

LEXICAL ROOTS FOR THE ITHKUIL REVISION — v.0.2 (February 25, 2020)

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This document updates the previous version 0.1 of September 1, 2019. The INTENTIVE Specification has been removed from all roots (use the new ROC affix instead). A number of roots have been changed and many new roots added, for an approximate total of 1775 roots at present. New material is **marked in blue**, while roots with associated Bias Affixes are **marked in green**. It is the author's intention to continue to update this document during the remainder of this year with additional roots.

1.0 THE CARRIER ROOT: -S-

-S- [the “carrier” root]				
	STEM 1	STEM 2	STEM 3	STEM ZERO
BSC	[carrier stem representing animate being named by the succeeding foreign or proper name/phrase]	[stem representing inanimate physical / tangible object or entity named by the succeeding foreign or proper name/phrase]	[stem representing abstract referent named by the succeeding foreign or proper name/phrase]	Used to create a formative concept from the first V_xC_S affix found in Formative Slot VII.
CTE	[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 entity named by the succeeding foreign or proper name/phrase]	[stem representing the essential idea(s) of the abstract referent named by the succeeding foreign or proper name/phrase]	
CSV	[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/body of the inanimate entity named by the succeeding foreign or proper name/phrase]	[stem representing the physical/tangible praxes and/or tangible infrastructure of the abstract referent named by the succeeding foreign or proper name/phrase]	
OBJ	that which is impacted/targeted or a patient of the animate being named by the succeeding foreign or proper name/phrase	that which is impacted/targeted or a patient of the inanimate entity named by the succeeding foreign or proper name/phrase	that which is impacted/targeted or a patient of the abstract referent named by the succeeding foreign or proper name/phrase	

FORMAL STEM 1: [carrier stem representing a mixed animate/inanimate, concrete/abstract entity, e.g., a football team, a culture, a nation, a people, a language with its speakers, etc.)

FORMAL STEM 2: [carrier stem representing a place name in reference to its geography, inhabitants, circumstances/events within, etc.]

FORMAL STEM 3: [carrier stem representing a complex abstract concept(ual system), including its theoretical basis, structure, practitioners/adherents/believers, etc., e.g., a religion, a philosophy, a system of government, etc.]

FORMAL STEM ZERO: Functions as the full-stem counterpart of a Concatenative Adjunct, to provide grammatical information for the subsequent quasi-lexicalized phrase (see Sec. 4.6 of the Design Document)..

2.0 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
MONADIC	1m — “I” = monadic speaker	2m — “you (sg.)” = monadic addressee	ma — “he/she/‘they(sg.)’ = monadic animate 3rd party
POLYADIC	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
NOMIC	“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>)
ABSTRACT	“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
MONADIC	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”,
POLYADIC	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.
NOMIC	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”
ABSTRACT	“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-:

-N- INFORMAL: [generic personal referent]; FORMAL: '[the personal referent's] identity'		
	STEM 1 Nominal meaning	STEM 1 Verbal meaning
BSC	'I (myself)'	'to be me/to be myself', 'to do/act what/how I do [because it's me]'
CTE	'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]
CSV	'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]
OBJ	'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'

The INFORMAL designation of the above stems refers to the referent in a temporary, incidental, or "situation-at-hand" context. The FORMAL counterparts refer to the party in an iconic, archetypal, quasi-permanent context; for the above stem this would translate as '*my identity*'.

3.0 GENERAL DEMONSTRATIVE ROOT: -T-

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

INFORMAL stems: circumstantial/context-of-the-moment

FORMAL stems: official, (quasi-)permanent, inherent, or conventionalized context

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

4.0 THE COPULAR ROOT: -Ā-

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

-Ā- 'BE (i.e., copular identification only) / EQUIVALENCE'			
	STEM 1	STEM 2	STEM 3
BSC	(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
CTE	(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.
CSV	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
OBJ	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

5.0 ROOTS FOR VARIOUS COMMON STATES AND ACTS

-J- ‘TRANSFER OF POSSESSION / GIVE / RECEIVE’		
BSC	(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)	STEM 2: an act of giving; to give
CTE	(to be) the process/act of giving and taking of a particular item [focus on the item being transferred, irrespective of the parties involved]	STEM 3: an act of receiving; to receive
CSV	the process/act of transferring an item between one party and another [irrespective of what is given]	
OBJ	an item transferred by one to another / the thing given or received; to be an item transferred from one party to another	
FML stems:		
<ol style="list-style-type: none"> 1. (to be) an act of transferring possession of something by formal means of conveyance (i.e., via a third-party messenger or formal means such as post, shipping, etc.) 2. (to be) an act of sending something formally (e.g., by post, messenger, shipping, etc.) 3. (to be) an act of receiving something sent formally (e.g., by post, messenger, shipping, etc.) 		

-G- ‘AMBULATION’		
BSC	STEM 1: (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.)	STEM 2: (to be) an instance of rapid ambulation; to run, gallop, scamper, scurry, etc.
CTE	(to be) the translative/directed movement through spacetime from one point to another as accomplished via ambulation	
CSV	(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	STEM 3: (to be) an instance of unnatural/affected ambulation, e.g., limp, stagger
OBJ	(to be) the surface upon which one ambulates (e.g., the ground, the floor, the firmament, the ramp, the stairs, etc.)	
FML stems:		
<ol style="list-style-type: none"> 1. (to be) an instance of pre-planned “formal” ambulation, e.g., march, prance, etc. 2. (to be) an instance of pre-planned/deliberate rapid ambulation, e.g., to race 3. (to be) an instance of deliberately unnatural/affected ambulation, e.g., swagger, saunter, etc. 		

-M- ‘ LINGUISTIC COMMUNICATION / SPEAK / SAY / TELL’		
	STEM 1	<p>STEM2: (to be) an instance/utterance of linguistic communication for rhetorical, inspirational, socially effective, or psychologically manipulative purposes</p> <p>STEM 3: (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)</p>
BSC	(to be) a spoken/written/signed/signaled utterance for communicating linguistically	
CTE	(to be) the (intended) message/content/meaning of an instance of linguistic communication; to say/tell/communicate something using language	
CSV	(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	
OBJ	(to be) the entity/party to which/whom one (intends to) communicate linguistically; the (intended) audience/listener/hearer/reader/recipient of a linguistic communication	

-TH- ‘WRITE / INSCRIBE / DOCUMENT’		
BSC	STEM 1: (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]	<p>STEM 2: (to be) something authored in writing, written composition; to “write” = to author, to compose in writing</p> <p>STEM 3: (to be) a written/visual character/symbol/glyph/letter/emoji/ideogram, etc. used for written/visual communication</p>
CTE	(to be) the communicative/linguistic content/message contained within something written	
CSV	(to be) to be the visual inscription or physical presence of something written (regardless of its communicative content)	
OBJ	(to be) the object/surface on which something is written/inscribed	
<p>FML Stems:</p> <ol style="list-style-type: none"> (to be) something documented, a document, a written record; to document, record/transcribe for official/archival purposes (to be) a “page” of writing, a “page” of a written work [“page” = visible formal interface for static written communication] (to be) a written symbol/character/letter, etc. used in a language’s [official] writing system; to write (down) letters/characters/symbols from/in a language’s writing system 		

-MY- 'GRATITUDE / THANKFULNESS / PRAISE'		
BSC	STEM 1: (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)	STEM 2: (to be) thank(s) / offer gratitude due to being relieved/rescued from an adverse situation STEM 3: (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
CTE	(to be) the psychological state motivating one to offer thanks/gratitude for a favor, honor, courtesy or convenience performed	
CSV	(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	
OBJ	(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	
FML Stems:		
<ol style="list-style-type: none"> 1. praise 2. gratefulness; manifestation of being beholden to someone or something [feeling is justified and an honor to be feeling] 3. manifestation of being beholden or obliged to someone or something [feeling is resented and unwanted] 		

-MZ- 'REMEMBER / RECALL / MEMORY / RECORD'		
BSC	STEM 1: (to be) a memory; to remember something (= recall something) [whether unwilled/affective or self-willed/voluntary]	STEM 2: (to be) the retention of something past into present; to retain something from the past into the present STEM 3: (to be) an act of memorization; to memorize, to remember [i.e., commit to memory]
CTE	(to be) the content of a memory or recollection, what is remembered or recalled	
CSV	(to be) the act/process of recalling something; to recall	
OBJ	(to be) the entity/circumstance/event/state which a memory is about	
FML Stems:		
<ol style="list-style-type: none"> 1. trace/track/vestige 2. memorial (object/action formally recognizing or acknowledging something/someone past) 3. to record / a record 		

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

-ND- ‘QUESTION / INQUIRY / ANSWER / RESPONSE’		
BSC	STEM 1: (to be) an act/process of question & answer [statement requesting information + the answer/reply/response thereto]	STEM 2: (to be) an act of questioning/querying STEM 3: (to be) an act of answering/responding
CTE	(to be) an act/process of asking a question and receiving an answer [focus on the inquiry/response process itself]	
CSV	(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)	
OBJ	(to be) the actual words or specific /communicative expression(s) of a question and answer	
FML Stem 1: inquire/inquiry/investigation + answer or resulting discovery FML Stem 1: inquire/inquiry/investigate FML Stem 1: discovery/finding (via act of investigation/inquiry); to discover or find out (via an act of investigation/inquiry)		

-NY- ‘CHOICE / ALTERNATIVE’		
BSC	STEM 1: (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]	STEM 2: (to be) a preference; to prefer STEM 3: (to be) an state/act of settling for something (i.e., reluctant choice to avoid the alternative)
CTE	(to be in) a state of having to choose; to face a choice; to have a choice to make	
CSV	(to be) the act/process of choosing from one’s available options/alternatives	
OBJ	(to be) the choice made; to be the entity/alternative/option chosen or selected	
FML Stems: 1. select/pick [from limited options/alternatives] 2. an alternative, an available option 3. to vote		

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

-GŠ- ‘LOSE / MISPLACE / SQUANDER / DEPRIVATION / FORFEITURE’		
BSC	STEM 1: (to be) a state/act of something being lost (i.e., misplaced); to lose something (i.e., to misplace)	STEM 2: (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)
CTE	(to be) a state of being lost/misplaced	
CSV	(to be) an act of misplacing/losing something; to do something which causes an entity to be(come) lost/misplaced	STEM 3: a state/act of squandering or wasting something; to squander, to waste (i.e., to allow something to become lost via neglect or irresponsibility)
OBJ	(to be) that which is/has been misplaced/lost	
FML Stem 1: (to be) a state of deprivation; to be deprived of, to (have to) do without something		
FML Stem 2: (to be) a state/act of bereavement; to be bereft/bereaved		
FML Stem 3: (to be) a state/act of forfeiture; to forfeit		

-PT- ‘SEEK / SEARCH’		
BSC	STEM 1: (to be) an act of searching/seeking/looking for something unknown; a search for something; to search/seek/look for something unknown (i.e., its location/existence is uncertain)	STEM 2: (to be) a search, seek, look for something lost [i.e., something known to exist which is missing]
CTE	(to be in) the psychological state of searching/seeking; to be driven by the need/desire to search/seek	
CSV	(to be) the process or physical act itself of searching/seeking	STEM 3: quest / seek to accomplish/achieve something
OBJ	(to be) what one is seeking or searching/looking for	
FML Stem 1: (to be) a state/act of exploring; to explore		
FML Stem 2: (to be) a state/act of pursuit; to pursue, to track down [i.e., existence certain, location surmised]		
FML Stem 3: (to be) a state/act of hunting; to hunt for		

Morphological Derivations: find, scan, reconnoiter, ransack, pry, ferret out, winnow through, fulfill a quest

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

-DV- 'EXCHANGE / PURCHASE / BUY / SELL'

Note: The stems below are generally used in conjunction with PROCESSUAL versus COMPLETIVE version (See Secs. 5.3.1 and 5.3.2) in order to distinguish an offer of exchange from a completed exchange. Alternately, the distinction between MONOACTIVE and COMPLEMENTARY valence (Sec. 5.2) can be used for the same purpose.

BSC	STEM 1: (to be) an act of exchanging/swapping; to exchange/swap	STEM 2: (to be) an act of taking something offered in exchange for something; to take something offered in exchange for something
CTE	(to be) the “win-win” concept underlying an act of exchange	
CSV	(to be) the physical (trans-)action of exchanging/swapping	
OBJ	(to be) that which is exchanged/swapped	STEM 3: (to be) an act of giving away something in exchange for something desired; to give something away in exchange for something desired
FML Stems:		
	1. (to be) a commercial (quasi-)monetary exchange / buying and selling	
	2. (to be) an act of purchasing/buying; buy, to acquire via purchase	
	3. (to be) an act of selling/vending; to sell, to give away in exchange for (quasi-)monetary value	

-TT- 'FACT / KNOW / STUDY / LEARN'

BSC	STEM 1: (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]	STEM 2: (to be) epistemological/conventionalized fact; know [= have awareness/understanding and ability to recall] an epistemological/conventionalized fact
CTE	(to be) the ability/capacity to know an ontological fact	
CSV	(to be) the physical/mental process of (an act of) knowing an ontological fact	STEM 3: (to be) something known via experience/proficiency; know via familiarity or experience]
OBJ	(to be) an ontological fact; (to be) the ontological fact one knows	
FML stems		
	1. (to be) an act of observing and remembering an ontological fact (e.g., I know my grandmother’s house is blue).	
	2. (to be) an act of studying/learning knowledge; to study/learn	
	3. (to be) an act of practicing; to practice CPT = be proficient at; have proficiency in	

Derivations: find out, discover, determine, wisdom, insight, enlightenment, education, school, scholar, student

-VL- 'REALIZATION / UNDERSTANDING / COMPREHENSION'

BSC	STEM 1: (to be) an act of realizing something; to realize [= understand via act of insight/intuition]	STEM 2: (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]
CTE	(to be) the ability/capacity to realize something	
CSV	(to be) the physical/mental process of (an act of) realizing something	STEM 3: (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]
OBJ	(to be) what one realizes	

-ŃJ- ‘AWARENESS’

BSC	STEM 1: (to be) an act of noticing something; to notice; take note of	STEM 2: (to be) an act of being aware of something; the awareness of something STEM 3: (to be) an act of keeping/bearing something in mind; to have in (the back of one’s) mind
CTE	(to be) the ability/capacity to notice something	
CSV	(to be) the physical/mental process of (an act of) noticing something	
OBJ	(to be) what one notices	

-ŠT- ‘WAIT / AWAIT / VIGIL / FORESEE / FORECAST’

BSC	STEM 1: (to be) a state of waiting (for), waiting, a wait; to wait for, to await	STEM 2: (to be) a state of expectation; expect; to be impending
CTE	(to be) the mental/psychological state of a process of waiting; be in a state of waiting	
CSV	(to be) the physical manifestation of a process of waiting; what one does while waiting; to do while waiting	STEM 3: (to be) a state/act of prediction; predict
OBJ	(to be) that which one awaits, what/whom one is waiting for	
FML Stems 1. vigil/a watch; be vigilant/watchful 2. foresee; foresight; prospective/foreseeable 3. prognosticate, forecast		

-ŠČ- ‘MONEY / FINANCIAL TRANSACTION / BANKING’

BSC	Stem 1: (to be) an amount of money; to exchange an amount of money in return for something	Stem 2: (to be) one’s personal funds or monetary assets
CTE	(to be) a state of monetary accumulation (via earning wages, investments, etc.); earn/raise money	
CSV	(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	Stem 3: (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)
OBJ	(to be) a monetary token, a piece of money (e.g., coin, bill, etc.); to exchange a particular piece of money	
FML Stem 1: (to be) one’s fungible assets [CTE = formal financial operation, CSV = capitalize, use assets as capital, OBJ = monetary value of one’s assets]		
FML Stem 2: a financial institution/bank		
FML Stem 3: one’s financial class/status		

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

-ČV- ‘TRANSPORT STOP / STATION / PORT / HARBOR / TRANSPORTATION HUB’		
BSC	STEM 1: (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)	STEM 2: (to be) transport station (i.e., centralized one goes to purchase tickets and embark/disembark from a form of local transport) STEM 3: (to be) harbor, place of anchorage
CTE	(to be) state of embarkation/disembarkation on local transport line	
CSV	(to be) a physical act of embarking/boarding or disembarking/getting out or off of a form of local transport	
OBJ	(to be) a particular stop on a transport route/line	
FML Stems:		
1. (to be) a location served by a commercial sea line or airline		
2. (to be) a transport terminal		
3. (to be) a port (e.g., airport, seaport, heliport, etc.) or transportation hub		

-ČL- ‘PREPARATION / PRELIMINARY MEASURE / PRECAUTIONARY MEASURE / READINESS		
BSC	STEM 1: (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’)	STEM 2: (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” STEM 3: (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 pallete, a surgeon’s operating room, etc.)
CTE	(to be) state of desire to prepare [CPT version = preparedness/readiness]	
CSV	(to be) a physical act of preparation; to do something that prepares an entity for something	
OBJ	(to be) what one is preparing for (or against)	
FML Stems:		
1. (to be) a state/act of having precaution; take precautionary measure		
2. (to be) a state/act of equipping, providing resources for the establishment or carrying out of something; to equip, provide resources/equipment for		
3. (to be) a state/act of instruction/training; to instruct/train (a party to be able to perform some function or duty or skill)		

-CX- ‘MANNER / BEHAVIOR / METHOD / POLICY’		
BSC	STEM 1: (to be) the manner in which something/someone acts/operates/manifests itself	STEM 2: (to be) the guise/form taken by a party/entity STEM 3: (to be) one’s behavior/conduct/comport
CTE	(to be) the inner/intrinsic/inherent motivation/drive/instructions, etc. which control one’s manner	
CSV	(to be) the outward physical manifestation or discernible praxes of one’s manner	
OBJ	(to be) that which has or manifests a particular manner	
FML Stems:	1. (to be) the method by which a party/entity performs/accomplishes something 2. (to be) the practice/policy used by a party/entity in operating/manifesting itself 3. (to be) one’s bearing/carriage/demeanor	Derivations: process, procedure, regimen, strategy

-SN- ‘CHANGE / VARIATION / DEVIATION / ALTERATION’		
BSC	STEM 1: (to be) a change (from one state to another); to change (from one state to another)	STEM 2: (to be) an act of variance; to vary STEM 3: (to be) an act of deviation; to deviate
CTE	(to be) the nature of transformation which occurs during a change	
CSV	(to be) the physical/tangible process of an act of change (i.e., what an entity physically endures while changing)	
OBJ	(to be) that which changes; a changeling	
FML Stems	1. alter, modify; alteration, modification 2. diversify, permutate; permutation, diversification 3. modulate, control variance in the state of; modulation	

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

-Ř- ‘POSSESSION / OWNERSHIP’		
BSC	STEM 1: (to be) an act of physical possession; to have/possess (temporary/circumstantial and alienable – e.g., a library book in one’s hand)	STEM 2: (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) STEM 3: (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)
CTE	(to be) the state of possession; possessing something	
CSV	(to be) the physical means by which a state of possession is manifested, e.g., by holding or carrying, by a verbal or written statement, via containment within one’s pocket, etc.)	
OBJ	(to be) the object/entity possessed (temporary/circumstantial and alienable)	
FML Stems	1. (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) 2. (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) 3. (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)	

-ĐX- ‘VOICE / VOCAL UTTERANCE’		
	STEM 1	
BSC	(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]	STEM2: (to be) the usual, common, represent-ative vocalization made by an entity (e.g., a meow, bark, whinny, chirp, roar, speaking, etc.) STEM 3: (to be) an alternate, less-common vocalization made by an entity (e.g., cry, yowl, murmur, hum, purr, mumble)
CTE	(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)	
CSV	(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)	
OBJ	(to be) the entity/party which hears/notices a vocal utterance	

-ŠV- ‘PLAY / RECREATION / SPORT’		
BSC	STEM 1: (to be) an act/instance of play or recreation [both the act and the motivating desire for self-amusement or relaxation]	STEM 2: (to be) an act/instance of a participatory or self-involved leisure activity (activity + psychological motivations behind it), e.g., a dance, a hike, fishing, camping STEM 3: (to be/manifest) the practice of a hobby or pastime (activity + psychological motivations behind it))
CTE	(to be) the motivating desire for self-amusement or relaxation behind an act/instance of play/recreation	
CSV	(to be) the physical act of engaging in play or recreation	
OBJ	(to be) particular activity/form of play in which one engages (e.g., a game, contest, puzzle, prank, etc.)	
FML Stem 1: play/recreate (activity + feeling of amusement/enjoyment derived) = formal rule-oriented activity, e.g., a board game, a sport, etc.		
FML Stem 2: attend/view a formal entertainment (activity + feeling of enjoyment/diversion derived), e.g., view a show, live performance, movie, a sporting event, etc.)		
FML Stem 3: engage in (a) sport activity (activity + feeling of competitive spirit) for motive of formal competition, e.g., victory-oriented		

-TF- ‘ADDITION / SUBTRACTION’			
	STEM 1	STEM 2	STEM 3
BSC	(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
CTE	(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
CSV	(to be) a process of adding or subtracting	(to be) a process of addition	(to be) a process of subtraction
OBJ	(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

-ŽV- ‘MULTIPLICATION / DIVISION’			
	STEM 1	STEM 2	STEM 3
BSC	(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
CTE	(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
CSV	(to be) a process of increasing via multiplication or division	(to be) a process of multiplication	(to be) a process of division
OBJ	(to be) the party/entity whose number is multiplied via iteration or via division	(to be) the party/entity whose number is multiplied	(to be) the party/entity whose number is divided

-SY- ‘SUBSTANCE / MATERIAL / MATTER’		
BSC	STEM 1: (to be a) material substance; (to be a) manifestation of matter/material/ “stuff” / something material — [both the substance itself and the form/entity consisting thereof]	STEM 2: (to be/manifest a) material consistency, i.e., a discernible (quasi-)tactile or (quasi-)visual or other (quasi-)sensory attribute/quality/characteristic)
CTE	(to be) the material substance of which something consists or is made; something material	
CSV	(to be) the form taken by something material, the shape/form of something material	STEM 3: (to be/manifest a) molecular identity (as element or compound)
OBJ	(to be) the object/entity made from or consisting of a particular material	

-ŽV- ‘GOOD / BENEFICIAL’		
BSC	STEM 1: (to be) something good (= materially beneficial to the context at hand) [both the act/event/situation and its beneficent quality]	STEM 2: (to be) something good [= morally right; beneficial in a metaphysical sense] STEM 3: (to be) something good [= advantageous or effective]
CTE	(to be) the essential state/quality of material goodness/beneficence manifested in a particular act/state/event/situation/entity, etc.	
CSV	(to be) a particular act/state/event/situation/entity, etc. identified as being good; to do something materially/tangibly good/beneficial	
OBJ	(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”	

-TK- ‘MAKE / CONSTRUCT / INTEGRATE / FORM’ Associated affix: MAK (NOTE: This root does not refer to ‘make/create’ meaning ‘emit/secrete/produce’ as in ‘make noise’ or ‘make milk’, etc.)		
BSC	STEM 1: (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	STEM 2: (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, etc. STEM 3: (to be) an instance/act of bringing something into being via organizing disparate parts into a coherent whole
CTE	(to be) the existential state of creating/making/constructing	
CSV	(to be) the method/steps employed/manifested in making/creating/constructing something	
OBJ	(to be) that which is made/created/constructed; the product of an act of making/creating/constructing	

-XV- ‘EFFORT / WORK / POWER / OPERATE / FUNCTION’		
BSC	STEM 1: (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	STEM 2: (to be) an instance/manifestation of action; to act, to perform, to do STEM 3: (to be) an effort, a coordinated/coherent expenditure of energy towards achievement of a specific goal; make effort to accomplish something
CTE	(to be) the state of (there being) energy manifested/exerted	
CSV	(to be) the particular form/manner of energy being manifested/exerted	
OBJ	(to be) that to/for which energy is being used/exerted	
FML Stems: 1: operate / function / “work” (i.e., proper/expected functioning of a device/machine/process as in “Does the washing machine work?”) 2: work / labor (i.e., organized/planned effort over time associated with a commercial or community endeavor) 3: job task; employment-related task; do one’s job		

-TV- ‘APPEAR / MANIFEST / SHOW / EXHIBIT / DISPLAY’		
BSC	STEM 1: (to be) an appearance/manifestation/showing something; to appear, manifest, show something (= be/make something observable to the senses of others; manifestation, appearance)	STEM 2: (to be) an instance/act of exposing something; to expose something; STEM 3: (to be) an instance of bringing/calling attention to something (= make others aware of the appearance/showing of something)
CTE	(to be) the state of appearing/manifesting/showing; being observable	
CSV	(to be) the method/manner of making something appear/manifest/show	
OBJ	(to be) that which appears/manifests or is shown	
FML Stems: 1: exhibit; display 2: show off, flaunt Stem 3: announce; advertise		

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

-GT- OVERSIGHT / REPSONSIBILITY / SUPERVISION / REGULATION	
BSC	Stem 1: (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)
CTE	(to be) the carrying out of a specific act as part of one's oversight of something or someone
CSV	(to be) a rule/procedure/custom/praxis associated with the process of overseeing
OBJ	(to be) a party who is subject to oversight
<p>Stem 2: (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)</p> <p>Stem 3: (to be) an act of oversight/governance taken in order to maintain one's responsibility for</p>	
<p>Formal Stem 1: (to be) a state/act/process of being in charge of something; to be in charge, to take charge of something/someone</p> <p>Formal Stem 2: (to be) a state/act/process of supervision; to supervise, have supervisory responsibility for something/someone</p> <p>Formal Stem 3: (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)</p>	

-DF- GOVERNMENT	
BSC	Stem 1: (to be) a form of governance; to govern (i.e., to be the authorized system for legal regulation/oversight of a community)
CTE	(to be) the carrying out of an act as part of the process of governance
CSV	(to be) a praxis/custom/rule/law or defining characteristic of a particular form of government
OBJ	(to be) a party who is subject to governance
<p>Stem 2: (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)</p> <p>Stem 3: (to be) the particular collective group of authorities authorized as being the government for a particular community, i.e., "the [(contextually) current] government"</p>	

-RC- COINCIDENCE / SIMULTANEITY	
(NOTE: 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)	
BSC	Stem 1: (to be) a state/instance of coinciding, a coincidence; to coincide [not necessarily simultaneous but auspiciously timed in relation to another event]
CTE	(to be) a state of coincidence
CSV	(to be) an act which constitutes a coincidence; to do something that creates/constitutes a coincidence (with something else)
OBJ	(to be) the other "half" of a coincidence, the other coinciding event/entity or circumstance
<p>Stem 2: (to be) a state/instance of simultaneity; to occur simultaneously without knowledge/awareness of the other state/event occurring at the same time</p> <p>Stem 3: (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)</p>	
The INFORMAL stems above refer to coincidences that are unplanned and truly coincidental. The FORMAL stems refer to deliberate/planned coincidences.	

