccinia*) scarlet gourd, ivy gourd / tindora / kowai fruit 3. (genus *Ctenolepis*) Garcin’s bur cucumber
- BDÑ-** ‘BENINCASEAE’ III 1. (genus *Diplocyclos*) native bryony / striped cucumber 2. (genus *Lagenaria*) calabash / bottle gourd / long melon / New Guinea bean / Tasmania bean / white-flowered gourd 3. (genus *Zehneria*) native cucumber / giant cucumber

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Cucurbitales > Cucurbitaceae > Cucurbitaceae

- GDM-** ‘CUCURBITA (SQUASH) – Species *C. Pepo*’ I 1. zucchini squash vine 2. scallop summer squash 3. crookneck squash vine
- GDN-** ‘CUCURBITA (SQUASH) – Species *C. Pepo*’ II 1. pumpkin vine 2. acorn squash vine 3. spaghetti squash vine
- GDÑ-** ‘CUCURBITEAE’ 1. (genus *Abobra*) cranberry gourd 2. (genus *Cayaponia*) melonleaf, São Caetano melon, tayuya 3. (genus *Sicana*) cassabanana / casbanan / sikana / puttigel / musk cucumber

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Cucurbitales > Cucurbitaceae > remaining tribes

- GDG-** ‘CUCURBITACEAE’ I 1. (genus *Dendrosicyos*) Socatran cucumber tree 2. (genus *Tumamoca*) tumamoc globeberry 3. (genus *Sicyos*) burr cucumber
- GDGW-** ‘CUCURBITACEAE’ II 1. (genus *Luffa*) luffa / loofah 2. (genus *Trichosantes*) serpent gourd, snake gourd 3. (genus *Cyclanthera*) exploding cucumber, stuffing cucumber / slipper gourd / caigua
- GDGY-** ‘CUCURBITACEAE’ III 1. (genus *Sechium*) chayote / mirliton / choko / christophine 2. (genus *Marah*) manroot / wild cucumber / cucumber gourd / old man in the ground 3. (genus *Echinocystis*) wild cucumber / prickly cucumber / bur cucumber
- GDGL-** ‘CUCURBITACEAE’ IV 1. (genus *Bryonia*) bryony 2. (genus *Ecballium*) squirting cucumber / exploding cucumber 3. (genus *Telfairia*) fluted pumpkin, oyster nut, queen’s nut / Zanzibar oilvine
- GDGR-** ‘CUCURBITACEAE’ V 1. (genus *Momordica*) bitter melon / bitter apple / bitter gourd / bitter squash / balsam-pear, gac, spiny gourd / spine gourd / teasle gourd / kantola 2. (genus *Siraitia*) monk fruit / Buddha fruit 3. (genus *Thladiantha*) Manchu tubergourd / goldencreeper / wild potato
- GDGR-** ‘CUCURBITACEAE’ VI 1. (genus *Gerrardanthus*) bigfoot 2. (genus *Fevillea*) antidote vine 3. (Cucurbitaceae other than named genera, including unnamed Benincaseae and Cucurbitaceae) other cucurbitaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Cucurbitales > remaining families: Begoniaceae, Datisceae, Tetramelaceae, Corynocarpaceae, Coriariaceae, Apodanthaceae, and Anisophyllaceae

- GDMW-** 1. (Begoniaceae; genera *Begonia*, *Hellebrandia*) begonia, aka ‘aka ‘awa 2. (Datisceae; genus *Datisca*) Durango root 3. (Tetramelaceae; genera *Tetrameles*, *Octomeles*) tetrameles tree, octomeles tree
- GDNW-** 1. (Corynocarpaceae; genus *Corynocarpus*) New Zealand laurel, Glenugie karaka 2. (Coriariaceae; genus *Coriaria*) redoul, tutu, deu / huique
- GDÑW-** 1. (Apodanthaceae; genera *Apodanthes*, *Pilstyles*) stemsucker, apodanthes 2. (Anisophyllaceae; several genera) anisophyllaceous plant

Tracheophytes > Spermatophytes > Angiosperms > Eudicots > superrosids > rosids > eurosids > fabids > Zygophyllales

- BDBW-** ‘ZYGOPHYLLACEAE’ I 1. (genus *Zygophyllum*) Syrian bean-caper 2. (genus *Fagonia*) fagonbush 3. (genus *Roepera*) coast twin-leaf 3. (genus *Tetraena*) simple-leaved bean caper / hureim



- BDBY-** ‘ZYGOPHYLLACEAE’ II 1. (genus *Kallstroemia*) California caltrop, Arizona poppy, hairy caltrop, big caltrop, warty caltrop, perennial caltrip, Caribbean caltrop  
2. (genus *Tribulus*) Jamaican feverplant / puncture vine, cork hopbush, goat’s-head / bullhead, cat’s-head / devil’s eyelashes / tackweed 3. (genus *Balanites*) Egyptian balsam, Angolan greenhorn, small torchwood
- BDBL-** ‘ZYGOPHYLLACEAE’ III 1. (genus *Guaiacum*) lignum-vitae 2. (genus *Porlieria*) Texas gualacum / Texas lignum-vitae / soapbush / huayacán 3. (genus *Bulnesia*) maracaibo lignum-vitae, verawood, Argentine lignum-vitae / Paraguay lignum-vitae
- BDBR-** ‘OTHER ZYGOPHYLLACEAE & KRAMERIACEAE’ 1. (genus *Larrea*) chaparral, creosote bush / greasewood 2. (Zygophyllaceae other than named genera; several genera) other zygophyllaceous plant 3. (Krameriaceae; genus *Krameria*) rhatany / rattany, krameria, abrojo colorado