-KŠ- ‘BUFFONERY / ABSURDITY / SURREALISM / ECCENTRICITY	
BSC	Stem 1: (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]
CTE	(to be) silly/bufoonish as a behavioral motivation/trait
CSV	(to be) a particular act/behavior considered silly/bufoonish
OBJ	(to be) a bufoon, a person whose silliness is looked at derisively by others
	<p>Stem 2: (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.]</p> <p>Stem 3: (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]</p>
<p>Formal Stem 1: (to be) an act/state/instance of performing as a clown</p> <p>Formal Stem 2: (to be) an act/state/instance of absurdist/dada-esque art</p> <p>Formal Stem 3: (to be) an act/state/instance of surrealist art</p>	

-ZK- ‘STRANGENESS / ODDITY / WEIRDNESS’	
BSC	Stem 1: (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]
CTE	(to be) strange/odd/weird as a characteristic
CSV	(to be) a particular behavior or physical aspect which characterizes something or someone as strange/odd/weird
OBJ	(to be) the sense/feeling that something is strange/odd/weird
	<p>Stem 2: (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]</p> <p>Stem 3: (to be) something scary/creepy/frightening [i.e., unfamiliar and inexplicable with the effect of inspiring fear at a perceived threat]</p>

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

-CPL- 'SECRETION / RESIN / SAP'		
BSC	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
CTE	(be (in)) the state of having secreted	
CSV	(be) the physical process of secreting	Stem 3: (be) an act/instance of secretion of a resin
OBJ	(be) an amount of a secreted substance	

-PP- 'PICK UP / TAKE (IN) / GATHER / COLLECTION / ACCUMULATION'		
BSC	Stem 1: (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	Stem 2: (to be) an instance of gathering something (i.e., bringing separate entities together to form a grouping thereof) Stem 3: (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
CTE	(to be) an act/instance of taking (temporary) possession, oversight or guardianship of something/someone	
CSV	(to be) a physical act of picking up or taking in for the purpose of (temporary/circumstantial) possession, guardianship, oversight, use, transport, etc.	
OBJ	(to be) that which is picked up or taken (in) or obtained	
Formal Stem 1: (to be) an act/instance of procurement or acquiring; to procure/acquire something Formal Stem 2: (to be) an act/process of collection; to collect Formal Stem 3: (to be) an act/process of accumulation/accretion		

-NF- 'PROBLEM / MYSTERY'		
BSC	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
CTE	(to be) the issue/problem requiring resolution caused/created by an entity/party or situation	
CSV	(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
OBJ	(to be) the entity/party affected by or experiencing /perceiving the issue/problem caused/created by another entity/party/situation	

-KTL- ‘AREA / AREAL FOOTPRINT / PLOT OF GROUND / PLOT OF LAND’		
BSC	Stem 1: (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	Stem 2: (to be) the quantitative surface-footprint or areal footprint taken up by a quasi-planar surface regardless of non-level variations in surface gradients Stem 3: (to be) a formal/bounded plot of ground/land based on natural or authorized delineations
CTE	(to be) the physical ground/surface of a bounded area	
CSV	(to be) the act of measuring/determining the quantitative area of a bounded quasi-planar surface	
OBJ	(to be) the actual measured amount of area (i.e., how much acreage/square meters, etc.)	

-ÇB- ‘TERRESTRIAL TOPOGRAPHY / LAND FEATURE / ARABILITY’		
BSC	Stem 1: (to be) a terrestrial land feature	Stem 2: (to be) an area of arable land Stem 3: (to be) an area of non-arable land
CTE	(to be) the state of being a terrestrial land feature	
CSV	(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 the plains/pampas, etc.)	
OBJ	(to be) a particular (i.e., bearing a formal name) land feature (e.g., the Gobi Desert, Mt. Everest, etc.)	

-JL- ‘MOUNTAINOUS TOPOGRAPHY’ [use appropriate affixes to indicate degree of relative elevation]		
BSC	Stem 1: (to be) a terrestrial land feature of raised elevation in relation to sea level or surrounding flatlands; a hill or mountain	Stem 2: (to be) a peak, a single elevated terrestrial upwelling higher than the surrounding the terrain Stem 3: (to be) a plateau/butte/mesa (i.e., a high/elevated flatland)
CTE	(to be) the state of being a hill/mountain	
CSV	(to be) a state of dealing with mountainous/elevated terrain; to deal with (e.g., traveling through, living in, etc.) mountainous/elevated terrain	
OBJ	(to be) a particular (i.e., named) hill/mountain	

-ZH- ‘DESERT / STEPPE / TUNDRA’		
BSC	Stem 1: (to be) a desert	Stem 2: (to be) an area of steppe, steppe-like terrain
CTE	(to be) the state of being a desert	
CSV	(to be) a state of dealing with desert terrain; to deal with (e.g., traveling through, living in, etc.) desert terrain	Stem 3: (to be) an area of tundra, tundra-like terrain
OBJ	(to be) a particular (i.e., named) desert	

‘VALLEY / CANYON / GORGE’		
BSC	Stem 1: (to be) a valley	Stem 2: (to be) a canyon
CTE	(to be) the state of being a valley	
CSV	(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	Stem 3: (to be) a gorge
OBJ	(to be) a particular (i.e., named) desert	

-TR- ‘WATER’		
BSC	Stem 1: (to be) an amount of water; to water, pour/draw/procure some water	Stem 2: (to be) a source of fresh water (e.g., a well, river, spring, etc.)
CTE	(to be) some water (as a substance)	
CSV	(to be) a state/act of drawing/pouring/filling/serving an amount of water; to draw/pour/fill/serve some water	Stem 3: (to be) a state/act of utilizing water, irrigation, watering; to water / irrigate
OBJ	(to be) the container, vessel, conveying implement which holds an amount of water	

-MTR- ‘WATER-BASED WHEATHER PHENOMENON’		
BSC	Stem 1: (to be) an amount of rainfall; to rain	Stem 2: (to be) an amount of snow; to snow
CTE	(to be) a state of rainfall, for rain to be falling	
CSV	(to be) a state/act of rain falling	Stem 3: (to be) an amount of fog; to be foggy
OBJ	(to be) an amount of rainwater (e.g., in a puddle, in a container, in one’s hand, etc.)	

-BW- 'BODY OF SALT WATER'		
BSC	Stem 1: (to be) an ocean/sea	Stem 2: (to be) a lagoon Stem 3: (to be) a saltwater pond/lake
CTE	(to be) the state of being an ocean/sea	
CSV	(to be) a state of utilizing/living by the ocean/sea; to deal with, live by, utilize the ocean/sea	
OBJ	(to be) a particular (i.e., named) ocean/sea	

-LZ- 'BODY OF FRESH WATER' [use appropriate affixes to specify size/volume]		
BSC	Stem 1: (to be) a pond/lake	Stem 2: (to be) a stream/river Stem 3: (to be) a freshwater inland sea
CTE	(to be) the state of being a pond/lake	
CSV	(to be) a state of utilizing/living by a pond/lake; to deal with, live by, utilize a pond/lake	
OBJ	(to be) a particular (i.e., named) pond/lake	

-LZW- 'ESTUARY / RIVER DELTA / FRESHWATER-SALTWATER TRANSITION ZONE'		
BSC	Stem 1: (to be) an estuary	Stem 2: (to be) a river delta Stem 3: (to be) a freshwater-saltwater transition zone (e.g., the mouth of the Amazon or Mississippi Rivers)
CTE	(to be) the state of being an estuary	
CSV	(to be) a state of utilizing/living by an estuary; to deal with, live by, utilize an estuary	
OBJ	(to be) a particular (i.e., named) estuary	

-LZR- 'SWAMP / MARSH / BOG / FEN / BAYOU / WETLANDS'		
BSC	Stem 1: (to be) a swamp/marsh	Stem 2: (to be) a bog/fen Stem 3: (to be) a bayou/wetland(s)
CTE	(to be) the state of being a swamp/marsh	
CSV	(to be) a state of utilizing/living by a swamp/marsh; to deal with, live by, utilize a swamp/marsh	
OBJ	(to be) a particular (i.e., named) swamp	

-LK- 'MUSIC/ PLAY MUSIC / COMPOSE MUSIC'			
BSC	Stem 1: (to be) a state/act of music playing (whether recorded or live)	Stem 1: (to be) a state/act of playing/making music (i.e., on a musical instrument)	Stem 3: (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
CTE	(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
CSV	(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
OBJ	(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

-DGL- 'PLANAR ORIENTATIONAL INVERSION'		
BSC	Stem 1: (to be) a state/act of being/placing sideways; to (be) position(ed)/orient(ed) sideways (relative to an observer)	Stem 2: (to be) a state/act of being/placing upside-down; (be) position(ed)/orient(ed) upside-down Stem 3: (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]
CTE	(to be) the state of being in a sideways position	
CSV	(to be) an act of physically orienting/placing something sideways (relative to an observer)	
OBJ	(to be) the entity which is positioned sideways	

-BGL- 'TOPOLOGICAL INVERSION'		
BSC	Stem 1: (to be) a state/act of being a mirror-image; to invert in a mirror-image fashion	Stem 2: (to be) a state/act of being/placing inside-out; to (be) position(ed)/orient(ed) inside-out Stem 3: (to be) a state/act of being a mirror-image both laterally and vertically (i.e., mirror-image plus upside-down)
CTE	(to be) the state of being a mirror-image	
CSV	(to be) an act of physically causing/making a mirror-image	
OBJ	(to be) the entity which is mirror-imaged	

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

-MPR- ‘TERMINATION / FINISH / END / FINALITY / COMPLETION’		
BSC	Stem 1: (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]	Stem 2: (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] Stem 3: (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]
CTE	(to be) the state of being at an end, being finished/concluded	
CSV	(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	
OBJ	(to be) that which is ended/finished/over	

-TKL- ‘PHYSICAL STATE OF MATTER’		
BSC	Stem 1: (to be) a solid, something solid; to be/make solid, solidify	Stem 2: (to be) a liquid, something liquid; to be/make liquid, to liquify Stem 3: (to be) a gas, something gaseous; to be/make into a gas, to render into a gaseous state
CTE	(to be) a state of being solid	
CSV	(to be) the physical process(es) by which one solidifies something (e.g., freezing, dehydration, oxidation, etc.)	
OBJ	(to be) that which is solid	
FML Stem 1: (to be) something in a semi-solid, semi-liquid, viscous, state (e.g., mud, something gelatinous, slime, etc.)		
FML Stem 2: (to be) a Bose-Einstein condensate; to be/make into a Bose-Einstein condensate		
FML Stem 3: (to be) a plasma; to be/make into a plasma		

-TM- 'ENERGY EXPENDITURE / EFFORT / WORK / OPERATION / FUNCTIONING / ACTION'		
BSC	Stem 1: (to be) an instance of exertion or energy expenditure; to exert/spend energy	Stem 2: (to be) an effort; make an effort (i.e., energy expenditure focused on a specific task) Stem 3: (to be) a job task / employment-related task; perform job task
CTE	(to be) the process of energy being expended (i.e., conversion of source fuel into power)	
CSV	(to be) a physical manifestation of energy expenditure (i.e., what action(s) an entity actually does that requires energy to do)	
OBJ	(to be) the energy expended	
FML Stem 1: (to be) an instance of operating/functioning/performing/acting; to operate/function/perform/act (i.e. for an entity to go about doing what it is does or is supposed/expected to do in an operational/functional sense)		
FML Stem 2: (to be) an instance of work/labor; to work, to labor		
FML Stem 3: (to be) an act of industry or enterprise		

-DK- 'NON-BALLISTIC WEAPON'		
BSC	Stem 1: (to be) a hand-held or hand-thrown bladed weapon for cutting or stabbing something or someone	Stem 2: (to be) a pointed-tipped handheld or propelled weapon for piercing something or someone Stem 3: (to be) a blunt force-driven hand-held or propelled weapon
CTE	(to be) an act of using a hand-held or hand-thrown bladed weapon; to wield/brandish/use a weapon	
CSV	(to be) the physical object used as a hand-held or hand-thrown bladed weapon	
OBJ	(to be) the target/victim of a non-ballistic weapon	

The following three roots have the same Specification pattern as the above root:

-DKR- 'BALLISTIC WEAPON'	
STEM 1	(to be) a ballistically launched projectile used as a weapon; to launch a ballistic projectile
STEM 2	(to be) an used as a weapon; to detonate an explosive/incendiary substance/device
STEM 3	(to be) an implement/device used for propelling/launching a ballistic projectile or explosive/incendiary device used as a weapon

-DKW- 'MICROBIAL, SONIC, CYBER- WEAPON'	
STEM 1	(to be) a microbial agent used as a weapon
STEM 2	(to be) a sonic weapon
STEM 3	(to be) a cyber-weapon

-ŠKL- 'PSYCHIATRIC TREATMENT / MANIPULATION'	
STEM 1	(to be) an act of psychiatric treatment or therapeutic psychological therapy
STEM 2	(to be) an act of subliminal psychological manipulation
STEM 3	(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]

-ŽTW- ‘POISONOUS, VENOMOUS, OR RADIOACTIVE SUBSTANCE’		
BSC	Stem 1: (to be) a poisonous [i.e., chemical] substance, poison; to poison [with a chemical substance]	Stem 2: (to be) a venom; to poison by means of venom Stem 3: (to be) a radioactive substance; to expose to a radioactive substance
CTE	(to be) the experience of suffering from poisoning; to be poisoned	
CSV	(to be) the act of poisoning; to poison, to utilize poison	
OBJ	(to be) the entity/party which is poisoned	
FML Stem 1: (to be) a chemical agent or poison used as a weapon; to attack using a chemical agent or poison		
FML Stem 2: (to be) a venom used as a weapon; to attack using venom as a weapon		
FML Stem 3: (to be) a radioactive substance used as a weapon; to attack using a radioactive substance		

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

-DN- ‘NAME/DESIGNATION/TITLE’		
BSC	Stem 1: (to be) a name [plus the entity named]; to be named/called something	Stem 2: (to be) a designation or reference [plus the entity so designated]; to refer to as Stem 3: (to be) a label
CTE	(to be) an entity having a name	
CSV	(to have) a name; to bear a name	
OBJ	(to be) the name that an entity has	
FML Stem 1: (to be) a title [plus the entity so titled]		
FML Stem 2: (to be) a formal designation [plus the entity so designated]		
FML Stem 3: (to be) a role [plus the entity carrying out the role]		

-CT- ‘INSPECT / EXAMINE / OBSERVE / SCRUTINIZE / INVESTIGATE’		
BSC	Stem 1: (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)	Stem 2: (to be) an act of examination; to examine Stem 3: (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)
CTE	(to be) the state of being looked over	
CSV	(to be) the physical process of looking over (i.e., the physical act performed which constitutes looking something over)	
OBJ	(to be) that which is looked over	
FML Stem 1: (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.)		
FML Stem 2: (to be) an act of scrutiny; to scrutinize		
FML Stem 3: (to be) an act of investigation/reconnaissance; to investigate/reconnoiter		

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

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

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

-SW- 'PLANETARY BODY'

BSC	Stem 1: (to be) a planet/planetary body; to travel one's orbit in space as a planet	Stem 2: (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
CTE	(to be) a world [i.e., the planetary home of a holistic eco-system/biosphere, etc.]	
CSV	(to be) a physical planetary body	
OBJ	(to be) the orbit(al path) of a planetary body; to orbit	
FML Stem 1: (to be) the Earth/Terra		
FML Stem 2: (to be) the Moon/Luna		
FML Stem 3: (to be) one of the named asteroids or micro-planet of the solar system (e.g., Pluto, Ceres, Juno, Eros, etc.)		

-TN- 'NON-PLANETARY ASTRAL BODY'

BSC	Stem 1: (to be) a stellar body / star	Stem 2: (to be) a comet
CTE	(to be) a state of a star shining	
CSV	(to be) the physical body/mass of a star	
OBJ	(to be) the location in space of a star (relative to other astral bodies)	
FML Stem 1: (to be) the Sun / Sol		
FML Stem 2: (to be) a named comet		
FML Stem 3: (to be) a named small asteroid (e.g., Eros)		

-LC- 'PATHWAY / COURSE / ROUTE / ROADWAY / CHANNEL'

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

-JNY- ‘HAND AS FLAT RIGID “BLADE”’		
BSC	Stem 1: (to be) a hand as flat rigid “blade” for use of outside “edge” of rigidly-held hand (as in a karate chop)	Stem 2: (to be) a hand as flat rigid “blade” for use of fingers used “head-on” for pressing/jabbing/poking
CTE	(to be) the physical process of chopping with one’s hand	
CSV	(to be) a closed fist used in chopping with one’s hand	Stem 3: (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)
OBJ	(to be) the blow/impact delivered from chopping with one’s hand	

-JMW- ‘CLOSED FIST’		
BSC	Stem 1: (to be) a closed fist for pounding; use outside surface of closed fist in hammer-like manner for pounding	Stem 2: (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
CTE	(to be) the physical process of pounding with one’s fist	
CSV	(to be) a closed fist used in pounding	Stem 3: (to be) a closed fist for knocking; use knuckles of fist for knocking
OBJ	(to be) the blow/impact delivered from a pounding fist	

-ZR- ‘TENDENCY / INCLINATION / APTNESS / TREND / PREDISPOSITION / BIAS’		
BSC	Stem 1: (to be) a tendency/proclivity/propensity towards something; to tend to, to have a propensity to	Stem 2: (to be) an inclination; to lean toward , be inclined to
CTE	(to be) the psychological state of having a tendency/proclivity/propensity toward something	
CSV	(to be) the physical manifestation of one’s tendency or proclivity; to physically manifest one’s tendency/proclivity/propensity	Stem 3: (to be) an aptness for / a proneness to; to be apt to, to be prone to
OBJ	(to be) that toward which one has a tendency/proclivity/propensity	
FML Stem 1: (to be) a trend; to trend toward something		
FML Stem 2: (to be) a bias toward something; to be biased toward something [i.e., theoretically having a choice]		
FML Stem 3: (to be) a predisposition toward something; to be predisposed to [i.e., having no choice]		

-CN- 'SUBSTANCE'

BSC	Stem 1: (to be) a fundamental manifestation (e.g., chunk, drop, flume, bit, piece, etc.) of a material substance + substance itself	Stem 2: (to be) an instance/act of utilizing, manipulating, handling, or working with a substance; to handle, manipulate, work with, utilizing a substance
CTE	(to be) the material substance being manifested	
CSV	(to be) the form of a fundamental manifestation of a material substance (i.e., chunk, drop, flume, bit, piece, etc.	
OBJ	(to be) the party/entity in contact with, confronted with, observing, handling, etc. a material substance	
Stem 3: (to be) the source of a material substance / compound		

-VK- 'ATTRACTION'

BSC	Stem 1: (to be) a state/act of physical attraction to another	Stem 2: (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.)
CTE	(to be) the psychological/emotional state of physical attraction itself	
CSV	(to be) a physical state/act or tangible behavior manifested as a result of physical attraction to another	
OBJ	(to be) the target/source of one's physical attraction, what/whom one is attracted to	
Stem 3: (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.)		