Tracheophytes > Spermatophytes > Angiosperms > Magnolids

Tracheophytes > Spermatophytes > Angiosperms > Magnolids > Magnoliales

- CFW-** ‘MAGNOLIACEAE’ 1. (genus *Magnolia*) magnolia, sweetbay, bull bay 2. (genus *Liriodendron*) tulip tree / tulipwood / tulip poplar / whitewood / fiddletree / yellow-poplar 3. (Magnoliaceae other than Stems 1 and 2; genera *Pachylarnax*, *Kmeria*, *Elmerillia*, *Michelia*) champak, champaca, banana shrub, other magnoliaceous plant/tree
- CFY-** ‘MYRISTICACEAE’ 1. (genus *Myristica*) nutmeg tree 2. (genus *Virola*) baboonwood / ucuhuba / ucuuba 3. (Myristicaceae other than Stems 1 and 2; numerous genera) other myristicaceous plant/tree
- CFL-** ‘ANNONACEAE’ I 1. (genus *Annona*) custard apple, soursop / graviola, pond apple / alligator apple, sugar apple / sweetsop, cherimoya, guanabana 2. (genus *Anonidium*) junglesop 3. (genus *Asimina*) pawpaw
- CFR-** ‘ANNONACEAE’ II 1. (genus *Cananga*) cananga tree, ylang-ylang 2. (genus *Artabotrys*) climbing lang-lang / ylang ylang vine 3. (genus *Uvaria*) finger-root / bush banana
- CFŘ-** ‘OTHER ANNONACEAE & EUPOMATIACEAE’ 1. (genus *Monodora*) calabash nutmeg 2. (Annonaceae other than named genera; numerous genera) other annonaceous plant 3. (Eupomatiaceae; genus *Eupomatia*) bolwarra, copper laurel
- CFF-** ‘HIMANTANDRACEAE & DEGENERIACEAE’ 1. (Himantandraceae; genus *Galbulimima*) northern pigeonberry ash, white magnolia 2. (Degeneriaceae; genus *Degeneria*) karawa, masiratu

Tracheophytes > Spermatophytes > Angiosperms > Magnolids > Laurales

Tracheophytes > Spermatophytes > Angiosperms > Magnolids > Laurales > Lauraceae

- CVW-** ‘LAURACEAE’ I 1. (genus *Laurus*) laurel / bay laurel / sweet bay 2. (genus *Umbellularia*) Oregon myrtle / California bay laurel / California bay / cinnamon bush / peppernut tree / headache tree / mountain lurel / balm of heaven 3. (genus *Cassytha*) dodder laurel / laurel dodder, devil’s twine, love vine
- CVY-** ‘LAURACEAE’ II 1. (genus *Cinnamomum*) cinnamon tree, camphor laurel / camphorwood, Selasian wood / Martaban camphor wood / saffrol laurel, kalingag tree, Indian bay leaf, malabathrum, red barked sassafras, stout camphor tree, false camphor tree / Nepal camphor tree 2. (genus *Sassafras*) sassafras 3. (genus *Lindera*) spicebush, spicewood, Benjamin bush
- CVL-** ‘LAURACEAE’ III 1. (genus *Litsea*) bollywood / bollygum, brown beech, bolly beech, Mexican bay leaf, litsea, may chang, mangeao 2. (genus *Neolitsea*) green bolly gum, hairy bolly gum 3. (genus *Beilschmiedia*) blush walnut / hard bolly gum / nut wood, yellow walnut / yellow nut / canary ash, northern acorn tree, tawa tree, taraire tree
- CVR-** ‘LAURACEAE’ IV 1. (genus *Persea*; subgenus *Persea*; *P. american* and *P. schiedeana*) avocado tree, coyo 2. (genus *Persea*, subgenera *Eriodaphne* and *Machilus*; numerous species) redbay, swampbay, lingue, large-flowered bay tree 3. (genus *Nectandra*) sweetwood

**-CVŘ-** ‘LAURACEAE’ V 1. (genus *Ocotea*) stinkwood, Brazilian sassafras, cape laurel, sword laurel 2. (genus *Chlorocardium*) greenheart 3. (Lauraceae other than named genera; numerous genera) other lauraceous plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Magnolids > Laurales > Monimiaceae

**-ŠTW-** ‘MONIMIACEAE’ I 1. (genus *Hedycarya*) Australian mulberry, pigeonwood / porokaiwhiri 2. (genus *Xymalos*) lemonwood 3. (genus *Tambourissa*) bois tambour