-RHW- 'OCCUPANCY / TENANCY / RESIDENCY'

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

-RM- 'ABODE / DWELLING / DOMICILE / HOUSE'

BSC	Stem 1: (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]	Stem 2: (to be) a domicile (i.e., an artificially constructed quasi-permanent residential dwelling which provides protection from outside environmental elements)
CTE	(to be) a in a state of dwelling somewhere; to have a place to live	
CSV	(to be) an act of dwelling; to go about the day-to-day activities that constitute living in a particular place	
OBJ	(to be) the party/entity that dwells within a dwelling	
Stem 3: (to be) a house (i.e., a quasi-permanent constructed residence with conveniences for quasi-permanent residence)		

-RDW- 'BUILDING CONSTRUCTION'		
BSC	Stem 1: (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	Stem 2: (to be) a state/act of constructing a commercial building Stem 3: (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.)
CTE	(to be) a state of building construction	
CSV	(to be) a physical act of building/constructing a building; to perform the work of building/constructing a building	
OBJ	(to be) the building under construction [CPT version = finished building]	

-SR- 'ROOM / CHAMBER / COMPARTMENT'		
BSC	Stem 1: (to be) a room/chamber	Stem 2: (to be) a compartment Stem 3: (to be) a cubicle, partially partitioned-off section of a larger room
CTE	(to be) the state of a room/chamber being a partitioned off quasi-autonomous (sub-)section of a larger building interior space	
CSV	(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.)	
OBJ	(to be) what a particular room/chamber is (used) for, what function it serves	

-TPR- 'CONSISTENCY/MALLEABILITY/FLEXIBILITY/PLASTICITY/RHEOLOGICAL PHENOMENON'		
BSC	Stem 1: (to be) a particular consistency in terms of malleability, flexibility, plasticity; to have a certain degree of malleability, flexibility, plasticity	Stem 2: (to be) a particular degree of squeezability, compressibility Stem 3: (to be) a particular degree of elasticity
CTE	(to be) a state of malleability, flexibility, plasticity; to be malleable, flexible	
CSV	(to be) an act of determining the degree of malleability, flexibility, plasticity of something; to determine the degree of malleability, flexibility, plasticity of something	
OBJ	(to be) that which has a particular consistency in terms of malleability, flexibility, plasticity	

-TPW- ‘SPRINGINESS / BUOYANCY / RECOIL		
BSC	Stem 1: (to be) a particular degree of springiness; to have/manifest a particular degree of springiness	Stem 2: (to be) a particular degree of buoyancy; to have/display a particular degree of buoyancy Stem 3: (to be) a particular degree of recoil; to have/display a particular degree of recoil
CTE	(to be) a state of springiness; to be springy	
CSV	(to be) an act of determining the degree of springiness	
OBJ	(to be) that which has a particular degree of springiness	

-ZMW- ‘FRAGILITY / BRITTLENESS / CRUMBLINESS’		
BSC	Stem 1: (to be) a particular degree of fragility; to have/manifest a particular degree of flimsiness	Stem 2: (to be) a particular degree of brittleness Stem 3: (to be) a particular degree of crumbliness
CTE	(to be) a state of fragility; to be fragile	
CSV	(to be) an act of determining the degree of fragility; to determine the degree of fragility of something	
OBJ	(to be) that which has a particular degree of fragility	

-CPL- ‘LIMPNESS / FLACCIDITY / JIGGLINESS / FLABBINESS’		
BSC	Stem 1: (to be) a particular degree of limpness/flaccidity; to have/manifest a particular degree of limpness/flaccidity	Stem 2: (to be) a particular degree of jiggliness Stem 3: (to be) a particular degree of flabbiness
CTE	(to be) a state of limpness/flaccidity; to be limp/flaccid	
CSV	(to be) an act of determining the degree of limpness/flaccidity; to determine the degree of limpness/flaccidity of something	
OBJ	(to be) that which has a particular degree of limpness/flaccidity	

-LPW- ‘PLIANCY / DUCTILITY / SUPPLENESS / DEFORMABILITY / SPREADABILITY’		
BSC	Stem 1: (to be) a particular degree of pliancy/ductility/suppleness; to have/manifest a particular degree of pliancy/ductility/suppleness	Stem 2: (to be) a particular degree of deformability or “dentability” (i.e., how easily deformed or dented a material is) Stem 3: (to be) a particular degree of spreadability
CTE	(to be) a state of pliancy/ductility/suppleness; to be pliant/ductile/supple	
CSV	(to be) an act of determining the degree of limpness/flaccidity; to determine the degree of pliancy/ductility/suppleness of something	
OBJ	(to be) that which has a particular degree of pliancy/ductility/suppleness	

-CKW- 'FLIMSINESS / COHESIVENESS / STRUCTURAL INTEGRITY / STABILITY'		
BSC	Stem 1: (to be) a particular degree of flimsiness; to have/manifest a particular degree of flimsiness	Stem 2: (to be) a particular degree of cohesiveness (tendency to not break apart)
CTE	(to be) a state of flimsiness; to be flimsy	
CSV	(to be) an act of determining the degree of flimsiness; to determine the degree of flimsiness of something	Stem 3: (to be) a particular degree of structural integrity/stability
OBJ	(to be) that which has a particular degree of flimsiness	

-ZT- 'LAW / STATUTE / LEGAL COMPLIANCE'		
BSC	Stem 1: (to be) a statute, a particular law	Stem 2: (to be) a state of compliance with a law or statute
CTE	(to be) the meaning/intent of a law/statute	
CSV	(to be) the actual wording of a law/statute	Stem 3: (to be) the applicability of a statute/law to a particular situation or geopolitical area; rule of law
OBJ	(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.	

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

- ZTL- 'CRIMINAL ADJUDICATION'		
BSC	Stem 1: (to be) an act of criminal adjudication; to try a criminal complaint, go to trial, conduct a criminal trial	Stem 2: (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']
CTE	(to be) the alleged crime	
CSV	(to be) a physical/tangible act of conducting a criminal trial; a piece/aspect/stage/step of the adjudicatory process	Stem 3: (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']
OBJ	(to be) the defendant in a criminal complaint	

-ZL- 'WEATHER / CLIMATE'		
BSC	Stem 1: (to be) a weather condition; to be the weather (conditions)	Stem 2: (to be) a state of good weather conditions Stem 3: (to be) a state of adverse weather condition
CTE	(to be) the actual extant weather condition at a particular time	
CSV	(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.)	
OBJ	(to be) a party effected/impacted by the weather conditions	
FML Stem 1: (to be) the climate, clime FML Stem 2: (to be) a cold climate FML Stem 3: (to be) a warm climate		

-LY- 'VISUAL DESIGN / ARTISTIC REPRESENTATION'		
BSC	Stem 1: (be) an act/instance of manually-manipulated creating a visual design (via manually-manipulated means)	Stem 2: (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
CTE	(be) a state of there being a visual design; be a visual design	
CSV	(be) the physical act of creating a visual design; to create a visual design	Stem 3: (be) an instance of crafting a 3-dimensional visual representation/model of something
OBJ	(be) the medium utilized to create a visual design	
Formal Stem 1: (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.) Formal Stem 2: (be) an act/instance of creating a work of visual art (e.g., a painting, a watercolor, a fine drawing, an etching, etc.) Formal Stem 3: (be) an act/instance of creating a work of sculpture		

-KSW- 'BIFURCATION / MULTIFURCATION / BRANCHING'		
BSC	Stem 1: (to be) a state/act of forking into two, bifurcation; to bifurcate	Stem 2: (to be) a state of forking into three or more branches/paths, etc. Stem 3: (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.)
CTE	(to be) a state of being bifurcate(d)	
CSV	(to be) a physical act/process of bifurcation	
OBJ	(to be) that which forks into two	

-FKL- ‘PHYSICAL SPATIO-TEMPORAL EXTENSION’		
BSC	Stem 1: (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.	Stem 2: (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 Stem 3: (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
CTE	(to be) a state of extension / being extended unidimensionally	
CSV	(to be) an act of spatio-temporal extension unidimensionally	
OBJ	(to be) that which spatio-temporally extends or “reaches” unidimensionally to a particular point/level/height, etc.	

-RPT- ‘ARRANGEMENT / ORDER / SYMMETRY / REGULARITY / CLASSIFICATION’		
BSC	Stem 1: (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, order	Stem 2: (to be) a an act/instance of hierarchical ranking; to rank Stem 3: (to be) an act/instance of symmetrical arrangement; to arrange symmetrically
CTE	(to be) a particular arrangement or pattern	
CSV	(to be) an act/process of physically placing entities into an arrangement or pattern	
OBJ	(to be) an entity in or part of a particular arrangement or pattern	
FML Stem 1: a state/act/instance of being/making regular or displaying regularity (i.e., having an expected/conventionalized pattern); be/make regular, regularize		
FML Stem 2: a state/act/instance of being in or making a classification (i.e., an arranged scheme for storage-and-retrieval); to classify		
FML Stem 3: a state/act/instance of being in or making an assortment (i.e., an arranged selection of members/components); to sort		

-MK- ‘IMITATION / MIMICRY / IMPERSONATION / DRAMATIC ACTING’		
BSC	Stem 1: (to be) an act/state of imitation; imitate	Stem 2: (to be) an act of mimicry; to mimic, to feign Stem 3: (to be) an act of pretending to be (a state or role) / act of makebelieve; to pretend (to be) / to make-believe
CTE	(to be) a state of imitation	
CSV	(to be) a physical act of imitating; perform specific actions/behaviors which imitate those of another party/entity	
OBJ	(to be) a	
FML Stem 1: a state/act/instance of simulation; to simulate		
FML Stem 2: a state/act/instance of impersonation; to impersonate		
FML Stem 3: a state/act/instance of dramatic performance / an acting performance; act / enact / enact a (dramatic) role		

-ŠG- ‘CAPTURE / APPREHENSION / SEIZURE / DETENTION / USURPATION’		
BSC	Stem 1: (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)	Stem 2: (to be) an act of catching; to catch (= stop trajectory-based movement for purpose of seizure or control)
CTE	(to be) a state of captivity	
CSV	(to be) an act of physically capturing/apprehending/seizing	Stem 3: (to be) an act of taking over; to take over, take the reigns from, relieve someone of duty, take charge
OBJ	(to be) a party/entity that is captured/apprehended/seized	
FML Stem 1: an act/instance of confiscating, an act of confiscation or appropriation; to confiscate, appropriate		
FML Stem 2: an act/instance of detaining 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)		
FML Stem 3: an act of usurping something, an act of usurpation; to usurp		

-NF- ‘PARTNERSHIP / UNION / MARRIAGE’		
BSC	Stem 1: (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)	Stem 2: (to be) state/act of union, being united
CTE	(to be) a state of partnership	
CSV	(to be) be an act of partnering; to take on a partner	Stem 3: (to be) state/act of being married/wedded; to marry, to wed, to be the spouse of another
OBJ	(to be) the entity/party which/who partners with one; be one’s partner	

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

-KB- 'ASSOCIATION / DEALING WITH / RELATION TO / ENGAGEMENT WITH'		
BSC	Stem 1: (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	Stem 2: (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 Stem 3: (to be) an act of engaging in, becoming involved with; to become involved with
CTE	(to be) a state of having to deal with something/someone; be in such a state	
CSV	(to be) an act of dealing with or focusing one's attention upon; to deal with, to focus one's attention upon	
OBJ	(to be) what/who one must deal with	

Derivations: to associate/interact with

-ZM- 'FLEE / ESCAPE / EVASION / ELUDE / SHIRK'		
BSC	Stem 1: (to be) an act of fleeing or escaping from some threat or adverse situation	Stem 2: (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) Stem 3: (to be) an act of shirking, deserting, abandoning something/someone
CTE	(to be) a state of being escaped from; to be in a state of being/having been fled from	
CSV	(to be) a physical act of fleeing/escaping	
OBJ	(to be) what one is fleeing or escaping from	

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

-PV- 'IGNORE / DISREGARD / STATE OF DENIAL'		
BSC	Stem 1: (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)	Stem 2: (to be) an act of disregarding; to disregard (i.e., to not take something/someone into account) Stem 3: (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).
CTE	(to be) a state of being ignored	
CSV	(to be) a physical act of ignoring; to behave/act in a manner which manifests ignoring something/someone	
OBJ	(to be) what/whom one ignores	

-FX- ‘AVOID / SHUN / REJECT / ESCHEW’		
BSC	Stem 1: (to be) a state/act of avoidance; to avoid, stay away from, steer clear of, shy away from	Stem 2: (to be) a state of shunning, to shun (i.e., refuse to have dealings with or to partake of something) Stem 3: (to be) a state/act of eschewing/abstaining/refraining something; to eschew something, abstain from something, refrain from doing something
CTE	(to be) a state of avoidance, state of being avoided	
CSV	(to be) a physical act of avoidance	
OBJ	(to be) what one is avoiding or trying to avoid	
FML Stem 1: a state/act of boycotting or embargo; to boycott, to establish an embargo against FML Stem 2: a state/act of ostracization; to ostracize FML Stem 3: a state/act of rejection; to reject		

-FČ- ‘EXCLUDE / BANISHMENT / OSTRACIZATION’		
BSC	Stem 1: (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)	Stem 2: (to be) an act of expulsion/ejection Stem 3: (to be) an act banishment; to banish
CTE	(to be) a state of exclusion, state of being excluded	
CSV	(to be) a physical act of excluding	
OBJ	(to be) what/whom one excludes	
FML Stem 1: a state/act of sequestering/segregation/segregation; to sequester, to segregate FML Stem 2: a state/act of deportation/expatriation; to deport/expatriate FML Stem 3: an act of exiling; to exile		

-ŘD- ‘REMEDY / HEAL / RECOVER / RECUPERATE / RESTORE’		
BSC	Stem 1: (to be) a state/act of medically treating, remedying something or someone; to treat [medically], to (try to) remedy something	Stem 2: (to be) a state/act of recuperation/healing/recovery; to recuperate, to heal, to recover Stem 3: (to be) a state/act of restoration; to restore
CTE	(to be) a state of [medical] treatment	
CSV	(to be) a physical act of treating/remedying	
OBJ	(to be) a remedy/treatment	

-ZJ- ‘CONCEALMENT / SECRECY’		
BSC	Stem 1: (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]	Stem 2: (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.] Stem 3: (to be) a state/act of secrecy; to keep something secret [OBJ Specification = ‘a secret’]
CTE	(to be) a state of concealment/being hidden	
CSV	(to be) a physical act of concealing/hiding; to do something to conceal/hide an entity	
OBJ	(to be) what is (to be) concealed	

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

-ML- ‘OBSCURITY / AMBIGUITY / STEALTH / SURREPTITIOUSNESS’		
BSC	Stem 1: (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]	Stem 2: (to be) a state/act of ambiguity; to render something ambiguous, to obfuscate Stem 3: (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)
CTE	(to be) a state of obscurity/being obscure	
CSV	(to be) a physical act of obscuring; to do something that makes an entity obscure or unclear	
OBJ	(to be) what is (made) obscure/unclear	

-CTY- ‘NORTH / SOUTH / LONGITUDE’		
BSC	Stem 1: (to be) a state of north-south directional orientation	Stem 2: (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. Stem 3: (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.
CTE	(to be) a north-south (i.e., longitudinal) line/path/orientation	
CSV	(to be) a state/act of lying upon, traveling upon, or being directed along a north-south, i.e., longitudinal axis	
OBJ	(to be) what lies upon or is moving or being directed upon a longitudinal line/axis/path, etc.	

-DNY- ‘EAST / WEST / LATITUDE’		
BSC	Stem 1: (to be) a state of east-west directional orientation	Stem 2: (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. Stem 3: (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.
CTE	(to be) an east-west (i.e., latitudinal) line/path/orientation	
CSV	(to be) a state/act of lying upon, traveling upon, or being directed along a east-west, i.e., latitudinal axis	
OBJ	(to be) what lies upon or is moving or being directed upon a latitudinal line/axis/path, etc.	

-ŽG- ‘DEGREE OF PHYSICAL STRENGTH / STAMINA / RESISTANCE TO PAIN’ (use with SUF/EXN affixes)		
BSC	Stem 1: (to be) a degree of brute bodily/physical strength (i.e., physical capacity to apply/utilize brute physical strength); to display/manifest a degree of physical strength	Stem 2: (to be) a degree of physical stamina; to display/manifest a degree of physical stamina Stem 3: (to be) a degree of resistance to physical pain; display/manifest a degree of resistance to physical pain
CTE	(to be) one’s physical strength as a faculty	
CSV	(to be) an act of physical strength	
OBJ	(to be) what one is/must be strong against or for	

-ML- ‘OBSCURITY / AMBIGUITY / STEALTH / SURPETITIOUSNESS’		
BSC	Stem 1: (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]	Stem 2: (to be) a state/act of ambiguity; to render something ambiguous, to obfuscate Stem 3: (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)
CTE	(to be) a state of obscurity/being obscure	
CSV	(to be) a physical act of obscuring; to do something that makes an entity obscure or unclear	
OBJ	(to be) what is (made) obscure/unclear	

-ZŘ- ‘SLOT / GROOVE / FURROW’		
BSC	Stem 1: (to be) a linear indentation/groove/channel; to make a linear indentation/groove/channel	Stem 2: (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> ”)
CTE	(to be) the state of being grooved, having a linear indentation/channel/groove	
CSV	(to be) a physical act of making/fashioning a linear indentation/groove/channel	
OBJ	(to be) an implement for use with or placement into a linear indentation/groove/channel	Stem 3: (to be) a furrow

-GN- ‘SOURCE / ORIGIN / BEGINNING / INITIATION / CAUSE’		
(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-.		
BSC	Stem 1: (to be) a state/act of origination; to come into being, to get one’s start, to originate	Stem 2: (to be) a state/act of beginning, initiating, starting; to begin, to start, to initiate Stem 3: (to be) a state/act of causation; to cause (i.e., primary/direct, not secondary or enabling cause)
CTE	(to be) a state of being the source or point of origin	
CSV	(to be) a physical act of originating; to originate [i.e., come into existence or be formed at a particular place and time]	
OBJ	(to be) a source, place and/or point in time where/when something originates	

-ŽŽ- ‘HELP / AID / ASSISTANCE / SUPPORT / ADVOCACY’		
BSC	Stem 1: (to be) a state/act of aiding/helping; to aid, to help, to render aid, to give help to	Stem 2: (to be) a state/act of assisting/assistance; to assist, to lend a hand in doing/accomplishing something, to help to accomplish something Stem 3: (to be) a state/act of supporting/advocating; to support/advocate (i.e., to verbally advocate for and/or provide tangible or intangible resources to reinforce something or someone)
CTE	(to be) the state of helpfulness	
CSV	(to be) a physical act of helping/aiding; to do something that helps or renders aid	
OBJ	(to be) what one does that is helpful, the help one gives	
FML Stem 1: a state/act of serving, ministering to, tending to; to serve, to minister to, to tend to		
FML Stem 2: a state/act of patronage; to grant one’s patronage		
FML Stem 3: a state/act of sustenance or subsidization; to subsidize		

-ŘM- ‘DIMNESS / PALENESS / SHADOW / DULLNESS / FADEDNESS’		
BSC	Stem 1: (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)	Stem 2: (to be) a state of being pale/blanched/pallid/wan; to be/make pale/pallid/wan/blanched Stem 3: (to be) a state/act of being/placing in the shade or in shadow; to be/place in the shade or in shadow
CTE	(to be) the state of being dim	
CSV	(to be) a physical act of dimming; do something to make an entity dim	
OBJ	(to be) something that is dim	
FML Stem 1: a state/act of being/making something dull/lackluster in appearance; be/make dull/lackluster in appearance (i.e., decreased reflectivity)		
FML Stem 2: 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)		
FML Stem 3: a state/act of being something murky/gloomy; be/make murky/gloomy		

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

-PÇ- ‘READ / RECITE / ERUDITION’		
BSC	Stem 1: (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)	Stem 2: (to be) an act of reading aloud, reciting; to read (aloud), to recite (i.e., speak words aloud from a written source) Stem 3: (to be) a state/act of erudition/scholarship; to acquire knowledge/expertise via reading
CTE	(to be) the state/act of mental interpretation/comprehension of what one reads; to comprehend/take in what one reads	
CSV	(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)	
OBJ	(to be) the contents of what one reads (i.e., the communicative message in writing)	

-LN- ‘VALUE / OPPORTUNITY / ADVANTAGE / CONVENIENCE / SUITABILITY / EXPEDIENCE’	
BSC	Stem 1: (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
CTE	(to be) a state of having value/being worthwhile
CSV	(to be) a physical act of doing/pursuing something worthwhile/of value
OBJ	(to be) something worthwhile; (be) something of value
<p>Stem 2: (to be) a state of something being expedient or opportune; to be/do something expedient or opportune</p> <p>Stem 3: (to be) a state of something being fitting, apropos or suitable; to be/do something fitting, apropos or suitable</p>	
<p>FML Stem 1: a state of something being advantageous/favorable; to be advantageous, be to one’s advantage, be in favorable or advantageous circumstances</p> <p>FML Stem 2: 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</p> <p>FML Stem 3: a state of something being a convenience / something convenient; to be convenient / do something convenient</p>	

-KM- ‘DESERVE / WORTHINESS / MERIT / REWARD / ENTITLEMENT	
BSC	Stem 1: (to be) a state of being deserving of something; to deserve something
CTE	(to be) a state of deserving
CSV	(to be) a physical act of demonstrating one deserves something; to do/say something that demonstrates that one deserves something
OBJ	(to be) what one is or has done that warrants their deserving something
<p>Stem 2: (to be) a state worthiness/merit; to be worthy, to merit (i.e. demonstrate that one has the necessary attributes/character/skill to be granted some privilege or status or reognition or reward)</p> <p>Stem 3: (to be) a state/act of granting/bestowing to a party/entity what they deserve</p>	
<p>FML Stem 1: a state of entitlement/legally warranting the granting of something to a party/entity; to be entitled to something, to warrant something</p> <p>FML Stem 2: a state of being loyal; to be loyal, act in a loyal manner</p> <p>FML Stem 3: a state/act of rewarding/conferring/ordaining the reward, formal recognition/acknowledgement, position, status, or privilege one has merited</p>	

-VZ- ‘SUBJECTIVE INTERPRETATION / “READING” ’	
BSC	Stem 1: (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.)
CTE	(to be) a state of subjective interpretation based on clues/signs/evidence
CSV	(to be) an act of “reading”/interpreting clues/signs/evidence; to “read”/interpret clues/signs/evidence
OBJ	(to be) the clue(s)/sign(s)/piece(s) of evidence one “reads”/interprets
<p>Stem 2: (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.)</p> <p>Stem 3: (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.)</p>	

-RB- ‘MEANING / SIGNIFICATION / EXPLANATION / INTERPRETATION / ELUCIDATION / TRANSLATION’	
BSC	Stem 1: (to be) a state/act of meaning; to mean/signify/denote something (i.e., to have a specific/correct interpretation/signification/denotation)
CTE	(to be) the meaning/signification/denotation of something, what something means/signifies/denotes
CSV	(to be) an act of conveying/communicating/indicating the meaning of something; to signify, to express/convey the meaning of
OBJ	(to be) that which has (a) meaning/signification/denotation
Stem 2: (to be) an act of explanation; to explain Stem 3: (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) *	
FML Stem 1: an act/instance of defining something; to define FML Stem 2: an act/instance of expounding upon or elucidating something FML Stem 3: a state/act/instance of translating; to create a translation of something	

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

-MÇ- ‘WELL-FORMEDNESS / AESTHETIC APPEAL / STYLISHNESS / PERFECTION / SPLENDOR’	
BSC	Stem 1: (to be) a state of being well-formed/shapely/well-proportioned; to be/make well-formed/shapely/well-proportioned
CTE	(to be) a state of shapeliness/well-formedness
CSV	(to be) an act of making something well-formed/shapely/well-proportioned
OBJ	(to be) that which is shapely/well-formed/well-proportioned
Stem 2: (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 Stem 3: (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.	
FML Stem 1: a state of something being perfect; be/make perfect (i.e., cannot possibly be better) FML Stem 2: a state of something being exquisite/superb/sublime; to be/make something exquisite/superb/sublime FML Stem 3: a state of something being ornate/splendid; be/make something ornate/splendid	

-LT- ‘DEITY / GOD / SPIRITUAL ENTITY’	
BSC	Stem 1: (to be) a state/act of being a deity/god/goddess
CTE	(to be) a state of godhood
CSV	(to be) an act of a deity; to perform the act of a deity
OBJ	(to be) a particular god(dess)/deity
Stem 2: (to be) a state/act of God [one’s personal conception of a Supreme Creator] Stem 3: (to be) a state/act of being a spiritual/heavenly entity/angel	

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

-TJ- ‘EMPHASIS / HIGHLIGHT / UNDERSCORE / IMPRESS UPON / RAVE ABOUT’		
BSC	Stem 1: (to be) a state/act of highlighting/bringing attention to; to highlight, to bring attention to	Stem 2: (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) Stem 3: (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
CTE	(to be) a state of being highlighted, having attention upon oneself	
CSV	(to be) an act of highlighting/bringing attention to; to do something that highlights or brings attention to an entity/party	
OBJ	(to be) the party/entity/object highlighted	

-VŠ- ‘SUBTLETY / SLYNESS / SHREWDNESS / GUILLE / CRAFTINESS’		
BSC	Stem 1: (to be) a state/act of subtlety; be/act subtle(ly)	Stem 2: (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) Stem 3: (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)
CTE	(to be) a state of subtlety	
CSV	(to be) an act of subtlety; to do something subtle(ly)	
OBJ	(to be) that which is subtle	

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

-ĽR- ‘BALANCE / EQUILIBRIUM / SYMMETRY / HOMEOSTASIS’		
BSC	Stem 1: (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)	Stem 2: (to be) a state/act of equilibrium Stem 3: (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)
CTE	(to be) a	
CSV	(to be)	
OBJ	(to be)	
FML Stem 1: a state/act of being symmetrical, or having/displaying symmetry; to be/make symmetrical, to have/display symmetry		
FML Stem 2: a state/act of being in parity; to be/place in parity		
FML Stem 3: a state/act of homeostasis; to be/make homeostatic, have/display homeostasis		

-ṬĀ- ‘SIGN/MARK/SYMBOL/VISUAL MEANS OF INDICATION/REPRESENTATION’		
BSC	Stem 1: (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 signal (i.e., general indication of something)	Stem 2: (to be) a state/act of being a (visual/tactile/olfactory) mark, token track, print, trail, clue, trace Stem 3: (to be) a state/act of being a non-linguistic communicative/informational mark/token (i.e., a visual/tactile indication designed to communicate one’s presence or status or number, etc.)
CTE	(to be) a state of indication	
CSV	(to be) an act of indicating; do something that indicates	
OBJ	(to be) a sign/signal/indication/indicator	
FML Stem 1: a state/act of being a formal sign/signal (e.g., road sign, traffic signal, marquee, written name/information on a dedicated placard-like surface, etc.)		
FML Stem 2: a state/act of being a a state/act of being a symbol, emblem, device, insignia, logo		
FML Stem 3: a state/act of being a linguistically representational mark/symbol/character; be/write a written character (of a language, e.g., letter of an alphabet/syllabary/abugida/abjad,etc., logogram, ideogram, emoji, etc.)		

-ZD- ‘FORESIGHT / PREDICTION / PROGNOSTICATION’		
BSC	Stem 1: (to be) a state/act of foresight; to foresee	Stem 2: (to be) a state/act of prediction; to predict Stem 3: (to be) a state/act of forecasting/prognostication; to forecast/prognosticate
CTE	(to be) a state of (having) foresight	
CSV	(to be) an act of foresight; to do something that manifests foresight or one's ability to foresee	
OBJ	(to be) what one foresees	

-ZJ- ‘INTIMIDATION / THREAT / MENACE’		
BSC	Stem 1: (to be) a state/act of intimidating, daunting; to intimidate, to daunt	Stem 2: (to be) a state/act of threatening/menacing; to threaten/menace, make a threat Stem 3: (to be) a state/act of bullying/browbeating; to bully/browbeat
CTE	(to be) a state of intimidation	
CSV	(to be) an act of intimidation; do/say something to intimidate/daunt another	
OBJ	(to be) what one does/says to intimidate/daunt another	

-MČ- ‘POWER / FORCE / EFFICACY / POTENCY / EFFECTIVENESS’		
BSC	Stem 1: (to be) a state/act of power (i.e., puissant force derived from energy utilization/expenditure); to (em)power, to energize, galvanize	Stem 2: (to be) a state/act of efficacy; be efficacious, be effectual (i.e., ability/capacity to get things done effectively) Stem 3: (to be) state/act of potency; be/make potent/powerful
CTE	(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)	
CSV	(to be) an act of physical power; to act in a manner demonstrating/manifesting physical power	
OBJ	(to be) that which is (em)powered	
FML Stem 1: a state/act of force; be a force, act forcefully/with force (i.e., delineated/directed application/utilization of energy) FML Stem 2: a state/act of productivity; be/make productive FML Stem 3: a state of effectiveness; be/make effective		

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

-ŇČ- ‘INFLUENCE / PERSUASION / PREDOMINANCE’		
BSC	Stem 1: (to be) a state/act of influencing/influence; to be influential, to influence	Stem 2: (to be) a state/act of persuasion; to persuade, sway, cajole, talk someone into, convince Stem 3: (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
CTE	(to be) a state of influence/being influential	
CSV	(to be) an act of influence; to do/say something that influences, do something influential	
OBJ	(to be) an influence	
FML Stem 1: a state/act of stimulation/rousing/inciting/instigating; to stimulate/rouse/incite/instigate		
FML Stem 2: a state/act of encouragement; to encourage,		
FML Stem 3: a state/act of advocacy; to advocate for		

-SH- ‘AIR’		
BSC	Stem 1: (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 ₂ , etc. that constitutes the breathable atmosphere of Earth	Stem 2: (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) Stem 3: (to be) the state/act/process of there being “stale” air (i.e., air with a lowered oxygen content and/or higher CO ₂ concentration and/or pollutants due to breathing in an enclosed space, air pollution, etc.)
CTE	(to be) air as the primary/relevant component of Earth’s (or a planet’s) atmosphere	
CSV	(to be) an act of obtaining/providing/disseminating air (into a volume of space); to get air, give air, let air in	
OBJ	(to be) the air one breathes	

-JR- ‘RIDE / DRIVE / TRANSPORT’		
[NOTE: 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. 8.1.]		
BSC	Stem 1: (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]	Stem 2: (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.) Stem 3: (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)
CTE	(to be) a state of riding/driving something (i.e., operating the means of conveyance/transportation)	
CSV	(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.)	
OBJ	(to be) the person being conveyed/transported, the transportee	

-SC- ‘WASH / LAVE / BATHE / RINSE’		
BSC	Stem 1: (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)	Stem 2: (to be) a state/act of bathing; to bathe Stem 3: (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)
CTE	(to be) a state of being washed	
CSV	(to be) a physical act of washing (i.e., the physical motions/actions performed); to perform the physical motions/actions of washing	
OBJ	(to be) what is (being / to be) washed	

-ŽX- ‘FIRE / BURNING / MELTING / CALEFACTION’		
BSC	Stem 1: (to be) a state/act of burning with/by fire; to burn by fire	Stem 2: (to be) a state of a substance being/becoming heated by an external source of heat; to heat (up), to warm (up) Stem 3: (to be) a state of melting/liquefaction; to melt, to liquefy via heat
CTE	(to be) a state of being burned, being on fire; to be on fire, to be in flames	
CSV	(to be) an act of igniting or combustion; to ignite, to combust, to catch fire	
OBJ	(to be) a flame [Derivatives: a fire, a blaze, a conflagration, etc.]	

-KV- ‘COLDNESS / COOLING / FREEZING’		
BSC	Stem 1: (to be) a state/act of being/becoming cold/frigid; to be(come) cold/frigid	Stem 2: (to be) a state of a substance being/becoming cool/cold by an external source of cold; to cool (down), to get cold Stem 3: (to be) a state of being frozen; to freeze
CTE	(to be) a state of coldness, a state of being cold	
CSV	(to be) an act of chilling; to chill something	
OBJ	(to be) a tangible sign/indicator of coldness (e.g., ice, snow, frost, etc.)	

5.1 Roots Relating To The Clothing

-NX- ‘ARTICLE OF CLOTHING’		
BSC	Stem 1: (to be) a piece/article of clothing being worn for the purpose of covering or protecting (a part of) the body; to wear such	Stem 2: (to be) a piece/article of clothing being worn as a fashion statement (i.e., to create a fashionable appearance); to wear such Stem 3: (to be) a piece/article of clothing being worn as ornament or accessory; to wear such
CTE	(to be) a state of wearing an article of clothing as coverage/protection	
CSV	(to be) a physical act of putting on/donning an article of clothing as coverage/protection	
OBJ	(to be) the particular piece/article of clothing itself (i.e., not necessarily being worn)	
FML Stem 1: a piece/article of clothing being worn as a uniform (i.e., to indicate one’s job/position/organizational membership, etc.)		
FML Stem 2: a piece/article of clothing being worn as a costume		
FML Stem 3: 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.)		

-MTR- ‘HEAD COVERING / HAT / HELMET’		
BSC	Stem 1: (to be) a hat or head covering being worn as protection; to wear a hat or head covering	Stem 2: (to be) a hat or head covering worn for fashion; to wear a fashionable hat Stem 3: (to be) a hat or head covering worn as indicator of one’s status, job, organizational membership, etc.
CTE	(to be) a state of wearing a hat or head covering for protection/coverage	
CSV	(to be) a physical act of donning a hat or head covering as protection/coverage	
OBJ	(to be) a hat or head covering itself (i.e., not necessarily being worn)	
FORMAL stems of this root refer to the wearing of a ‘helmet’.		

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

LTL	‘jacket / coat’	PTR	‘tights / leggings’	VDL	‘scarf’
RTL	‘robe(s)’ [i.e., dress robes]	KTR	‘stocking / hose’	VDR	‘belt’
CTL	‘shirt / blouse’	ŽTR	‘shoe / mocassin’	VDŘ	‘tie / cravat’
TTL	‘dress’	NTL	‘sandal’	VZW	‘over-the-shoulder sash’
PTL	‘skirt / kilt’	ŽTL	‘boot’	VJW	‘waist sash / cummerbund’
XTR	‘pants / trousers’	ÇTL	‘slipper’	ŠTR	‘necklace / neck-chain’
CTR	‘tunic’	ZTR	‘glove’	ŠTL	‘brooch / pendant’
ZTL	‘sari / sari-like article of clothing’	NŁT	‘undergarment (for the groin area)’	ŠTW	‘earring’
ŇTR	‘vest’	NŁP	‘undergarment (for the torso)’	ŠTY	‘medallion’
ŇTL	‘overcoat / long coat’	NŁM	‘brassiere’	ŠTF	‘cuff links’
ŁTR	‘parka / heavy winter coat’	VDW	‘apron’	ŠTV	‘tie pin / tie clip’
TTR	‘sock’	VDY	‘collar’	ŠTR	‘button / stud’

5.2 Roots Relating To The Seasons

-VS - ‘SEASON’

BSC	Stem 1: (to be) a particular season (i.e., spring, summer, autumn, winter)	Stem 2: (to be) the natural condition or state of growth/dormancy of Nature’s flora, as associated with a particular season
CTE	(to be) the state of it being a certain season; be seasonal	
CSV	(to be) a phenomenon occurring during a particular season	
OBJ	(to be) a seasonal activity/event/state, i.e., something that happens during a particular season; be something seasonal	
		Stem 3: (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

-ZY - ‘SPRING (SEASON) / SPRING-RELATED NATURAL PHENOMENON’

BSC	Stem 1: (to be) Spring, springtime	Stem 2: (to be) the blooming/flowering/growing phenomenon of Nature’s flora occurring/due to it being springtime
CTE	(to be) the state of it being springtime	
CSV	(to be) a phenomenon/event/state/act occurring during (or because it is) springtime; to occur during (or because it is) springtime	
OBJ	(to be) an activity one does/performs during/because it is springtime	
		Stem 3: (to be) the Spring equinox

-MṚ- ‘SUMMER (SEASON) / SUMMER-RELATED NATURAL PHENOMENON’		
BSC	Stem 1: (to be) Summer, summertime	Stem 2: (to be) the peak state/condition of growth/vibrancy/life of Nature’s flora occurring/due to it being summertime Stem 3: (to be) the Summer solstice
CTE	(to be) the state of it being summertime	
CSV	(to be) a phenomenon/event/state/act occurring during (or because it is) summertime; to occur during (or because it is) summertime	
OBJ	(to be) an activity one does/performs during/because it is summertime	

-ŇŠ- ‘AUTUMN (SEASON) / AUTUMN-RELATED NATURAL PHENOMENON’		
BSC	Stem 1: (to be) Autumn, fall	Stem 2: (to be) the withering/dying phenomenon of Nature’s flora occurring/due to it being autumn Stem 3: (to be) the Autumn equinox
CTE	(to be) the state of it being autumn	
CSV	(to be) a phenomenon/event/state/act occurring during (or because it is) autumn; to occur during (or because it is) autumn	
OBJ	(to be) an activity one does/performs during/because it is autumn	

-ČČ- ‘WINTER (SEASON) / WINTER-RELATED NATURAL PHENOMENON’		
BSC	Stem 1: (to be) Winter, wintertime	Stem 2: (to be) the state/condition of dormancy/lifelessness of Nature’s flora occurring/due to it being wintertime Stem 3: (to be) the Winter equinox
CTE	(to be) the state of it being wintertime	
CSV	(to be) a phenomenon/event/state/act occurring during (or because it is) wintertime; to occur during (or because it is) wintertime	
OBJ	(to be) an activity one does/performs during/because it is wintertime	

-VSL- ‘SEASONALLY-DETERMINED SOLAR EXPOSURE OR TEMPERATURE’		
BSC	Stem 1: (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	Stem 2: (to be) the duration of daylight during a 24-hour period in a location due to the time (i.e., season) of the year Stem 3: (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
CTE	(to be) a state of it being a certain seasonally-determined temperature	
CSV	(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)	
OBJ	(to be) the ambient temperature (as expected for the season)	

5.3 Roots Relating To Living States/Processes

-NŦ- ‘BIRTH / BE BORN / GESTATION / CONCEPTION’		
BSC	Stem 1: (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)	Stem 2: (to be) a state of maternal gestation; to gestate, carry a developing fetus within one’s womb
CTE	(to be) a state/act of being born [from the child’s perspective]	
CSV	(to be) the physical act of giving birth [from the perspective of the mother]	Stem 3: (to be) an act of biological conception, to conceive a zygote
OBJ	(to be) the newborn infant	

abode, niche, nest, eyrie, den, warren hole etc

-ÇK- ‘ILLNESS / SICKNESS / DISEASE / MALADY / AILMENT’		
BSC	Stem 1: (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]	Stem 2: (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.
CTE	(to be) a disease/illness/ailment;	
CSV	(to be) the physical manifestation/symptoms of a disease/illness; to feel/experience the symptoms of a illness/disease	Stem 3: (to be) a [long-term/chronic] physical malady/disorder/disease/ailment [neoplastic, genetic, or unknown in origin rather than infectious]
OBJ	(to be) a living being infected/suffering from an infectious illness/disease; entity/party that is sick	

-MT- ‘ONE’S AGE / LIFE-STAGE OR PHASE’		
BSC	Stem 1: (to be) a state of aging; to age, get older	Stem 2: (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)
CTE	(to be) a state of being/having a certain age	
CSV	(to be) the state/process of aging, getting older; to do/feel/notice/observe something that manifests/demonstrates one is aging/getting older	Stem 3: (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)
OBJ	(to be) one’s age (i.e., the amount of elapsed time since an entity came into being)	

-DD- ‘SLEEP / UNCONSCIOUSNESS / COMA’		
BSC	Stem 1: (to be) a state of sleep, being asleep; (be) an act of putting to sleep; to sleep, be asleep	Stem 2: (to be) a state of unconsciousness, act of rendering an entity unconscious; to be/render unconscious Stem 3: (to be) a state of coma; act of putting someone into a coma; to be in a coma, to put into/induce a coma
CTE	(to be) the state of sleeping	
CSV	(to be) a state/act of falling asleep; to fall asleep, put to sleep	
OBJ	(to be) the quality/duration/description of one’s sleep; how one sleeps	

-LF- ‘WAKEFULNESS’		
BSC	Stem 1: (to be) a state of being awake, being fully conscious	Stem 2: (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] Stem 3: (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
CTE	(to be) the state of wakefulness	
CSV	(to be) a state/act of doing something that demonstrates one is awake	
OBJ	(to be) the level of awareness of oneself and one’s surroundings one has while awake	

-MR- ‘DEATH’		
BSC	Stem 1: (to be) a state/act of dying; to die/perish	Stem 2: (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.) Stem 3: (to be) a state of mortality; be mortal (i.e., certain that one will eventually die)
CTE	(to be) the state of being dead	
CSV	(to be) an act of dying; to undergo the act of passing from life to death	
OBJ	(to be) the cause/manner of one’s death	

-RY- ‘FREEDOM / SELF-DETERMINATION / INDEPENDENCE / AUTONOMY / NATURAL RIGHT’		
BSC	Stem 1: (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)	Stem 2: a state of self-determination; to determine/decide one’s own course of action Stem 3: (to be) a state/act of independence, of being unaffiliated with another party; be independent, act independently
CTE	(to be) a state of freedom, a state of being free; to be free as an existential state	
CSV	(to be) a psychical act taken to (attempt to) be free; to get free (from), to free	
OBJ	(to be) what one is (attempting to become) free from	

-ŠL- ‘HUMOR / WIT / JEST / PRANK / JOKE’		
BSC	Stem 1: (to be) something funny/humorous/comical; to be funny/humorous/comical	Stem 2: (to be) something witty (i.e., subtly and cleverly humorous which strikes an audience as charming); to be witty Stem 3: (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
CTE	(to be) the state of funniness/humor induced	
CSV	(to be) the actual manifestation (act(s), word(s), circumstance(s), situation(s), object(s), etc.) of whatever is funny	
OBJ	(to be) the audience who finds something to be funny/humorous/comical	
FML Stem 1: (to be) a joke; make a joke (i.e., a communicated story or message designed to evoke humor)		
FML Stem 2: (to be) a pun; make a pun		
FML Stem 3: (to be) a jest or prank; make a jest or pull a prank (i.e., an act or situation designed to evoke humor through embarrassment)		

-ŇP- ‘COMMON HUMAN BODILY POSITIONS’		
BSC	Stem 1: (to be) a state/act of standing upright/erect; to (be) stand(ing) upright, stand erect	Stem 2: (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 Stem 3: (to be) a state of lying prone, lying down; to lie prone, to be lying down
CTE	(to be) a state of being standing (upright/erect)	
CSV	(to be) a physical act of standing up; to stand up, to get up on one's feet	
OBJ	(to be) what one stands/is standing upon or within	

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

-ŃPW- ‘LESS COMMON HUMAN BODILY POSITIONS’		
BSC	Stem 1: (to be) a state/act of crouching (down), being in a crouch(ed) position; to be crouched (down), be in a crouched/crouching position	Stem 2: (to be) a state/act of (being in a) kneeling (position); to kneel, be in a kneeling position, be on one’s knees Stem 3: (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
CTE	(to be) a state of being in a crouched/crouching position	
CSV	(to be) a physical act of crouching down; to crouch down, to get down into a crouched/crouching position	
OBJ	(to be) what one crouches upon or within	

-TP- ‘MINDFULNESS / ALERTNESS / WARINESS / CAUTION’		
BSC	Stem 1: (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	Stem 2: (to be) a state/act of alertness; be alert (i.e., mindfulness/awareness of one’s surroundings as a precautionary measure against potential threats) Stem 3: (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)
CTE	(to be) the state of mindfulness/awareness itself	
CSV	(to be) a physical act of mindfulness; do something that manifests mindfulness	
OBJ	(to be) what one is mindful of	

-VP- ‘LAXITY / LENIENCY / NEGLIGENCE’		
BSC	Stem 1: (to be) a state/act of laxity, being lax about something; to be lax about something (i.e., not having a strong desire to or sense of responsibility about controlling or overseeing something/someone where it appropriate to have such a desire or sense of responsibility)	Stem 2: (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 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) Stem 3: (to be) a state/act of being remiss/negligent; to be remiss/negligent
CTE	(to be) a	
CSV	(to be) a physical act of laxity; to do something that manifests one’s laxity about something	
OBJ	(to be) what one is lax about	

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

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

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

-LÇ- ‘GUESS / SPECULATION / SUPPOSITION / ASSUMPTION’		
BSC	Stem 1: (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)	Stem 2: (to be) a state/act of supposition; to suppose (i.e., to consider as a possibility or possible interpretation) Stem 3: (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)
CTE	(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	
CSV	(to be) an act of speculating, guessing; to make a guess	
OBJ	(to be) what on is guessing/speculating about	
FML Stem 1: a state/act of postulating/making a conjecture; to postulate, make a conjecture FML Stem 2: a state/act of theorizing; to theorize, create a theorem FML Stem 3: a state/act of hypothesizing; to hypothesize		

-TX- ‘EXAGGERATION / EMBELLISHMENT / OVERSTATEMENT / HYPERBOLE / OVER-REACTION’		
BSC	Stem 1: (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)	Stem 2: (to be) a state/act of overstating or resorting to hyperbole; to overstate, resort to hyperbole (i.e., exaggeration with the intention to misrepresent) Stem 3: (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)
CTE	(to be) a state of exaggeration	
CSV	(to be) a physical act of exaggeration; to do/say something that constitutes/manifests exaggeration	
OBJ	(to be) what one exaggerates about	

-Rİ- ‘ANNOYANCE / IRRITATION / VEXATION / BOTHER / HARRASSMENT’		
BSC	Stem 1: (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)	Stem 2: (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) Stem 3: (to be) state/act of harassing/harrassment; to harass
CTE	(to be) a state of annoyance/irritation/vexation	
CSV	(to be) an act of annoying/irritating/vexing; to do something that annoys, irritates (emotionally), vexes	
OBJ	(to be) the party/entity/object/situation which causes annoyance	

5.4 Roots Relating To Character Traits & Socio-Psychological States

-TP- ‘FACULTY / ATTRIBUTE / QUALITY / TRAIT / PROPERTY / CHARACTERISTIC’		
BSC	Stem 1: (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	Stem 2: (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.) Stem 3: (to be) a state/act of having a particular superficial characteristic (out of multiple possibilities, e.g., blue-eyed, having freckles, being fat, having stripes, etc.)
CTE	(to be) a faculty as an existential state	
CSV	(to be) a physical act that demonstrates/manifests a particular faculty	
OBJ	(to be) the particular faculty/ability itself	

-NS- ‘REPUTE / REPUTATION / PUBLIC IMAGE / PRESTIGE’		
BSC	Stem 1: (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	Stem 2: (to be) one’s public image, how one presents oneself for judgement by one’s community in terms of reputation/opinion Stem 3: (to be) one’s sense of prestige (i.e., the extent to which one’s accomplishments/status/celebrity makes a positive impression on others)
CTE	(to be) what one’s reputation actually is (i.e., what is said/believed by the community about something/someone)	
CSV	(to be) a state/act of establishing/maintaining one’s reputation	
OBJ	(to be) the party/entity having a particular reputation	

-RZ- ‘AUTHORITY / OBEDIENCE’		
BSC	Stem 1: (to be) a state/act of enforceable authority and obedience thereto	Stem 2: (to be) a state/act of mastery/guardianship/parental authority and obedience/subservience/submission thereto Stem 3: (to be) a state/act of enforceable governmental authority (e.g., police, court ruling, codified law/ordinance) and obedience/adherence thereto
CTE	(to be) a state/act of obedience to authority	
CSV	(to be) a state/act of enforceable authority; to wield authority	
OBJ	(to be) a particular rule/edict/moral/law, etc. which is to be obeyed	
FML Stem 1: (to be) a state/act of contractual occupational authority (i.e., employer/supervisor/boss) and employee compliance thereto		
FML Stem 2: (to be) a state/act of slavery and subjugation thereto as a slave		
FML Stem 3: (to be) a state/act of military authority and obedience to/following of orders		

-MŽ- ‘SEXUAL/ROMANTIC RELATIONSHIP / SEXUAL RELATIONS’		
BSC	Stem 1: (to be) a sexual/romantic relationship between two or more parties; to have a sexual/romantic relationship with another party or parties	Stem 2: (to be) an act of sexual relations; to have sex, engage in sex(ual activity) Stem 3: (to be) an act of pursuing a sexual/romantic relationship; to pursue a sexual/romantic relationship; to date / to court
CTE	(to be) the psychological/emotional state of being in a sexual/romantic relationship	
CSV	(to be) a physical act/manifestation of a sexual/romantic relationship	
OBJ	(to be) one’s sexual/romantic partner/ “lover”, boyfriend/girlfriend, significant other	