**-ŠTY-** ‘MONIMIACEAE’ II 1. (genus *Perumus*) boldo 2. (genus *Wilkiea*) tetra beech, wilkiea 3. (Monimiaceae other than named genera: numerous genera) other monimiaceous plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Magnolids > Laurales > Hernandiaceae

**-ŠTL-** ‘HERNANDIACEAE’ 1. (genus *Hernandia*) lantern tree 2. (genus *Gyrocarpus*) helicopter tree / propeller tree / whirly whirly tree / stinkwood / shitwood 3. (Hernandiaceae other than Stems 1 and 2: several genera) other hernandiaceous plant/tree

Tracheophytes > Spermatophytes > Angiosperms > Magnolids > Laurales > Atherospermataceae

**-ŠTR-** ‘ATHEROSPERMATACEAE’ I 1. (genus *Atherosperma*) southern sassafras / blackheart sassafras 2. (genus *Daphnandra*) socketwood, light yellowwood 3. (genus *Doryphora*) yellow sassafras / canary sassafras / golden sassafras / golden deal

**-ŠTR-** ‘ATHEROSPERMATACEAE’ II 1. (genus *Laurelia*) Peruvian nutmeg / Chilean laurel / Chilean sassafras, pukatea 2. (genus *Laureliopsis*) tepa 3. (Atherospermataceae other than named genera; genera *Dryadodaphne*, *Nemuaron*) other atherospermataceous plant

Tracheophytes > Spermatophytes > Angiosperms > Magnolids > Laurales > Calycanthaceae

**-ŠTM-** ‘CALYCANTHACEAE’ 1. (genus *Calycanthus* [including *Sinocalycanthus*]) sweetshrub, spicebush 2. (genus *Chimonanthes*) wintersweet, Japanese allspice 3. (genus *Idiospermum*) ribbonwood / idiot fruit

Tracheophytes > Spermatophytes > Angiosperms > Magnolids > Laurales > remaining families: Siparunaceae & Gomortegaceae

**-ŠTN-** ‘SIPARUNACEAE & GOMORTEGACEAE’ 1. (Siparunaceae; genere *Siparuna*, *Glossocalyx*) siparunaceous plant 2. (Gomortegaceae; genus *Gomortega*) gomortega, keule / queule

Tracheophytes > Spermatophytes > Angiosperms > Magnolids > Piperales

**-SSW-** ‘PIPERACEAE’ 1. (genus *Piper*) pepper, pepper vine, pepperleaf, peppercorn, root bear plant, yerba santa, betel leaf vine, long pepper, ant plant / ant piper, kawakawa, cubeb, kava, pariparoba 2. (genus *Peperomia*) radiator plant, peperomia, watermelon begonia, baby rubberplant / pepper face, jade necklace / trailing jade / creeping buttons 3. (Piperaceae other than Stems 1 and 2; genera *Verhuellia*, *Zippelia*, *Manekia*) other piperales plant

**-SSY-** ‘SAURURACEAE’ 1. (genus *Saururus*) lizard’s tail / water-dragon / dragon’s tail / swamp root 2. (genus *Anemopsis*) yerba mansa / lizard tail 3. (genera *Houttuynia* and *Gymnotheca*) fish mint / fish leaf / rainbow plant / chameleon plant / fish wort / bishop’s weed / Chinese lizard tail

**-SSL-** ‘ARISTOLOCHIACEAE’ I 1. (genus *Aristolochia*) birthwort, Dutchman’s pipe, fox’s ears, work killer, pipevine, swanflower, pelican flower, rooster flower, calico flower, sarrasine, smearwort, snakeweed, aristolochia 2. (genus *Isotrema*) large-leaved Dutchman’s pipe 3. (genus *Hydnora*) jackal food

**-SSR-** ‘ARISTOLOCHIACEAE’ II 1. (genus *Asarum*) wild ginger, hazelwort / wild spikenard / asarabacca, Sichuan ginger 2. (genus *Hexastylis*) heartleaf, little brown jug 3. (Aristolochiaceae other than named genera) other aristolochiaceous plant



Tracheophytes > Spermatophytes > Angiosperms > Magnolids > Canellales

-SSŘ- ‘CANELLACEAE’ 1. (genus *Canella*) wild cinnamon / white cinnamon / cinnamon bark 2. (genus *Pleodendron*) chupacallos 3. (Canellaceae other than Stems 1 and 2: genera *Cinnamodendron*, *Cinnamosma*, *Warburgia*) other canellaceous plant/tree

-SSM- ‘WINTERACEAE’ I 1. (genus *Drymis*) winter’s bark / canelo 2. (genus *Pseudowintera*) horopito, pepperwood 3. (genus *Tasmannia*) pepperbush, pepper tree

-SSN- ‘WINTERACEAE’ II 1. (genus *Zygogynum*) hotbark 2. (genus *Takhtajania*) takhtajania

### 7.3.3 Holomycota, including Fungi and Cristidiscoidea

[in development]

### 7.3.4 Unicellular Eukaryotes

[in development]

### 7.3.5 Bacteria & Archaea

[in development]