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

-NZ- ‘GOODWILL / FRIENDLINESS / BEING NICE’		
BSC	Stem 1: (to be) an instance of being nice to another party; to be nice [i.e., emotional/spiritual/physical support of another’s interests]	Stem 2: (to be) a feeling and display of goodwill, benevolent intent, kindness Stem 3: (to be) a feeling and display of amicability / friendliness
CTE	(to be) the feeling/experience of being nice to another	
CSV	(to be) the specific act(s)/word(s) which constitute an act/instance of being nice	
OBJ	(to be) the party to whom one is nice	
FML Stem 1: (to be) an instance of good samaritanship, go out of one’s way to help another party		
FML Stem 2: (to be) a state of peace / fellowship; to be/live in peace/fellowship		
FML Stem 3: (to be) a state of friendship (unidirectional); to be someone’s friend		

-TT- ‘SALUTATION / GREETING / INTRODUCTION / FAREWELL’		
BSC	Stem 1: a state/act of greeting, salutation; to greet, extend salutations toward, say hello to	Stem 2: (to be) an act of hailing, getting attention of someone/something; to hail / get attention of Stem 3: (to be) an act of leavetaking; to take one’s leave, say goodbye
CTE	(to be) a state of salutation	
CSV	(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	
OBJ	(to be) the party/entity who is greeted	
FML Stem 1: (to be) a formal welcome; to bid one welcome		
FML Stem 2: (to be) a social introduction; to socially introduce, present a party to another party		
FML Stem 3: (to be) a formal farewell; to bid farewell, to bid adieu		

-LL- ‘VISIT’		
BSC	Stem 1: 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]	Stem 2: (to be) a state/act of visiting a place, sight-seeing; to visit [a place to see what’s there], to sight-see Stem 3: (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.]
CTE	(to be) a state of social visitation; to be visiting	
CSV	(to be) an act of social visiting, the physical act of traveling to see a particular person for the purpose of being with them	
OBJ	(to be) the party/entity visited	

-B- ‘BELIEF / DOCTRINE / DOGMA’		
BSC	Stem 1: (to be) a state of believing in something; to believe something	Stem 2: (to be) an article of faith / an item of doctrine or; to believe something as an article of faith/doctrine Stem 3: (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)
CTE	(to be) a state of belief	
CSV	(to be) an act or physical manifestation of one’s belief	
OBJ	(to be) what one believes	

-TB- ‘AUDACITY / “NERVE” ’ / CONFRONTATION / DEFIANCE		
BSC	Stem 1: (to be) a state/act of audacity; be audacious (i.e., have the “nerve” or pluck or “balls” to do something]	Stem 2: (to be) a state of facing/confronting an adverse entity/situation; to face/confront an adverse entity/situation Stem 3: (to be) a state/act of defiance; to be defiant, to defy
CTE	(to be) a psychological state of being/feeling audacious	
CSV	(to be) a physical act of audacious behavior; to do something audacious	
OBJ	(to be) what one is audacious about or towards	

-ČČ- ‘NAIVETE / FOOLISHNESS / IGNORANCE’		
BSC	Stem 1: (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)	Stem 2: (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) Stem 3: (to be) a state of ignorance, “blindness” or unawareness; be unaware or ignorant of something
CTE	(to be) a state of naiveté or foolishness	
CSV	(to be) a physical act/manifestation of naiveté or foolishness; to do/say something that is naive or foolish	
OBJ	(to be) the situation or circumstances one is (being) foolish/naive about	

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

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

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

-BX- 'GENEROSITY / ALTRUISM / SELF-SACRIFICE / SELF-ABNEGATION'		
BSC	Stem 1: (to be) an act/state of generosity; to be generous, act generously	Stem 2: (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)
CTE	(to be) a state of generosity as a character trait	
CSV	(to be) a physical act of being generous; to do something generous	Stem 3: (to be) an act of self-abasement, self-abnegation, self-denial
OBJ	(to be) the party/entity toward which/whom one is generous	

-LS- 'AMIABILITY / VIVACIOUSNESS / BOISTEROUSNESS'		
BSC	Stem 1: (to be) a state/act of being friendly/amiable, having a sunny/amiable/warm disposition	Stem 2: (to be) a state of being vivacious; having joie-de-vivre; be vivacious, display joie-de-vivre
CTE	(to be) a state of friendliness/amiability/suniness as a character trait	
CSV	(to be) a physical act/manifestation of friendliness/amiability/suniness	Stem 3: (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
OBJ	(to be) the party/entity toward which/whom one is (being) friendly/amiable/warm/sunny	

-MX- 'APOSTASY / HERESY / HETERODOXY / ICONOCLASM'		
BSC	Stem 1: (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.)	Stem 2: (to be) a state/act of being heretical; practice heresy/heterodoxy; to hold heretical beliefs
CTE	(to be) a state of apostasy	
CSV	(to be) a physical act of apostasy; to say/do something that conveys/manifests one's apostasy	Stem 3: (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)
OBJ	(to be) the tenet(s)/beliefs/doctrine the apostate no longer believes in	

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

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

-RW- ‘PSYCHE / MIND’		
BSC	Stem 1: one’s psyche (i.e., the amalgamation of both the conscious and unconscious mind)	Stem 2: (to be) one’s conscious mind (i.e., the amalgamation of consciousness, perception, thinking, judgment, imagination, language, and memory) Stem 3: one’s unconscious mind (i.e., the seat of subliminal perceptions, automatic skills, repressed feelings and values, instinct, etc.)
CTE	(to be) the state of having a psyche; to have a psyche	
CSV	(to be) a state/act of one’s psyche in operation; to experience or engage in conscious or unconscious mental activity	
OBJ	(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’		
BSC	Stem 1: (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	Stem 2: (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.) Stem 3: (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)
CTE	(to be) the state of sentience itself as an ontological phenomenon	
CSV	(to be) an act/state of awareness of self and/or external/internal reality by which one manifests sentience; to manifest sentience	
OBJ	(to be) a thought/feeling/instinctive reaction by which one determines one’s sentience	

-DK- ‘MENTAL IMAGE / IMAGINATION / CREATIVITY’		
BSC	Stem 1: (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]	Stem 2: (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) Stem 3: (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)
CTE	(to be) the state of being (only) a mental image	
CSV	(to be) an act/process of forming/holding a mental image	
OBJ	(to be) the mental image itself that one holds/forms in one’s mind	

-Ń- ‘EXISTENCE / REALITY / SOLIPSISM’		
BSC	Stem 1: (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.	Stem 2: (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.
CTE	(to be) a state of ontological existence; to exist in reality regardless of anyone’s beliefs, opinions, etc.	
CSV	(to be) the physical manifestation of one’s ontological existence *	Stem 3: (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)
OBJ	(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’.

-LČ- ‘PSYCHO-SOCIAL IDENTITY’		Affix: SID
BSC	STEM 1: (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]	STEM 2: (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 STEM 3: (to be/manifest) a process of transition / change to a particular psychological identity; to change/transition to a different psychological identity
CTE	(to be) a state of having a psycho-social identity	
CSV	(to be) an act/process/state of psycho-social identification; to (self-)identify as a particular type of person	
OBJ	(to be) the particular psycho-social identity one has/seeks	

-NŠ- ‘WELL-MANNERED BEHAVIOR / DECORUM / CIVILITY / DIGNITY / POLITENESS / COURTESY’		
BSC	Stem 1: (to be) a state/act of being well-behaved; display good behavior, be well-behaved	Stem 2: (to be) a state/act of being well-mannered; display good manners Stem 3: (to be) a state of manifesting decorum/civility; have/display a sense of decorum, politeness and civility
CTE	(to be) the psychological state which allows/causes one to behave well	
CSV	(to be) a physical act/manifestation of good behavior	
OBJ	(to be) the party/entity thought of as / observed to be behaving well	
FML Stem 1: (to be) a state/act of having/displaying dignity; have dignity, be dignified		
FML Stem 2: (to be) a state/act of being polite/courteous; show politeness/courtesy, be polite/courteous		
FML Stem 3: (to be) a state of being well-bred, noble, distinguished, cultivated; have/display a noble, distinguished or cultivated air		

-PG- ‘FOOLING / PSYCHO-LINGUISTIC MANIPULATION / HYPNOSIS’		
BSC	Stem 1: (to be) an instance/act of fooling another party (i.e., into believing/doing something);	Stem 2: (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 Stem 3: (to be) an act/state of hypnosis; to hypnotize
CTE	(to be) a state of having been fooled	
CSV	(to be) the psychological/linguistic or other means employed by which someone is fooled; to take actions or employ means to fool a party	
OBJ	(to be) the entity/party fooled	

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

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

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

-ČP- ‘STUPIDITY / “SHALLOWNESS” ’		
BSC	Stem 1: (to be) a state of being stupid/“dumb”/simple-minded; to be stupid/dumb, act stupidly/simple-mindedly	Stem 2: (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 Stem 3: (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)
CTE	(to be) a state of stupidity/simple-mindedness	
CSV	(to be) an act of stupidity; do something stupid	
OBJ	(to be) what one is (being) stupid about	

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

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

-TR- ‘RESPECT / ESTEEM / HONOR’		
BSC	Stem 1: (to be) a state of feeling respect/esteem for someone/something	Stem 2: (to be) a state/act of respectability; be respectable/estimable (i.e., having a degree of potential for being respected/esteemed)
CTE	(to be) a state of respect/esteem	
CSV	(to be) an act of respect/esteem; do/say something that conveys/manifests one’s respect for something/someone	Stem 3: (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)
OBJ	(to be) the party/entity respected/esteemed	

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

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

-ŘŠ- ‘DIFFIDENCE / SHYNESS / BASHFULNESS / TIMIDITY / TIMOROUSNESS / PUSILLANIMITY / COWARDICE’		
BSC	STEM 1: (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)	STEM 2: (be) an act/instance of timidity/timorousness, i.e., being/feeling easily frightened by everyday occurrences and interactions
CTE	(be) a diffident/shy/bashful person, have a modest character/personality	
CSV	(be) an appearance of diffidence/shyness/bashfulness, i.e., to behave/act as (if) one who is	STEM 3: (be) an act/instance of pusillanimity/cowardice/faint-heartedness
OBJ	(be) a person whom others generally perceive as being diffident/shy/bashful	

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

-FL- ‘POMPOSITIVITY / PRETENSION / OSTENTATIOUSNESS / BRAGGADOCCIO / BOASTING’		
BSC	Stem 1: (to be) a state/act of pomposity/ostentation/pretentiousness; be/act pompous(ly)/ostentatious(ly)/pretentious(ly)	Stem 2: (to be) an act of bragging/boasting; to brag/boast about something Stem 3: (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)
CTE	(to be) a state of ostentatiousness/pomposity/pretentiousness	
CSV	(to be) an act of ostentatiousness/pomposity/pretentiousness; do/say something ostentatious/pretentious/pompous	
OBJ	(to be) what one is being pompous/pretentious/ostentatious about	
FML Stem 1: a state of vaingloriousness; be/act vainglorious(ly)		
FML Stem 2: a state megalomania; be/act megalomaniacal(ly)		
FML Stem 3: a state self-aggrandizement; to self-aggrandize		

-ZČ- ‘SELF-CONERN / SELFISHNESS / SELF-CENTEREDNESS’		
BSC	Stem 1: (to be) a state/act of being self-centered and inconsiderate of the state of others	Stem 2: (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) Stem 3: (to be) a state/act of being self-indulgent and whim-worshipping at the expense of others
CTE	(to be) a state of self-centeredness as a psychological character trait	
CSV	(to be) a physical act of self-centered behavior; to behave in a self-centered manner or do something self-centered(ly)	
OBJ	(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	

-TG- ‘SELF-INTEREST / INDIVIDUALITY / INTEGRITY’		
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.		
BSC	Stem 1: (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’]	Stem 2: (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) Stem 3: (to be) a state of having personal integrity, i.e., adherence to one’s own values in the face of real-life circumstances
CTE	(to be) a psychological state of awareness of one’s own self-interest	
CSV	(to be) an act of egoism/self-interest [NOT ‘egotism’]	
OBJ	(to be) one’s (sense of) self-interest	

-ZM- ‘HEEDLESSNESS / IMPETUOSITY / IMPRUDENCE / INDISCRETION / TEMERITY / FOOLHARDINESS / RASHNESS’		
BSC	Stem 1: (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]	Stem 2: (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) Stem 3: (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)
CTE	(to be) a psychological state of being heedless/impetuous	
CSV	(to be) a physical act that is heedless/impetuous	
OBJ	(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	

-ŠX- ‘ARROGANCE / HAUGHTINESS / INSOLENT / IMPUDENT’		
BSC	Stem 1: (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]	Stem 2: (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] Stem 3: (to be) a state/act of insolence/impudence; be insolent/impudent, display insolence/impudence (i.e., [i.e., behavior that is disrespectful toward and/or heedless of the authority of another])
CTE	(to be) a psychological state/trait of arrogance	
CSV	(to be) a physical act of arrogant behavior; to do something considered arrogant	
OBJ	(to be) the party toward whom one is arrogant	

-ŃZ- ‘EMOTIONALISM / WHIM-WORSHIPPING / MYSTICISM’		
BSC	Stem 1: (to be) a state of being emotion-driven and controlled by melodrama in one’s daily life decisions, as opposed to relying on reason	Stem 2: (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 Stem 3: (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
CTE	(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)	
CSV	(to be) an act of emotion-driven decision-making	
OBJ	(to be) a decision made based on emotions as opposed to reason	

-ŘY- ‘DEGREE OF CAPACITY FOR EMOTION’		
BSC	Stem 1: (to be) a degree of emotional/intellectual engagement or interest vs. degree of boredom	Stem 2: (to be) a degree of emotional engagement/involvement or devotion vs. emotional detachment or noncommittedness Stem 3: (to be) a degree of capacity for or depth of emotional engagement/involvement or interest vs. emotional shallowness or lack of emotional development
CTE	(to be) the actual emotional/intellectual feeling of experiencing a particular degree of emotional/intellectual engagement or interest	
CSV	(to be) they physical manifestation (or lack thereof) of a particular degree of emotional/intellectual engagement or interest	
OBJ	(to be) what one feels a particular degree of emotional/intellectual engagement or interest (or not)	
FML Stem 1: (to be) a degree of emotional/intellectual fulfillment vs. emotional emptiness/hollowness		
FML Stem 2: (to be) a degree of emotional/intellectual stability vs. instability		
FML Stem 3: (to be) a degree of emotional openness or “being in touch” with one’s emotion vs. degree of emotional repression		

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

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

-KJ- ‘“TOUGHNESS” / RESILIENCY’		
BSC	Stem 1: (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)	Stem 2: (to be) a state of personal resiliency; to be personally resilient (i.e., able to quickly recover from an adverse situation) Stem 3: (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)
CTE	(to be) the psychological state of being tough	
CSV	(to be) the physical manifestation of one’s toughness	
OBJ	(to be) that which one is tough against	

-ŽŽ- ‘NOSINESS’		
BSC	Stem 1: (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]	Stem 2: (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) Stem 3: (to be) an act of interfering or “butting in” where/when one is not wanted or where/when inappropriate
CTE	(to be) a state of nosiness as a character trait	
CSV	(to be) a physical act of being nosy (i.e., what actions and/or words one employs that constitute an act of nosiness)	
OBJ	(to be) that which one discovers or attempts to discover while being nosy	

-JF- ‘VACILLATION / WISHY-WASHINESS / INDECISIVENESS / FLAKINESS / UNRELIABILITY / FICKLENESS’		
BSC	Stem 1: (to be) a state/act of vacillation/wishy-washiness/indecisiveness; to vacillate, be/act indecisively	Stem 2: (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 Stem 3: (to be) a state/act of flakiness/unreliability; be flaky/unreliable, act in a flaky/unreliable manner
CTE	(to be) a state of wishy-washiness/indecisiveness as a character trait	
CSV	(to be) a physical act/instance of vacillating or being wishy-washy/indecisive; to do/say something that demonstrates/mqanifests vacillation/wishy-washiness/indecisiveness	
OBJ	(to be) that which one is vacillating over or indecisive/wishy-washy about	

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

-ŽM- ‘OUTLOOK-ON-LIFE / SENSE-OF-LIFE / PERSONAL VALUE / CHARACTER’		
BSC	Stem 1: (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]	Stem 2: (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] Stem 3: (to be) one’s character [i.e., the combination of one’s temperament, values, sense-of-life, and life-stance]
CTE	(to be) an underlying (moral/ethical/pragmatic/religious, etc.) principle by which one forms one’s sense-of-life	
CSV	(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]	
OBJ	(to be) that which reflects or demonstrates one’s sense-of-life or life-stance.	

-ŠT- ‘RECOGNITION/CONSIDERATION OF ANOTHER’S PERSPECTIVE / COMPROMISE’		
BSC	Stem 1: (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	Stem 2: (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 Stem 3: (to be) an instance of recognizing the value of, or necessity for, compromise [i.e., recognize the potential for a “lose-lose” situation otherwise]
CTE	(to be) one’s consideration of another party’s perspective; to consider another party’s perspective or point of view	
CSV	(to be) an instance of (attempting to) understand(ing) another party’s perspective or point of view [use CPT version to indicate success]	
OBJ	(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*’.

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

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

-DM- 'BLUFF / TRICK / DELUDE / DISGUISE / DECEIVE / CHEAT / COUNTERFEIT'		
BSC	Stem 1: (to be) a state/act of bluffing, misleading, feinting; to bluff, mislead, feint	Stem 2: (to be) a state/act of trickery; to trick, to delude Stem 3: (to be) a state/act of disguising something or oneself; to disguise
CTE	(to be) a state of being bluffed or misled	
CSV	(to be) an act of bluffing, misleading; to do something that constitutes a bluff or feint	
OBJ	(to be) a the entity/party being bluffed or misled	
FML Stem 1: a state/act of deception or duplicity; to deceive		
FML Stem 2: a state/act of fraud, deceit, chicanery, cheating, swindling; to defraud, cheat, swindle		
FML Stem 3: a state/act of counterfeiting or forgery; to forge, to counterfeit		

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

-DN- 'LYING / DUPLICITY / DISHONESTY / PERJURY'		
BSC	Stem 1: (be) an act/instance of lying; tell a lie; state a falsehood	Stem 2: (be) state/act of dishonesty/disingenuousness Stem 3: (be) perjury
CTE	(be) the state of being lied to; the state of there being a lie having been told	
CSV	(be) the actual speaking/writing/communicating of words which constitutes a lie	
OBJ	(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.

-ČL- ‘BETRAYAL / TREACHERY / PERFIDY / INFIDELITY’		
BSC	Stem 1: (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;	Stem 2: (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
CTE	(be) the state of having been betrayed	
CSV	(be) the act/words/deed which constitutes a betrayal of one’s promise/oath/trust	Stem 3: (be) an act/instance of infidelity
OBJ	(be) the promise/oath or terms/understanding/bond which is betrayed/broken	
Formal Stem 1: (be) an act of treachery, perfidy Formal Stem 2: (be) a deliberate breach of contract Formal Stem 3: (be) an act of treason		

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

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

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

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

-ÇÇT- ‘CONTEMPLATION OF MORTALITY’		
BSC	Stem 1: (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	Stem 2: (be) an instance of contemplating whether one’s life has any ultimate or lasting meaning or purpose Stem 3: (be) an instance of contemplating whether there is an afterlife
CTE	(be) the state of contemplation about one’s mortality	
CSV	(be) a specific thought associated with contemplating one’s mortality	
OBJ	(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.

-SL- ‘FAUX PAS’		
BSC	Stem 1: (be) an instance of committing a social faux pas	Stem 2: (be) an instance of being aware that one has committed a social faux pas Stem 3: (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
CTE	(be) the state one finds oneself in socially (i.e., as perceived/judged by others) once one commits a social faux pas	
CSV	(be) the actual act/word(s) constituting a social faux pas	
OBJ	(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.

-ŽŹ- ‘TEASE / RIDICULE / DERISION / MOCKERY / PARODY / SATIRE’		
BSC	Stem 1: (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)	Stem 2: (be) an act/instance of ridicule, making fun of; to ridicule, make fun of Stem 3: (be) a state/act of parody or caricature; to parody, to make a caricature of
CTE	(be) the state of being teased	
CSV	(be) the actual act/word(s) constituting an act of teasing; to do/say something that teases another	
OBJ	(be) what one is teased about	
FML Stem 1: a state/act of snickering/sniggering/scoffing at; to snigger/snicker/scoff at		
FML Stem 2: a state/act derision/mockery; to deride, be derisive of, to mock		
FML Stem 3: a state/act of satire/lamprooning; to satirize, lampoon		

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

-ṬṢ- ‘INTROSPECTIVE CONTEMPLATION / ETHICAL WELL-BEING AND GROWTH		
BSC	Stem 1: (be) a state of deep personal introspection, contemplation, deliberation or meditation resulting in important personal decisions/conclusions being made	Stem 2: (be) a state/act of ethical maturation/growth (i.e., becoming more ethically enlightened based on the acquiring of wisdom and empathy) Stem 3: (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
CTE	(be) meditative, contemplative state of deep introspection	
CSV	(be) a state/act of contemplation/introspection/deep personal reflection; to undergo such a state/act	
OBJ	(be) what one contemplates, introspects upon, or deliberates	

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

-ṚJ- ‘PRIVACY VIOLATION / STALKING / SEXUAL HARRASSMENT’		
BSC	Stem 1: (be) a state/act of violating the privacy of another	Stem 2: (be) a state/act of stalking; to stalk Stem 3: (be) a state/act of sexual harrassment/molestation; to sexually harrass/molest
CTE	(be) a state of having one’s privacy violated	
CSV	(be) a physical act of violating someone’s privacy; to do something that constitutes a violation of another’s privacy	
OBJ	(be) the party whose privacy is violated	

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

-JD- ‘PREDICAMENT / QUANDARY / CRISIS / DILEMMA’		
BSC	Stem 1: (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)	Stem 2: (be) a state/act of having/facing/being in a crisis Stem 3: (be) a state/act of having/facing/being in a dilemma
CTE	(be) a state of being unable to know what to do or how to escape a predicament	
CSV	(be) a state/act of doing something that creates/causes a predicament; to do something to cause/create a predicament	
OBJ	(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.

-ŽČ- ‘WITNESSING’

BSC	Stem 1: (be) a state/act of being a witness to something; to witness something (visually and/or aurally)	Stem 2: (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
CTE	(be) a state of having witnessed something	
CSV	(be) a state/act of doing something that causes one to witness something	Stem 3: (be) a state/act of witnessing something inappropriate or taboo; to witness something one shouldn't or isn't supposed to witness
OBJ	(be) what one witnesses or has witnessed	

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

-LPW- ‘CONTEMPLATION OF THE WORLD'S COMPLEXITY OR ABSURDITY’

BSC	Stem 1: (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	Stem 2: (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
CTE	(be) the state of unimaginable complexity itself that constitutes the nature of the world and its inhabitants	
CSV	(be) a state/act of contemplating such; to contemplate such	Stem 3: (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.)
OBJ	(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’

BSC	Stem 1: (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)	Stem 2: (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
CTE	(be) a state of hindsight	
CSV	(be) a state/act of contemplating something in hindsight; to contemplate/ponder/consider something in hindsight	Stem 3: (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
OBJ	(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 **-ÇŘ-** 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.

BSC **STEM 1:** (to be) the outlook-on-life as described above, including the mental/emotional experience thereof as well as its associated beliefs/thoughts/tenets

CTE (to be) the mental/emotional experience associated with the “life-stance” described above

CSV (to be) a belief/tenet associated with the outlook-on-life described above

OBJ (to be) a tangible praxis/behavior/activity/act associated with the outlook-on-life as described above

STEM 2: (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.

STEM 3: (to be) the outlook-on-life described above as an aesthetic principle or basis for artistic self-expression

5.5 Roots Associated with Food/Eating

-TX- ‘EAT / DRINK / NUTRITIONAL CONSUMPTION’		
BSC	STEM 1: (to be) food and drink; to eat and drink	STEM 2: (to be) food, i.e., (semi-/quasi-)solid consumable/digestible material; to eat (semi-/quasi-)solid food STEM 3: (to be) a drink, i.e., a consumable/digestible liquid; to drink
CTE	(to be) the biological process of consuming food and drink; eat/drink as a biological process	
CSV	(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).	
OBJ	(to be) the food and drink one consumes; the actual food/drink items one consumes	
FML Stem 1: eat a serving of food/drink; to dine FML Stem 2: prepared/cooked food; to eat prepared/cooked food FML Stem 3: processed drink/spirits; to drink a processed drink/spirits		

-LKS- ‘FOODSTUFF OR BEVERAGE’ Associated affix: DFB			
	Stem 1	Stem 2	Stem 3
BSC	(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
CTE	(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
CSV	(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
OBJ	(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’
- LKTRĚ**- ‘DISH/RECIPE MADE FROM/WITH PLANT LEAVES/SHOOTS’

-**ṬMW**- ‘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*)

- ṬDR**- ‘BEER’
- ṬGL**- ‘FERMENTED ALCOHOLIC BEVERAGE’ (other than fruit-based wine or beer, e.g., mead, vegetable-based liquor, nut-based liqueurs, etc.)
- ṬGR**- ‘FERMENTED FOODSTUFF’

- ČKW**- ‘CEREAL GRAIN’
- ČKY**- ‘BAKED GOOD’
- ČPW**- ‘BREAD’
- ČPY**- ‘FLATBREAD’
- ČKL**- ‘CAKE’
- ČKR**- ‘PASTRY’
- ČPL**- ‘PIE’

- ḐNY**- ‘MILK FROM MAMMAL’
- ḐNW**- ‘(LAIN) EGG FROM ANIMAL’
- ḐMW**- ‘ICE CREAM / SHERBET/GELATO’
- ḐMY**- ‘SORBET’

- BVL**- ‘BROTH-BASED SOUP’
- BVR**- ‘PUREE-BASED SOUP’
- BVW**- ‘STEW’
- BVY**- ‘GRUEL/PORRIDGE’

- ḐTY**- ‘FRUIT PUNCH’
- ḐTW**- ‘PROCESSED COMMERCIAL CARBONATED BEVERAGE / SODA’

5.5.1 Some Common Food Plants

The roots listed beginning on the next page are excerpted from the forthcoming listings of lexical roots for plants. 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 new DFB affix, both shown here for convenience.

-kc	EPP Edible or Autonomous Plant Parts/Components
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

-lks	DFB Derived Foodstuff/Beverage
1	non-sweet (dry) fermented alcoholic beverage made from X
2	sweet alcoholic beverage made from X
3	non-alcoholic beverage made from
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

To indicate food preparation methods use the TRF affix or one of the two new 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_{3/4} affix with one of the CK1 or CK2 affixes above.

Rosids

- NĽ**- ‘CITRUS HYBRID’ I 1. sweet orange 2. bitter orange 3. key lime
- NĽN**- ‘CITRUS HYBRID’ II 1. lemon 2. Meyer lemon 3. grapefruit
- NĽNY**- ‘CITRUS HYBRID’ III 1. clementine 2. tangelo 3. other citrus hybrid
- NĽŇ**- ‘CITRUS FRUIT’ I 1. lime 2. mandarin orange 3. citron
- NĽŇW**- ‘CITRUS FRUIT’ II 1. kumquat 2. pomelo/shaddock 3. other citrus fruit
- NĽK**- ‘ANACARDIACEAE’ 1. (genus *Pistacia*) pistachio plant 2. (genus *Anacardium*) cashew tree 3. (genus *Mangifera*) mango tree
- NŽ**- ‘MALINE FRUIT PLANT/TREE’ I 1. (*Malus domestica*) apple 2. (genus *Malus* except *M. domestica*) crabapple 3. (genus *Pyrus*) pear
- NŽW**- ‘MALINE FRUIT PLANT/TREE’ II 1. (genus *Cydonia*) quince 2. (genus *Pseudocydonia*) Chinese quince 3. (genus *Chaenomeles*) Japanese quince
- NŽT**- ‘PRUNUS TREE/SHRUB’ I (subgenus *P. Amygdalus*) 1. almond tree 2. peach tree 3. peach tree bearing nectarine fruit / “nectarine tree”
- NŽTW**- ‘PRUNUS TREE/SHRUB’ II (subgenus *P. Prunus*) 1. plum tree 2. apricot tree 3. plum-apricot hybrid (pluot, plumcot, apriplum)
- NŽTY**- ‘PRUNUS TREE/SHRUB’ III 1. (subgenus *P. Cerasus*) cherry tree 2. (subgenus *P. Lethocerasus*) sand cherry shrub 3. (subgenera *P. Padus* and *P. Laurocerasus*) bird cherry, cherry-laurel
- ŘŽ**- ‘STRAWBERRY (genus *Fragaria*)’ 1. (wild) strawberry plant 2. strawberry cultivar 3. strawberry hybrid
- ŘT**- ‘RUBUS PLANT’ I 1. raspberry plant 2. blackberry plant 3. dewberry plant
- ŘTW**- ‘RUBUS PLANT’ II 1. cloudberry 2. salmonberry 3. thimbleberry plant
- ŘTY**- ‘RUBUS PLANT HYBRID’ I 1. loganberry plant 2. boysenberry plant 3. tayberry plant
- ŘTL**- ‘RUBUS PLANT HYBRID’ II 1. marionberry plant 2. youngberry plant 3. olallieberry plant
- 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
- BD**- ‘CUCUMIS’ I – MUSKMELON & ASSOCIATED CULTIVARS 1. European cantaloupe plant 2. North American cantaloupe plant 3. muskmelon plant
- BDW**- ‘CUCUMIS’ II – MUSKMELON & ASSOCIATED CULTIVARS 1. honeydew melon plant 2. Crenshaw melon plant 3. casaba melon plant
- BDY**- ‘CUCUMIS’ III 1. cucumber vine 2. cackrey / West Indian gherkin vine 3. aardvark cucumber / aardvark pumpkin
- BDN**- ‘BENINCASEAE’ 1. (genus *Citrullus*) watermelon 2. (genus *Benincasa*) winter melon / wax gourd / ash gourd 3. (genus *Praecitrullus*) tinda / Indian squash / round melon
- 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

-**NDK** - 'MYRTACEAE (MYRTLE FAMILY)' II 1. (genus *Psidium*) guava tree 2. (genus *Acca*) acca / feijoa 3. (genus *Syzygium*) clove tree

-**ŇŇP**- 'LYTHRACEAE' 1. (genus *Punica*) pomegranate tree 2. (genus *Trapa*) water caltrop 3. (genus *Lawsonia*) henna plant

-**MMV**- 'CARICACEAE' 1. (genus *Carica*) papaya tree 2. (genus *Vasconcellea*) babaco tree 3. (*V. pubescens*) mountain papaya

-**JP**- 'PHASEOLUS VULGARIS (COMMON BEAN)' I 1. kidney/red bean plant 2. white/navy bean plant 3. cannellini bean plant

-**JPW**- 'PHASEOLUS VULGARIS (COMMON BEAN)' II 1. pinto bean plant 2. black turtle bean plant 3. flageolet bean plant

-**JPY**- 'OTHER PHASEOLUS SPECIES' 1. (*P. coccineus*) runner bean plant 2. (*P. acutifolius*) tepary bean plant 3. (*P. dumosus*) year bean plant

-**JPL**- 'OTHER PHASEOLUS SPECIES' 1. (*P. lunatus*) lima/butter bean plant 2. (*P. maculatus*) spotted bean plant 3. (*P. filiformis*) slimjim bean plant

-**RJP**- 'PISUM SATIVUM (PEA)' 1. (*P. sativum*) pea plant 2. (*P. s. macrocarpon*) snap pea plant 3. (*P. s. saccharatum*) snow pea plant

-**RJK**- 'VIGNA SPECIES' 1. (*V. unguiculata*) cowpea, black-eyed pea 2. (*V. angularis*) adzuki bean 3. (*V. radiata*) mung bean

-**JK**- 'FABACEAE' I 1. (genus *Vicia*) fava bean plant 2. (genus *Glycine*) soybean plant 3. (genus *Lens*) lentil

-**JKY**- 'FABACEAE' II 1. (genus *Arachis*) peanut plant 2. (genus *Cicer*) chickpea/garbanzo bean plant 3. (genus *Medicago*) alfalfa plant

-**ŇCBW**- 'CORYLUS (HAZELNUT/FILBERT NUT)' 1. (*C. avellana*) European hazel tree 2. (*C. maxima*) Filbert tree 3. (*C. dikana*) deeknut tree

Asterids

-**ŇD**- 'VACCINIUM SHRUB' 1. (subgenus *V. Cyanococcus*) blueberry 2. (subgenus *V. Oxycoccus*) cranberry 3. (subgenus *V. Myrtillus*) huckleberry, bilberry, whortleberry, grouseberry

-**ŇDW**- 'ACTINIDIA (KIWI) VINE' 1. (*A. deliciosa*) kiwi vine / Chinese gooseberry 2. (*A. arguta*, *A. kolomikta*, *A. polygama*) kiwi berry / grape kiwi / dessert kiwi / cocktail kiwi vine 3. (*A. chinensis*) golden kiwi vine

-**ŇDY**- 'DIOSPYROS (PERSIMMON)' 1. (*D. kaki*) Japanese persimmon tree 2. (*D. lotus*) date-plum tree 3. (*D. virginiana*) American persimmon

Asteraceae

-**THR**- 'CICHORUM' 1. (*C. endivia*) endive plant, escarole 2. (*C. pumilum*) wild endive 3. (*C. intybus*) common chicory, leaf chicory, radicchio, Belgian endive

-**TH**- 'LACTUCA SATIVA (LETTUCE)' I 1. (loose)leaf lettuce 2. romaine/cos lettuce 3. iceberg/crisphead lettuce

-**THW**- 'LACTUCA SATIVA (LETTUCE)' II 1. butter(head)/bibb lettuce 2. red leaf lettuce 3. summercrisp lettuce

-**THL**- 'CYNARA (ARTICHOKE)' 1. (*C. scolymus*) globe/French/green artichoke 2. (*C. cardunculus*) cardoon / wild artichoke 3. (*C. cornigera*) white artichoke

-**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

- ŽKW-** ‘BRASSICA OLERACEA (BROCCOLI & RELATED SPECIES)’ II 1. (*B.o. Capitata* group) cabbage plant 2. (*B.o. Gemmifera* group) brussels 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 3) 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
- ŽKF-** ‘BRASSICACEAE’ 1. (genus *Raphanus*) radish plant 2. (genus *Nasturtium*) watercress plant 3. (genus *Eruca*) arugula/rocket plant
- FML-** ‘APIEAE’ 1. (genus *Apium*) celery plant 2. (genus *Foeniculum*) fennel plant 3. (genus *Petroselinum*) parsley plant
- FNY-** ‘SCANDICEAE’ 1. (genus *Daucus*) carrot plant 2. (genus *Cuminum*) cumin plant 3. (genus *Anthriscus*) chervil
- FŇW-** ‘APIACEAE’ 1. (genus *Pastinaca*) parsnip plant 2. (genus *Levisticum*) lovage 3. (genus *Ligusticum*) licorice-root
- 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
- ZP-** ‘SOLANUM’ 1. (*S. tuberosum*) potato plant 2. (*S. lycopersicum*) tomato plant 3. (*S. melongena*) eggplant plant
- 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
- Commelinids**
- NÇPY-** ‘MUSACEAE’ 1. (genus *Musa*) banana, plantain 2. (genus *Ensete*) enset, false banana 3. (genus *Musella*) Chinese dwarf banana / golden lotus banana
- NÇGY-** ‘ZINGIBERACEAE’ 1. (genus *Zingiber*) ginger plant 2. (genus *Curcuma*) turmeric plant 3. (genera *Amomum*, *Elettaria*) cardamom plant
- BT-** ‘TRITICUM (WHEAT)’ 1. (*T. aestivum*) common wheat / bread wheat plant 2. (*T. durum*) durum wheat / pasta wheat plant 3. (other domesticated *Triticum* species) spelt / einkorn / emmer / kamut plant
- BTW-** ‘TRITICEAE (WHEAT-RELATED DOMESTICATED CEREAL GRAINS)’ 1. (genus *Hordeum*) barley plant 2. (genus *Secale*) rye plant 3. (*Triticum*+*Secale* hybrid) triticale plant
- BK-** ‘ORYZA (RICE)’ 1. (*O. sativa*) Asian rice plant 2. (*O. glaberrima*) African rice plant 3. (*O. rufipogon*) red rice / brownbeard rice plant
- RDL-** ‘ANDROPOGONEAE’ 1. (genus *Zea*) maize / corn plant 2. (genus *Saccharum*) sugarcane plant 3. (genus *Sorghum*) sorghum plant

- FSPW**- ‘AVENA (OAT)’ 1. (*A. sativa*) common oat grass 2. (*A. nuda*) naked oat / hulless oat grass 3. (*A. abyssinica*) Ethiopian oat grass
 -**TXL**- ‘MILLET’ I 1. (genus *Panicum*) common millet grass 2. (genus *Pennisetum*) pearl millet grass 3. (genus *Setaria*) foxtail millet / Italian millet / panic grass
 -**TXR**- ‘MILLET’ II 1. (genus *Digitaria*) fonio, raishan, Polish millet grass 2. (genus *Eleusine*) finger millet grass 3. (genus *Eragrostis*) teff grass
 -**ZHR**- ‘ARECACEAE (PALM TREE)’ 1. (genus *Cocos*) coconut tree 2. (genus *Phoenix*) date palm tree 3. (genus *Euterpe*) açai palm tree

Caryophyllales

- KMM**- ‘POLYGONACEAE’ 1. (genus *Rheum*) rhubarb plant 2. (genus *Fagopyrum*) buckwheat plant) 3. (genus *Rumex*) sorrel plant
 -**KMW**- ‘CHENOPODIOIDEAE’ 1. (genus *Spinacia*) spinach plant 2. (genus *Chenopodium*) quinoa, kañiwa, fat hen / white goosefoot plant 3. (genus *Atriplex*) saltbush / orache plant
 -**KMY**- ‘BETA VULGARIS (BEET)’ 1. beetroot plant (red beet) 2. sugar beet plant 3. (Swiss) chard plant

Asparagales

- STR**- ‘ALLIUM (ONION)’ I 1. (*A. cepa*) onion plant 2. (*A. oschaninii*) shallot plant 3. (*A. ampeloprasum*) leek plant
 -**STL**- ‘ALLIUM (ONION)’ II 1. (*A. sativum*) garlic 2. (*A. schoenoprasum*) chive plant 3. (various *Allium* species) scallion plant
 -**SFW**- ‘ASPARAGACEAE’ 1. (genus *Asparagus*) asparagus plant 2. (genus *Yucca*) yucca plant 3. (genus *Agave*) agave / century plant

Magnoliids

- CVY**- ‘LAURACEAE’ 1. (genus *Cinnamomum*) cinnamon laurel tree 2. (genus *Laurus*) bay laurel tree 3. (genus *Persea*) avocado tree

-KC- ‘(POTENTIALLY-)EDIBLE PLANT PARTS’		Associated Affix: EPP
BSC	Stem 1: (to be) a seed or pit of a plant	Stem 2: (to be) a fruit or nut of a plant
CTE	(to be) the potential for germination/sprouting/nourishment contained within a plant seed or pit	
CSV	(to be) the physical flesh/material of which a plant seed or pit is composed	Stem 3: (to be) a bulb/tuber/corm of a plant
OBJ	(to be) a seed/pit of a plant as a food source; to eat/consume a plant seed/pit as nourishment	

The following two roots have the same Specification pattern as the root -KC- above:

-KŠW- ‘PLANT PARTS I’
1. root
2. stem/stalk/shoot
3. branch/limb/twig

-PŠW- ‘PLANT PARTS II’
1. leaf
2. flower
3. bud

6.0 ROOTS RELATED TO 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.

6.1 Roots for 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:

-CŘ- ‘GRIND / PULVERIZE / GRAVEL / GRANULE / POWDER’			
	Stem 1	Stem 2	Stem 3
BSC	(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
CTE	(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
CSV	(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
OBJ	(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)

-KÇ- ‘ CUT / STAB / CRACK / FISSURE ’ (i.e., quasi-linear puncturing or quasi-planar breaking of surface integument)		
BSC	Stem 1: (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)	Stem 2: (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). Stem 3: (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
CTE	(be) the physical cut itself; a quasi-linear break in the structural/cohesive integrity of the surface integument of an entity/object	
CSV	(be) the physical act/process of cutting; to cut	
OBJ	(be) a blade (the portion of a knife/sword/axe/scissors, etc. that effectuates a cut)	

-ZŘ- ‘ SLICE / PLANE / SHAVE / SHRED ’		
BSC	Stem 1: (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)	Stem 2: (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) Stem 3: (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)
CTE	(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	
CSV	(be) the physical act/process of slicing; to slice	
OBJ	(be) a blade (the portion of a knife that effectuates slice/section)	

-ZC- ‘ CHOP / DICE / MINCE ’		
BSC	Stem 1: (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)	Stem 2: (be) an act of dicing (i.e., slicing into quasi-cubic pieces) Stem 3: (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)
CTE	(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	
CSV	(be) the physical act/process of chopping; to chop	
OBJ	(be) a blade (the portion of a knife/cleaver/axe, etc. that effectuates an act of chopping)	

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

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

-JJ- ‘DIG / HOLE’ *			
	Stem 1	Stem 2	Stem 3
BSC	(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
CTE	(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
CSV	(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
OBJ	(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 scrape, 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’.

-ZF- ‘PIERCE / PUNCTURE / BREACH / HOLE / TUNNEL’		
BSC	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)	Stem 2: (be) an act of removing material by burrowing or tunneling* [Specification pattern is like Stem 2 of the root ‘DIG’] Stem 3: (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’]
CTE	(be) the material removed via an act of piercing, puncturing	
CSV	(be) an act of piercing, puncturing	
OBJ	(be) the appendage/implement/tool used for piercing, puncturing	

-ZD- ‘BURROW / HOLLOW OUT’		
BSC	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)	Stem 2: (be) an act of removing material by hollowing out, burrowing or tunneling* [Specification pattern is like Stem 2 of the root ‘DIG’] Stem 3: (be) an act of leaving behind a hollow, burrow or tunnel* [Specification pattern is like Stem 3 of the root ‘DIG’]
CTE	(be) the material removed via an act of hollowing out or burrowing	
CSV	(be) an act of hollowing out or burrowing	
OBJ	(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.

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

-FŠ- ‘FITTING / ACCOMMODATION / NICHE’		
BSC	Stem 1: (be) an act/instance of one entity physically fitting into/with another so that one is “carried” along as the other moves/operates	Stem 2: (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)
CTE	(be) the state of fitting into another	
CSV	(be) the physical act of fitting	Stem 3: (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)
OBJ	(be) the juncture itself which one establishes or seeks to establish by an act of fitting something into something else	

-CGV- ‘JUNCTURE OF KINEMATIC PAIR’		
BSC	Stem 1: (be) an act/instance of one entity physically being connected to another via a structural juncture or pivot point	Stem 2: (be) an act/instance of being able to pivot due to the placement of a structural juncture
CTE	(be) the state of being connected to another via a structural juncture or pivot point	
CSV	(be) the physical act of connecting via a structural juncture/pivot point	Stem 3: (be) a act/instance of structural/physical tension caused by pivoting within the constraints allowed by a structural juncture
OBJ	(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.)	

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

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

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

Morphological derivatives: swing

-LŘ- ‘FLATTEN / SMOOTH / LEVEL’		
BSC	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)	Stem 2: (be) an act/instance of making smooth (i.e., not having surface roughness, projections, or perturbations)
CTE	(be) a state of being flat	Stem 3: (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)
CSV	(be) the physical act of flattening	
OBJ	(be) the implement/tool used to flatten something	

Morphological derivatives: polish

-GF- ‘HOLD TOGETHER / HOLD STILL / BIND / RESTRAIN’		
BSC	Stem 1: (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)	Stem 2: (be) an act/instance of binding something (i.e., keeping it from coming apart, coming loose, or escaping by internal motion in-situ)
CTE	(be) a state of being held together	
CSV	(be) the physical act of holding together	Stem 3: (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)
OBJ	(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.

-GM- ‘GRAB / GRASP / PICK UP / PICK OUT / HANDLE / MANIPULATE’		
BSC	Stem 1: (be) an act/instance of grabbing/grasping something with one's hand or manipulative appendage(s)	Stem 2: (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)
CTE	(be) a state of being in another's grasp	
CSV	(be) the physical act of grabbing/grasping	Stem 3: (be) an act/instance of handling/manipulating something with one's hands or manipulative appendage(s)
OBJ	(be) the hand or appendage with which one grabs/grasps	

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

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

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

-ĀN- ‘MOVE APART / DRAW APART / OPEN’		
BSC	Stem 1: (be) an act/instance of moving two or more entities apart (to create a gap or opening or passageway)	Stem 2: (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
CTE	(be) a state of being/having been moved apart	
CSV	(be) the physical act of moving two or more entities apart (e.g., via pulling, pushing, or other force or means)	Stem 3: (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
OBJ	(be) the means/implement/procedure/command used to effectuate an act of moving apart	

-DŘ- ‘STRETCH / ELONGATE / SPREAD’		
NOTE: This root refers to expansion in size without an entity's individual component molecules/members/contents/nodes themselves expanding, but rather only the space [or underlying substrate or connective medium] between them		
BSC	Stem 1: (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]	Stem 2: (be) an act/instance of planar (two-dimensional) stretching or spreading; to spread (two-dimensionally)
CTE	(be) a state of being/having been	
CSV	(be) the physical act of	Stem 3: (be) an act/instance of quasi-spheroidal (3-dimensional) stretching or expansion; to expand (3-dimensionally)
OBJ	(be) the means/implement/procedure used to	
The FORMAL stems of this root are identical to the INFORMAL stems 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.		

-DJ- ‘ERECT / BRING TO A VERTICAL POSITION / RAISE UP’ (i.e., perpendicular to the ground)		
BSC	Stem 1: (be) an act/instance of erecting something to a vertical position perpendicular to the ground (or parallel to the direction of gravity)	Stem 2: (be) an act/instance of letting rise up to an erect position Stem 3: (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
CTE	(be) a state of erecting	
CSV	(be) the physical act of erecting	
OBJ	(be) the means/implement/procedure/command used to erect something (e.g., pulley)	

-MJ- ‘FELL / BRING DOWN / LOWER’		
BSC	Stem 1: (be) an act/instance of making something fall via gravity from its (quasi-)perpendicular stance; to fell	Stem 2: (be) an act/instance of letting something fall; to drop Stem 3: (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
CTE	(be) a state of falling	
CSV	(be) the physical act of felling	
OBJ	(be) the means/implement/procedure/command used to make something fall	

-MC- ‘JUNCTION / CONNECTION/ FASTENING / LINKAGE / UNIFICATION / MERGING / COALESCENCE’		
BSC	Stem 1: (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)	Stem 2: (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 Stem 3: (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)
CTE	(be) a state of being a member of a set	
CSV	(be) the physical act of joining together into a set	
OBJ	(be) the juncture itself which one establishes or seeks to establish by an act of joining	
<p>Formal Stem 1: (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)</p> <p>Formal Stem 2: (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)</p> <p>Formal Stem 3: (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.</p>		

-JT- ‘PENETRATION / DRIVING INTO / INJECTION’		
BSC	Stem 1: (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)	Stem 2: (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)
CTE	(be) a state of being/having been penetrated	
CSV	(be) the physical act of penetration	
OBJ	(be) the entity/object employed to penetrate (e.g., a nail, screw, blade, pointed object, etc.)	Stem 3: (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.

-ŃÇ- ‘EXTRACTION’		
BSC	Stem 1: (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.)	Stem 2: (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.)
CTE	(be) a state of being/having been extracted, drawn out, withdrawn out of something	
CSV	(be) the physical act of extraction; to do something that physically extracts, draws something forth/out	
OBJ	(be) the entity/object employed to extract	Stem 3: (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).

-CḐ- ‘ADHESION / STICKINESS / AGGREGATION / AGGLOMERATION’		
BSC	Stem 1: (be) an act/instance of adhesion; to adhere (i.e., something sticking to something else via some adhesive medium)	Stem 2: (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)
CTE	(be) a state of adhesion	
CSV	(be) the physical act of adhering	
OBJ	(be) an entity/substance used for adhering; an adhesive	Stem 3: (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)

-TL- ‘COMMENCEMENT / ACTIVATION / INITIATION / INSTIGATION’		
(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 -GN- .)		
BSC	Stem 1: (be) an act/instance of commencing/starting an act/event/state (i.e., the transition moment/period between a non-active vs. active state)	Stem 2: (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.) Stem 3: (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)
CTE	(be) a state of commencement/starting	
CSV	(be) the physical act of commencing/starting	
OBJ	(be) an entity/object used to commence/start something	

-PL- ‘TURN / ROTATION / SPIN’		
BSC	Stem 1: (be) an act/instance of turning/rotating something; to turn, rotate (i.e., cause an object to move in a circular motion so that its orientation relative to the surrounding space//surface/medium/substrate changes)	Stem 2: (be) an act/instance of revolving; to revolve (i.e., to follow a (quasi-)circular motion around another entity/object Stem 3: (be) an act/instance of spinning (i.e., revolving in place on one’s own rotational axis)
CTE	(be) a state of being turned	
CSV	(be) the physical act of turning	
OBJ	(be) an entity/object used to make something turn/rotate	

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

-ŽN- ‘IMPULSE / PUSHING / PROPULSION’		
BSC	Stem 1: (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)	Stem 2: (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) Stem 3: (be) an act/instance of thrusting or propulsion; to make something (or oneself) move quickly via a sudden, violent use of impulsive force
CTE	(be) a state of being pushed	
CSV	(be) the physical act of pushing	
OBJ	(be) an entity/object used to push	

-ŽR- ‘THROWING / LAUNCHING / SHOOTING’		
BSC	Stem 1: (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)	Stem 2: (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 Stem 3: (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
CTE	(be) a state of being thrown	
CSV	(be) the physical act of throwing	
OBJ	(be) an entity/object used to throw	

-ÇV- ‘TRACTION / DRAWING / PULLING’		
BSC	Stem 1: (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)	Stem 2: (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) Stem 3: (be) an act/instance of hauling, trawling, raking (i.e., using pulling/drawing force to carry/convey/transport a load/object/entity)
CTE	(be) a state of being pulled or drawn	
CSV	(be) the physical act of pulling or drawing	
OBJ	(be) an entity/object used to pull or draw, e.g., rope, reins, chain, etc.	

Morphological derivative: hoist

-FJ- ‘IMPEDE / HINDER / PLUG / BLOCK / STOP / INTERFERE / INTERRUPTION / PREVENTION’		
BSC	Stem 1: (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]	Stem 2: (be) an instance of placing an obstacle or impediment; to clog Stem 3: (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]
CTE	(be) a state of being impeded/hindered	
CSV	(be) the physical act of impeding/hindering	
OBJ	(be) an entity/object used to impede/hinder	
Formal Stem 1: (be) an act of constricting or choking something; a constriction; to constrict, to choke [CPT = to cut off the flow of something] Formal Stem 2: (be) an act/instance of sealing or plugging ; to seal, to plug Formal Stem 3: (be) an act/instance of prevention; to prevent something from happening [CPT version = to thwart]		

-ṬS- ‘COVERING / SUPERIMPOSITION / ENCASEMENT / SHEATH’		
BSC	Stem 1: (be) an act/instance of covering something; to cover (i.e., superimposing an entity over/onto another for the purpose of protection, concealment, etc.)	Stem 2: (be) an act/instance of placing an encasing medium/material around something; to encase, to wrap
CTE	(be) a state of being covered	Stem 3: (be) an act/instance of sheathing; to sheathe (i.e., to place something into its associated/customized encasing cover/holder/container)
CSV	(be) the physical act of covering	
OBJ	(be) an entity/object used to cover (e.g., lid, blanket, tarp, screen, etc.)	
Formal Stem 1: (be) an act/instance of placing a roof(-like covering); to roof, to tent, to		
Formal Stem 2: (be) an act/instance of placing a veneer, facing, coating, crust, or protective layer (of a substance/material) onto something		
Formal 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)		

-ÑM- ‘SURFACE APPLICATION / OVERLAY / PAINT’		
BSC	Stem 1: (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	Stem 2: (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.)
CTE	(be) a state of having (had) a substance/material applied	Stem 3: (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)
CSV	(be) the physical act of applying a (quasi-)liquid or viscous substance or material	
OBJ	(be) the material or substance (to be) applied	

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

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

-ZȚ- ‘ ABSORPTION / IMBUEMENT / INFILTRATION / SOAK / DIFUSSION / PERMEATION / OSMOSIS ’	
BSC	Stem 1: (be) an act/instance of absorption; to absorb (i.e., for a [quasi-]liquid substance to be soaked up into a porous material)
CTE	(be) a state of being (or having been) absorbed
CSV	(be) the physical act of absorbing
OBJ	(be) a porous material which absorbs
Stem 2: (be) an act/instance of imbueement/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.)	
Stem 3: (be) an instance of infiltration	
Formal Stem 1: (be) an act/instance of soaking/sousing	
Formal Stem 2: (be) an act/instance of diffusion/suffusion; to diffuse, to suffuse [CPT version = to permeate]	
Formal Stem 3: (be) an act/instance of osmosis	

-SJ- ‘ COMBINE / (INTER-)MINGLE / MIX / BLEND / SYNTHESIS / SYNERGY ’	
BSC	Stem 1: (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
CTE	(be) a state of being (or having been) combined
CSV	(be) the physical act of combining
OBJ	(be) that which is used to combine two or more entities
Stem 2: (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	
Stem 3: (be) an instance of synthesizing; to synthesize (i.e., to combine elements to form a new gestalt)	
Formal Stem 1: (be) an act/instance of mixing/blending two or more entities together (i.e., same as Informal Stem 1 except that the two entities coalesce/merge/dissolve into a new gestalt entity); to blend, to amalgamate	
Formal Stem 2: (be) an act/instance of synergy	
Formal Stem 3: (be) an act/instance of synergy with emergent properties	

-RČ- ‘ DAMAGE / CORRUPTION / SUBVERSION / RUIN / DESTRUCTION / DEMOLISH / ELIMINATION / ERADICATION ’	
BSC	Stem 1: (be) an act/instance of physically damaging [CPT version = wreck, destroy physically, i.e., damage to the point of physical irreparability]
CTE	(be) a state of being (or having been) physically damaged
CSV	(be) the physical act of damaging
OBJ	(be) that which is used to physically damage
Stem 2: (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]	
Stem 3: (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]	

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

-DC- 'SAFETY / SECURITY / LOCK'		
BSC	Stem 1: (be) an act/instance of making something safe (i.e., removing the threat of other entities from harming something or someone)	Stem 2: (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 Stem 3: (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
CTE	(be) the state of being safe	
CSV	(be) the physical act of making something/someone safe	
OBJ	(be) the object/entity/procedure/rule/law, etc. by which one effectuates a state of safety	

-CMY- 'BUFFER / INTERVENING PROTECTIVE MEDIUM'		
BSC	Stem 1: (be) an act/instance of making something safe (i.e., removing the threat of other entities from harming something or someone)	Stem 2: (be) an act/instance of securing something, i.e., establishing preventative practices/protocols/procedures with the goal of keeping something safe from external harm/damage Stem 3: (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
CTE	(be) the state of being safe	
CSV	(be) the physical act of making something/someone safe	
OBJ	(be) the object/entity/procedure/rule/law, etc. by which one effectuates a state of safety	

--> metal washer, spinal disc, etc.

-ŽW- ‘CLEANLINESS / PURITY / SANITATION / HYGIENE’		
BSC	Stem 1: (be) a state of cleanliness; be clean, to (make) clean (i.e., a state of being relatively free from dirt/grime/germs/mold, etc.) *	Stem 2: (be) a state of purity, being pure; be/make pure, purify (i.e., to be/make free from foreign/invasive/polluting substances) Stem 3: (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)
CTE	(be) a state of cleanliness	
CSV	(be) a physical act of cleaning	
OBJ	(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.

-TB- ‘TIDINESS / ORDERLINESS / GROOMING’		
BSC	Stem 1: (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)	Stem 2: (be) a state of pristineness, pristine condition; to be/keep/maintain (in) pristine (condition) (i.e. in original condition) Stem 3: (be) a state of being well-groomed; to groom (i.e. be/make free from slovenliness)
CTE	(be) a state of orderliness/tidiness/neatness	
CSV	(be) an act of tidying/neatening; to make tidy or neat, to tidy up	
OBJ	(be) that which is (to be) tidy/neat/orderly	

-MBW- ‘ABSORPTION / SUCTION’		
BSC	Stem 1: (be) a state/act of absorption; to absorb	Stem 2: (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.) Stem 3: (be) a state/act/process of suction; to suction, create suction
CTE	(be) a state of being absorbed	
CSV	(be) an act of absorption; to physically absorb something	
OBJ	(be) that into which something is absorbed	

6.2 Roots for Implements/Materials/Substances Used To Maintain Completed States Created via Tools/Devices/Machines/Manual Processes

-CŇ- PIN / TACK / STAPLE		
BSC	Stem 1: (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	Stem 2: (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
CTE	(be) a pin	
CSV	(be) an act of utilizing/making use of a pin; use/make use of a pin	Stem 3: (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
OBJ	(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)
- CPW- 1. screw 2. bolt 3. rivet
- DBL- 1. stopper 2. plug/cap 3. seal/suture
- GDY- 1. cement 2. mortar 3. plaster
- GDW- 1. putty 2. caulk 3. grout
- GDL- 1. resin 2. polymer 3. solder
- GDR- 1. adhesive 2. paste 3. glue
- ŘBZ- 1. soaking agent/medium 2. hydration agent/medium 3. lubricant/lubricating agent/medium
- KŤT- 1. clip 2. clamp 3. staple
- KŤW- 1. string/twine/cord 2. wire 3. strap
- KŤY- 1. button 2. zipper 3. velcro fastener
- FSM- 1. brace 2. girder 3. crossbeam
- FSN- 1. hook 2. frame 3. rigging/scaffolding
- JDY- 1. stent 2. tubing 3. valve

- 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

7.0 ROOTS RELATED TO SPATIO-TEMPORAL DIMENSIONS

-JG- ‘DIMENSIONAL ATTRIBUTE’ (use with the SUF, EXD, FLC, PTW, ITY, etc. affixes)	
	STEM 1
BSC	(to be) a degree of a (static) dimensional attribute (e.g., length, width, volume, etc.)
CTE	(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)
CSV	(to be) the physical manifestation of a particular dimensional attribute
OBJ	(to be) the object/entity having the particular dimensional attribute

STEM2: (to be) a decrease in the degree of a particular dimensional attribute

STEM 3: (to be) an increase in the degree of a particular dimensional attribute

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

- CK**- ‘PROXIMITY/DISTANCE’
- ZB**- ‘PLANARITY/FLATNESS RELATIVE TO THE FORM OF AN OBJECT ITSELF’
- ČF**- ‘WIDTH/SLENDERNESS’
- 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’
- JL**- ‘SPATIAL GAP’
- GZ**- ‘TEMPORAL INTERVAL’
- FC**- ‘3-DIMENSIONAL VOLUME’
- TC**- ‘RECTILINEAR/POLYHEDRAL/STRAIGHT-ANGLED’
- GJ**- ‘ROUNDEDNESS’ [i.e., the extent to which a surface is spheroidally curved]
- CF**- ‘FLATNESS/LEVELNESS OF A SURFACE’
- CT**- ‘2-DIMENSIONAL AMORPHOUS/SHAPELESS’
- ZT**- ‘3-DIMENSIONAL AMORPHOUS/SHAPELESS’

8.0 ROOTS RELATED TO THE QUALITY OR PROPERTY OF MATTER'

-KV- 'QUALITY, ATTRIBUTE OR PROPERTY OF MATTER' (use with the SUF, EXD, FLC, PTW, ITY, etc. affixes)	
	STEM 1
BSC	(to be) a degree of a particular quality (= intrinsic/inherent behavioral property) of matter
CTE	(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)
CSV	(to be) the physical manifestation of a particular quality of matter
OBJ	(to be) the object/entity having the particular quality of matter

STEM2: (to be) a decrease in the degree of a particular quality/attribute/property of matter

STEM 3: (to be) an increase in the degree of a particular quality/attribute/property of matter

The Stems and Specifications of the following roots are modeled on the 'QUALITY OR PROPERTY OF MATTER' root above:

- BG**- 'FULLNESS/EMPTINESS'
- DB**- 'SOLIDITY/HOLLOWNESS (= PERMEABILITY)'
- DG**- 'WEIGHT/MASS'
- ÑB**- 'RESILIENCE/DELICATENESS' (= CAPACITY FOR RECOVERY)
- ÑD**- 'DURABILITY/FRAGILITY' (= CAPACITY FOR BEING DAMAGED)
- NG**- '**PRESSURE**'
- XB**- 'TENSENESS/TENSION (= STRAIN)'
- XD**- 'TIGHTNESS/SLACK' (= TAUTNESS)
- MB**- 'ABSORBATIVITY'
- MD**- 'REFLECTIVITY'
- MG**- 'TRANSPARENCY/OPACITY'
- LB**- 'STABILITY/INSTABILITY'
- LD**- 'VOLATILITY/INERTNESS'
- LG**- 'DURATION/TEMPORARINESS'
- BD**- 'CONCAVITY / DEPRESSED'
- GD**- 'CONVEXITY / ROTUNDITY'
- GB**- 'COMPRESSED / SQUEEZED'

-**BB**- ‘EVEN/LEVEL’ (i.e., parallel in comparison to an external linear or planar reference standard)

-**DD**- ‘PERPENDICULAR / UPGRIGHT’ (relative to gravity)

-**GG**- ‘STRAIGHTNESS/LINEARITY RELATIVE TO OBJECT ITSELF’

NOTE: For tactile sensations/textures, see Sec. 10.1.5

9.0 ROOTS FOR MOTION AND SPATIAL POSITION

English has the ability to 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 $-V_xC_S$ 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 perulative motion/movement in a manner described by the suffix’s corresponding root among/within an external/surrounding/underlying (quasi-)static medium. For translative 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 translative movement/motion in a manner described by the suffix’s corresponding root while inside another object/entity (where, unlike the perulative 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 translative 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 translative 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 translative 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 translative movement/motion in a manner described by the suffix’s corresponding root while outside another object/entity (where, unlike the perulative degree, the other object/entity does not define/prescribe/determine the course of the moving object/entity)
9	exterior perulative motion/movement outside of, over, next to, alongside, “above”/“under” an adjacent (quasi-)static surface/medium; for translative 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 Translative 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.

8.1 Translative Motion Roots: Roots involving translative motion will be modeled after the following basic root:

-TR- ‘PATH-ORIENTED, QUASI-LINEAR TRANSLATIVE MOTION’		Affix: M01
Stem 1		
BSC	act of translative motion from one spacetime location to another; to move from one place to another [both the motion and the entity moving]	Stem 2: 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” Stem 3: 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”
CTE	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]	
CSV	The path/trajectory/course/route followed between two places; to move along/through the path/trajectory/course/route from one place to another	
OBJ	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 PRABOLIC/ARC-LIKE TRAJECTORY RELATIVE TO GRAVITY’
- BL- ‘MOTION IN A CURVE’
- FL- ‘MOTION IN A PLANAR CIRCULAR PATH’
- TL- ‘GENERIC/OBLIQUE 3-DIMENSIONAL RANGE OF MOTION’, i.e., 3-D pervasive movement throughout or within a volume of space

8.2 Spatial Position/Location Roots: Roots involving spatial position/orientation/direction will be modeled after the following basic root:

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

8.3 Roots Designating 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.” Such positionally-defined componential roots are modeled on the following:

-TF- ‘POSITIONALLY-DEFINED COMPONENTIAL PART’		Associated affix: -S08-
BSC	STEM 1: 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	STEM 2: Inalienable, inherent, inseparable, “built-in” component part/section in relation to the whole STEM 3: Alienable, separable, detachable component part/section in relation to the whole
CTE	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	
CSV	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	
OBJ	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 refer to a circumstantial, context-of-the-moment position/location; FORMAL stems refer to a dedicated, fixed, (quasi-)permanent, “official” position/location.

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

- 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
- TT-** ‘SIDE/FLANK OF AN ENTITY’

- PF**- ‘FRONT PART OF AN ENTITY [RELATIVE TO ITS DIRECTIONAL ORIENTATION OR PRIMARY EXTERNAL INTERFACE]’
- 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]’
- ḐY**- ‘UPPER PART/“HALF” OF AN ENTITY [RELATIVE TO ITS TYPICAL ORIENTATION UNDER GRAVITY]’
- ḐW**- ‘LOWER PART/“HALF” OF AN ENTITY [RELATIVE TO ITS TYPICAL ORIENTATION UNDER GRAVITY]’
- XW**- ‘INTERIOR/INTERNAL VOLUME/“INSIDE(S)”/“INNARDS” OF AN ENTITY’
- 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 relating to component parts/features of an entity are also modeled on the same root -**ṬF**-, 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.

8.4 Additional Roots Related to Spatio-Temporal Motion

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

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

8.5 Roots Relating to Temporal Concepts

-LN- ‘TIME OF DAY’			
	STEM 1	STEM 2	STEM 3*
BSC	(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)
CTE	(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
CSV	(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
OBJ	(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 -VN- root below declined in the PARTITIVE case. Alternately, one may use numerical stems with the various degrees of the ELA affix.

-RV- TEMPORARY DURATION		Associated Affix: TD1	INF Stems	FML Stems
BSC	(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		STEM 1: a moment/instant	STEM 1: a second
CTE	(to be) the event(s) occurring during a particular amount of elapsed time		STEM 2: a “while”	STEM 2: a minute
CSV	(to be) the duration of elapsed time [regardless of what may occur/exist during that period]		STEM 3: a portion of a day	STEM 3: an hour
OBJ	[same as CTE]			

Specifications for the following four roots are modeled after the root **-RV-** 'TEMPORARY DURATION' above

-RD- CONVENTIONALIZED TIME PERIODS		Associated Affix: TD2
INFORMAL	FORMAL	
STEM 1: (to be a) day (= 24-hour period)	STEM 1: (to be a) calendrical day, designated day (for planning/scheduling purposes)	
STEM 2: (to be a) week	STEM 2: (to be a) calendrical week, designated week (for planning/scheduling purposes)	
STEM 3: (to be a) lunar period / month	STEM 3: (to be a) calendrical month, designated month (for planning/scheduling purposes)	

-RN- LONGER TIME PERIODS		Associated Affix: LTD
INFORMAL	FORMAL	
STEM 1: (to be) approx. a year / most of or up to a year	STEM 1: (to be a) calendrical year, designated year (for planning/scheduling purposes)	
STEM 2: (to be) approx. a decade/ most of or up to a decade	STEM 2: (to be a) calendrical decade, designated decade (for planning/scheduling purposes)	
STEM 3: (to be) approx. a lifetime	STEM 3: (to be a) designated lifetime of an individual (for planning/scheduling purposes)	

-ŘŤ- LONG-TERM TIME PERIODS		Associated Affix: LGD
INFORMAL	FORMAL	
STEM 1: (to be) approx. a century	STEM 1: (to be) calendrical century	
STEM 2: (to be) approx. a millennium	STEM 2: (to be) calendrical millennium	
STEM 3: (to be) approx. a ten-thousand year period	STEM 3: (to be) calendrical ten-thousand year period	

-ŘŇ- EPOCH-LENGTH TIME PERIODS		Associated Affix: EPC
INFORMAL	FORMAL	
STEM 1: (to be) approx. an age (approx. or up to a million years)	STEM 1: (to be) a geologic age	
STEM 2: (to be) approx. an epoch (approx. or up to 10 million years)	STEM 2: (to be) a geologic epoch	
STEM 3: (to be) approx. an era (approx. or up to 100 million years)	STEM 3: (to be) a geologic era	

-RP- ‘CYCLE / REGULARITY / FREQUENCY / PERIODICITY / ITERATION’		Associated Affix: FRQ	
	STEM 1	STEM 2	STEM 3
BSC	(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]
CTE	(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 recurrences/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]
CSV	(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]
OBJ	(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

-KT- PAST / PRESENT / FUTURE (based on Metaphor of a Progressive Linear Spacetime-line)		Associated Affix: TPP	
BSC	STEM 1: (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]	STEM 2: present event, entity, occurrence STEM 3: future event, entity, occurrence	
CTE	(to be) a past event [focus on what occurred, not when]		
CSV	(to be) when a past event occurred [focus on when it occurred, not what occurred]		
OBJ	(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.

-KN- ‘TIMELINESS / PUNCTUALITY / EARLINESS / LATENESS’		Associated Affix: TME (formerly LAT)	
	STEM 1	STEM 2	
BSC	(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	
CTE	(to be) that which manifests a degree of timeliness/punctuality	(to be) that which is early	
CSV	(to be) a state of timeliness/punctuality, being on time	(to be) a state of earliness, being sooner-than-required; to be early	
OBJ	[same as CTE]	[same as CTE]	

STEM 3: (to be something that is) late, untimely, tardy — Specification pattern is modeled after Stem 2

-RŠ- ‘ STAGE / STEP / PHASE OF A PROCESS ’		Associated Affix: STG
BSC	STEM 1: (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]	STEM 2: (to be) a degree/grade or point on a progressive/scalar gradient STEM 3: (to be a) section, sub-unit, discernible/identifiable/differentiated “stretch” or portion of a progressively/successively structured entity/phenomenon
CTE	(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	
CSV	(to be) the act/state/process of being/functioning as a step /stage/phase of a process; to perform a step in a process	
OBJ	(to be the) process which is divided up into steps/stages/phases	

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

10.0 ROOTS RELATING TO SENSORY PHENOMENA

10.1 Roots Related to the Body's External Senses

-ŠK- 'EXTERNAL SENSATION / EXTERNAL SENSORY PERCEPTION' * Associated affix: SNX		
Informal Stems		Formal Stems
BSC	STEM 1: (to be/manifest) a sense/sensation [act of sensing + sensation itself]; an act of sensing something — [both the sensation and the sensing thereof]	FML STEM 1: (to be) a willful/deliberate sensory examination of something; an act of examining/detecting something via one's senses FML STEM 2: (to be) an act of utilizing a sensory device/implement/instrument; utilize a sensor, detect via a sensor FML STEM 3: (to be) an induced sensory experience; to create/induce a sensory experience
CTE	(to be) a sensation, feeling, sensory input	
CSV	(to be) an act of sensing; to sense; to engage one's sense(s); perceive via one's sense(s)	
OBJ	(to be) the entity/event/object one applies/aims one's senses at or which is the stimulus for one's sensory state	
	INF STEM 2: (to be) a sensory organ INF STEM 3: (to be) a sensory faculty; a bodily sense	

* Does not include proprioceptive, interoceptive, or vestibular senses

10.1.1 Auditory/Aural Sense

-NN- 'HEAR(ING) / SOUND'		
Informal Stems		Formal Stems
BSC	STEM 1: (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]	FML STEM 1: (to be) a willful/deliberate act of hearing something, i.e. to listen to something; an act of listening to something FML STEM 2: (to be) an act of utilizing a listening device/instrument; utilize a listening device (e.g., stethoscope, microphone, glass held up to a wall, ear-horn, etc.); detect via a listening device FML STEM 3: (to be) an induced hearing experience; to create/induce a sound
CTE	(to be) a sound; something heard	
CSV	(to be) an act of hearing; to hear; to use one's aural faculty	
OBJ	(to be) the entity/event/object whose sound(s) one hears	
	INF STEM 2: (to be) an inner ear (i.e., the organ(s)/tissue(s) responsible for generating aural signals to the brain) INF STEM 3: (to be) one's aural faculty; one's sense of hearing	

10.1.2 Olfactory Sense

-ŽG- ‘SMELL / ODOR’		Affix: OLF
BSC	STEM 1: (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]	FML STEM 1: (to be) a willful/deliberate act of smelling/sniffing something; to smell/sniff something; an act of smelling/sniffing something (deliberately) FML STEM 2: (to be) an act of utilizing an odor-detection device/instrument; use an olfactory(-like) sensor, detect via such a sensor (e.g., a smoke detector) FML STEM 3: (to be) an induced olfactory experience; to create/induce an odor
CTE	(to be) a smell/odor	
CSV	(to be) an act of smelling; to smell; to engage one’s olfactory sense	
OBJ	(to be) the entity/event/object whose odor one smells	
	INF STEM 2: (to be) one’s nose [as olfactory organ, not one’s nasal proboscis] INF STEM 3: (to be) one’s olfactory faculty; one’s sense of smell	

MORPHOLOGICAL DERIVATIONS: sniff, aroma, “bouquet”, perfume, stench

Roots for Specific Odors:

	-NKY- ‘PUNGENT/FUNKY/PUTRID/STINKY’
Stem 1	pungent odor (e.g., vinegar, ammonia, urine, stale coffee, vomit, etc.)
Stem 2	funky odor (e.g., of sweat, livestock, musk, tamri, ambergris, stinky cheeses, etc.)
Stem 3	putrid odor (e.g., as of rotting eggs, roadkill, feces, sulfur, low-tide, etc.)

	-RGY- ‘VEGETAL/PIQUANT/MUSTY’
Stem 1	vegetal odor (e.g., grass, garlic, onion, parsley, coriander, celery, etc.)
Stem 2	piquant odor (e.g., ginger, cinnamon, clove, chilies, horseradish, hot mustard, etc.)
Stem 3	musty odor (e.g., soil, mushrooms, aged compost, mold, moss, petrichor, etc.)

	-LMS- ‘SWEET/FRAGRANT/RESINOUS’
Stem 1	sweet odor (e.g., honey, raisin, caramel, apple, date, yam, etc.)
Stem 2	fragrant odor (e.g., vanilla, rose, almond, peach, jasmine, etc.)
Stem 3	resinous odor (e.g., camphor, sagebrush, eucalyptus, lavender, peppermint, etc.)

	-RZG- ‘CHEMICAL/BURNT/ACRID’
Stem 1	chemical odor (e.g., alcohol, gasoline, solvents, paint, etc.)
Stem 2	burnt odor (e.g., leather, toasted nuts, woodsmoke, tobacco, etc.)
Stem 3	acrid odor (e.g., salt, copper, blood, tar, burning rubber, etc.)

The above four odor roots have the following Specification pattern:

BSC	(to be) something having a (particular) smell/odor
CTE	(to be/manifest) the particular odor (of something)
CSV	(to be) the odor perceived by an observer as being identifiable as a particular odor (i.e., the odor of something known)
OBJ	(to be) an entity having a particular odor (e.g., “the acrid-smelling one”)

In addition to the above four roots, the OLF affix is available to identify the odor associated with any applicable formative.

10.1.3 Gustatory Sense

-SF- ‘SENSE OF TASTE / THE TASTE OF SOMETHING’ Associated Affix: GST		
BSC	STEM 1: (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]	FML STEM 1: (to be) a willful/deliberate tasting of something; an act of examining/detecting a flavor via one’s gustatory sense FML STEM 2: (to be) an act of utilizing a gustatory device/instrument; utilize a gustatory sensor, detect via a gustatory sensor FML STEM 3: (to be) an induced gustatory experience; to create/induce a specific flavor
CTE	(to be) a flavor	
CSV	(to be) an act of tasting; to taste; to engage one’s gustatory sense	
OBJ	(to be) the entity/event/object whose flavor one tastes	
	INF STEM 2: (to be) a taste bud (i.e., the gustatory organ) INF STEM 3: (to be) one’s gustatory faculty; one’s sense of taste	

Roots for Specific Flavors: the six flavor roots below take the following Specification pattern:

BSC	(to be) something having a (particular) flavor
CTE	(to be/manifest) the particular flavor (of something)
CSV	(to be) an identifiable flavor
OBJ	(to be) an entity having a particular flavor (e.g., “the bitter-tasting one”)

:

	-MS- ‘SWEET FLAVOR’
Stem 1	sweet flavor
Stem 2	fruity/citrus/tarty-flavor
Stem 3	floral-like sweet flavor

	-ZG- ‘BITTER FLAVOR’
Stem 1	bitter flavor
Stem 2	bitter + sweet
Stem 3	bitter + sour

	-SPŘ- ‘SOUR FLAVOR’
Stem 1	sour flavor
Stem 2	sour + rancid flavor
Stem 3	sweet + sour flavor

	-ĽK- ‘SALTY / SPICY / UMAMI’
Stem 1	salty flavor
Stem 2	spiciness / piquant flavor
Stem 3	umami/savory flavor

	-XX- ‘FOUL/RANCID FLAVOR’
Stem 1	foul/rancid flavor
Stem 2	spoiled/rotten flavor
Stem 3	vinegary flavor

	-ÑÑ- ‘CHEMICAL-LIKE FLAVOR’
Stem 1	chemical-like flavor
Stem 2	metallic flavor
Stem 3	astringent/acidy flavor

The following affix allows one to name any flavor:

-sf	GST Gustatory Associations
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

10.1.4 Visual Sense

-Z- ‘SEE / SIGHT / VISION’	
BSC	STEM 1: (to be) a sight and the seeing thereof; to see something [act of seeing + the sight itself]; an act of seeing something
CTE	(to be) a visual image; the image one sees
CSV	(to be) an act of seeing; to see; to engage one’s visual faculty
OBJ	(to be) the object/entity/sight one sees
	INF STEM 2: (to be) an eye (as organ of vision) INF STEM 3: (to be a) the visual faculty/sense; one’s vision
	FML STEM 1: (to be) a willful/deliberate act of seeing something; an act of looking at something; to look (at) FML STEM 2: (to be) an act of utilizing a visual-sensory device//instrument; utilize a visual sensor, detect via a visual sensor (e.g., camera, telescope, binoculars, microscope, etc.) FML STEM 3: (to be) an induced visual experience; to create/induce a visual experience; create/project an image

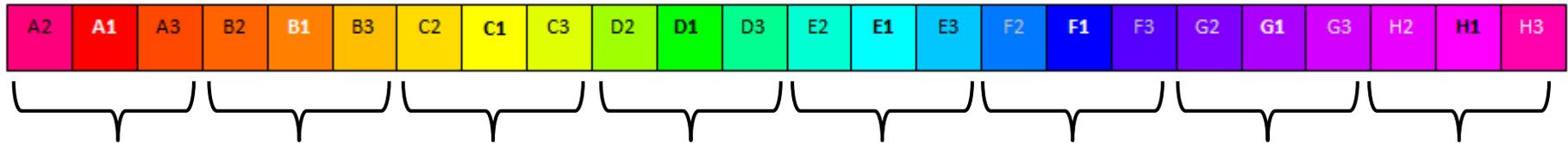
DERIVATIONS: view, glimpse, glance, ogle, gawk, stare, spy, espy, peep, voyeur, panorama, scrutinize (visually), camera, telescope, microscope, binoculars, magnifying glass, lens, glasses

-ŠP- ‘COLOR’		Associated affix: VSR
BSC	STEM 1: (to be) something having a (particular) color / something colored	STEM 2: 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). STEM 3: 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).
CTE	(to be/manifest) the particular color (of something)	
CSV	(to be/manifest) the (reflected) light of (a certain wavelength) that is perceived by an observer as being a particular color	
OBJ	(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

FORMAL Stems refer to (presumably) artificially tinted, painted, stained contexts

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.

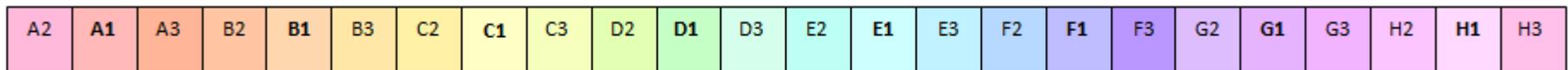


	-GY- ‘RED’	-ŇR- ‘ORANGE’	-ML- ‘YELLOW’	-ČW- ‘GREEN’	-DR- ‘CYAN’	-LW- ‘BLUE’	-ŽL- ‘VIOLET’	-VM- ‘MAGENTA’
Stem 1	red	orange	yellow	green	cyan	blue	violet, purple	magenta
Stem 2	pinkish-red, rose	reddish orange	orangy-yellow, gold(en yellow)	yellowish-green, chartreuse	greenish blue, teale blue	lighter blue, royal blue	blue-violet	violet-magenta, purple-magenta
Stem 3	orangy-red	yellowish orange, ochre	greenish-yellow	light-bluish green, teale green	azure blue	violet-blue	magenta-violet, magenta-purple	dark rose, rose-magenta

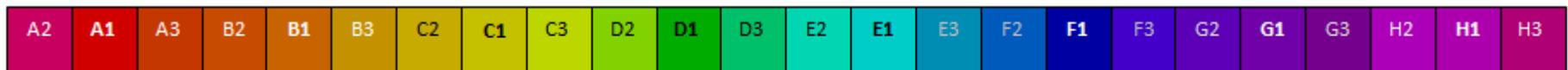
The CLD and COL affixes may be utilized with all color stems (as well as non-color stems where semantically productive). For dichroic (2-colored) descriptions, incorporate one color stem into another using COMITATIVE format.

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

10.1.5 Tactile Sense

-FT- ‘TOUCH / FEEL / TEXTURE / TACTILE PERCEPTION’		
BSC	STEM 1: (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	FML STEM 1: (to be) a willful/deliberate tactile examination of something; an act of feeling something (e.g., with one’s hands, skin, lips, tongue, etc.) FML STEM 2: (to be) an act of utilizing a tactile-like sensory device/instrument; utilize a tactile-like sensor, detect via a tactile-like sensor FML STEM 3: (to be) an induced tactile sensory experience; to create/induce a tactile sensory experience
CTE	(to be) a tactile sensation, a tactile feeling, a texture; to feel a particular texture	
CSV	(to be) an act of touching; to touch, to feel (tactilely); to engage one’s tactile sense	
OBJ	(to be) the entity/object one touches/feels	
	INF STEM 2: (to be) one’s tactile organ(s) (i.e., the epidermal layer of the body as tactile sensor) INF STEM 3: (to be a) the tactile faculty; sense of touch	

The 30 texture/tactile sensation roots listed below have the following Specification pattern:

BSC	something having a (particular) texture or tactile sensation; to be something having a (particular) texture or tactile sensation
CTE	the particular texture or tactile sensation (of something); to be/have a particular texture or tactile sensation
CSV	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
OBJ	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”)

	-GS- ‘CHUNKY/GRITTY TEXTURE’
Stem 1	chunky textured (chunk-like, irregular/coarse pieces one can easily hold between thumb and forefinger)
Stem 2	gravel-like sensation
Stem 3	coarse/gritty sensation like sand

	-DF- ‘BUMPY TEXTURE’
Stem 1	bumpy, i.e., having individually discernible bumps on an otherwise quasi-linear or quasi-planar surface
Stem 2	stucco-like texture, i.e., rough texture of small, irregular bumps individually discernible only through closer inspection
Stem 3	pitted or serrated texture

	-VṬ- ‘FLAKY / SCALY TEXTURE’
Stem 1	flaky textured
Stem 2	scaly textured
Stem 3	‘confetti’ textured - like small flat pieces of paper

	-ZH- ‘ROUGH / BRISTLY TEXTURE’
Stem 1	rough-textured like sandpaper
Stem 2	bristly textured
Stem 3	prickly textured

	-KD- ‘HARD / RIGID TEXTURE’
Stem 1	hard/rigid (not malleable/pliable when subject to pressure from a blow/hit/sustained pressure point, etc.)
Stem 2	hard/-rigid and naturally smooth/even-surfaced
Stem 3	hard/-rigid and naturally rough/uneven-surfaced

	-VX- ‘SEMI-HARD / SEMI-RIGID TEXTURE’
Stem 1	semi-hard/semi-rigid (slightly malleable/pliable when subject to pressure from a blow/hit/sustained pressure point, etc.)
Stem 2	semi-hard/semi-rigid and naturally smooth/even-surfaced
Stem 3	semi-hard/semi-rigid and naturally rough/uneven-surfaced

	-GC- ‘SOLID BUT MALLEABLE TEXTURE’
Stem 1	solid but malleable/bendable texture (e.g., like a piece of wire or thin piece of copper plating)
Stem 2	plastic-like texture
Stem 3	cartilaginous texture

	-BŠ- ‘SOFT TEXTURE’
Stem 1	soft like a cushion
Stem 2	downy texture
Stem 3	curvaceous/sensual (= soft/smooth/squeezable/rounded) texture/sensation

	-VC- ‘GROOVED / STRIATED TEXTURE’
Stem 1	grooved textural pattern
Stem 2	striated textural pattern
Stem 3	cross-hatched textural pattern

	-BṬ- ‘WET / MOIST TEXTURE’
Stem 1	wet / liquidy
Stem 2	moist / damp
Stem 3	soggy / waterlogged / liquid-saturated

	-PZ- ‘VISCIOUS / GOOEY TEXTURE’
Stem 1	viscous, gooey textured
Stem 2	jelly-like texture
Stem 3	sticky textured

	-XZ- ‘DUSTY/POWDERY TEXTURE’
Stem 1	dusty
Stem 2	powdery
Stem 3	smooth granular (e.g., processed granules)

	-SG - ‘SLICK / SLIPPERY TEXTURE’
Stem 1	slick to the touch
Stem 2	slippery
Stem 3	slimy

	-ZF- ‘GUMMY / RUBBERY TEXTURE’
Stem 1	gummy texture
Stem 2	rubbery texture
Stem 3	clay-like texture

	-ŠD- ‘SLUSHY / MUSHY TEXTURE’
Stem 1	slushy texture
Stem 2	mushy texture
Stem 3	frothy / foamy texture

	-DL- ‘WAXY / OILY TEXTURE’
Stem 1	oily texture
Stem 2	waxy texture
Stem 3	lard-like, greasy texture;

	-FG- ‘HAIRY / FURRY TEXTURE’
Stem 1	hairy texture/sensation
Stem 2	soft furry/feathery/downy texture
Stem 3	woolly texture/sensation

	-TG- ‘PAPERY / FOIL-LIKE TEXTURE’
Stem 1	texture like paper
Stem 2	texture like metallic foil
Stem 3	texture like cellophane

	-JX- ‘GRATED TEXTURE’
Stem 1	grated / honeycomb-like texture (2-D planar)
Stem 2	grated / honeycomb-like texture (3-D volume, e.g., like a pinecone)
Stem 3	grated / honeycomb-like texture (malleable, pliable surface)

	-ŽT- ‘VARIATED TEXTURE’
Stem 1	lumpy texture; having congealed/harder lumps within a surrounding less-congealed or more pliable/malleable medium
Stem 2	multi-textured; quasi-predictable tactile patterns alternating between 2 or more sensations within the same tactile experience
Stem 3	irregularly textured; unpredictable tactile pattern alternating between two or more sensations within the same tactile experience

	-VD- ‘SHARPNESS’
Stem 1	point-like, needle-like sharpness
Stem 2	blade-like sharpness
Stem 3	sharpness of an irregular edge (e.g., broken glass)

	-SD- ‘BOUNCY / ELASTIC TEXTURE’
Stem 1	bouncy texture
Stem 2	elastic / stretchy texture
Stem 3	sponge-like recoiling texture

	-ZX- ‘TINGLY / VIBRATING TEXTURE’
Stem 1	tingly / tingling texture
Stem 2	vibrating/purring texture
Stem 3	pulsating/thumping texture

	-KD - ‘CAUSTIC / BURNING TACTILE SENSATION’
Stem 1	burning tactile sensation
Stem 2	caustic / corrosive tactile sensation
Stem 3	irritating tactile sensation

	-VT- ‘STRINGY, FIBROUS TEXTURE’
Stem 1	stringy texture
Stem 2	fibrous, twine-like texture
Stem 3	rope-like, cord-like texture

	-ŠB- ORAL TEXTURE’
Stem 1	chewy texture (in mouth)
Stem 2	“tough” texture (in mouth, e.g., of meat)
Stem 3	“melt-in-your-mouth” savory texture

	-ŽXW- ‘WARM / HOT TACTILE SENSATION’
Stem 1	warm to the touch
Stem 2	hot to the touch
Stem 3	burning hot to the touch

	-KVW- ‘COOL / COLD TACTILE SENSATION’
Stem 1	cool to the touch
Stem 2	cold to the touch
Stem 3	freezing cold to the touch

	-LV- ‘WISPY / FLUFFY TEXTURE’
Stem 1	wispy/wafting/misty texture
Stem 2	fluffy/puffy/cottony texture
Stem 3	“cobwebby”/like cotton-candy texture

	-SB- ‘SMOOTH / ROUNDED TEXTURE’
Stem 1	smooth (i.e., having no discernible surface changes/irregularities/indentations)
Stem 2	rounded / knobbed (e.g., a doorknob)
Stem 3	dull / blunt

10.2 Roots Related To Affective Sensory States (i.e., Proprioceptive, Interoceptive, and Vestibular-Sensory States)

-MGṚ- ‘INTEROCEPTION’		
BSC	STEM 1: (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]	FML STEM 1: (to be) a willful/deliberate act of interoception; an act of examining/detecting one’s bodily state via one’s interoceptive sense FML STEM 2: (to be) an act of utilizing a sensory device/instrument for interoceptive purposes; utilize a diagnostic device to determine one’s bodily state FML STEM 3: (to be) an induced interoceptive experience; to create/induce an interoceptive sensory experience
CTE	(to be) an interoceptive sensation, interoceptive feeling	
CSV	(to be) an act of interoception; to sense interoceptively; to perceive via one’s interoceptive sense(s)	
OBJ	(to be) the organ/bodily system/process which gives rise to an interoceptive sensation	
	INF STEM 2: (to be) one of the body’s potentially interoceptive organs/structures/tissues INF STEM 3: (to be) the interoceptive faculty; the sense of interoception	

-LVŘ- ‘PROPRIOCEPTION / KINAESTHESIA’ i.e., physical sense of bodily movement, position, and coordination		
BSC	STEM 1: (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]	FML STEM 1: (to be) a willful/deliberate act of proprioception; an act of examining/detecting one’s bodily movement/position via one’s proprioceptive sense FML STEM 2: (to be) an act of utilizing a sensory device/instrument for proprioceptive purposes; utilize a diagnostic device to determine one’s bodily state of movement/position FML STEM 3: (to be) an induced proprioceptive experience; to create/induce a sense of a particular bodily movement or position
CTE	(to be) an proprioceptive sensation, proprioceptive feeling, feeling of bodily motor coordination	
CSV	(to be) an act of proprioception; to sense proprioceptively; to perceive via one’s proprioceptive sense(s)	
OBJ	(to be) an organ/bodily system/process which gives rise to an proprioceptive sensation, i.e., muscle, joint, tendon.	
	INF STEM 2: (to be) one of the body’s proprioceptive organs/structures/tissues, i.e., muscle, joint, tendon. INF STEM 3: (to be) the proprioceptive/kinaesthetic faculty; the sense of proprioception/kinaesthesia	

-NDR- ‘VESTIBULAR SENSATION’ i.e., physical sense of bodily balance and spatial orientation	
BSC	STEM 1: (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]
CTE	(to be) one’s feeling of physical balance and spatial orientation
CSV	(to be) an act of vestibular sensation; to perceive one’s feeling of balance and spatial orientation
OBJ	(to be) an organ/bodily system/process which gives rise to a vestibular sensation, i.e., inner ear organelle(s).
	INF STEM 2: (to be) one of the body’s vestibular organs/structures/tissues INF STEM 3: (to be) the vestibular faculty; the sense of balance and spatial orientation
	FML STEM 1: (to be) a willful/deliberate act of vestibular; an act of assessing one’s balance and spatial orientation via one’s vestibular sense FML STEM 2: (to be) an act of utilizing a sensory device/instrument for vestibular purposes; utilize a diagnostic device to determine one’s bodily state of balance and spatial orientation FML STEM 3: (to be) an induced vestibular experience; to create/induce a sense of a particular state/sensation of bodily balance and spatial orientation

The affective proprioceptive, interoceptive, and vestibular-sensory roots listed below have the following Specification pattern.

BSC	(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]
CTE	(to be) an affective sensation, an affective feeling/state itself
CSV	(to be) the physical manifestation(s) of an affective sensation; to undergo/experience the physical manifestation(s) of an affective state
OBJ	(to be) an organ/bodily system/process which gives rise to a particular affective state

-DM - ‘SENSATION OF WARMTH’	
Stem 1	feel warm (inside one’s body)
Stem 2	feel hot (inside one’s body)
Stem 3	feel feverish (inside one’s body)

-XN- ‘SENSATION OF COOLNESS’	
Stem 1	feel cool (inside one’s body)
Stem 2	feel cold (inside one’s body)
Stem 3	feel chilled / have the chills (inside one’s body); be shivering, have the shivers

	-GD- ‘PHYSICAL SENSE OF WELL-BEING’
Stem 1	feel good, feel sense of physical well-being
Stem 2	feel relaxed
Stem 3	feel post-orgasmic/post-coital bliss; “afterglow”

	-LṬN- ‘PHYSICAL “HIGH” / EUPHORIA / ALTERED STATE OF CONSCIOUSNESS’
Stem 1	natural “high” / natural state of euphoria (physical/sensory, not emotional in origin)
Stem 2	chemically-induced “high”
Stem 3	trance-like state / altered state of consciousness

	-PSW- ‘RESPIRATION’
Stem 1	breathe
Stem 2	pant (i.e., due to physical/sexual exertion, excitement, fright, pulmonary, illness, etc.); feel/be out of breath, short-of-breath
Stem 3	gasp (i.e., once, as in surprise, shock, pain, etc.)

	-MSŘ- ‘RESPIRATORY DIFFICULTY’
Stem 1	wheeze
Stem 2	have râles
Stem 3	choke / asphyxiate

	-GZŘ- ‘AUTONOMIC RESPIRATORY REACTIONS’
Stem 1	feel need to yawn [CPT = to yawn]
Stem 2	feel need to cough [CPT = to cough]
Stem 3	feel need to sneeze [CPT = to sneeze]

	-JŘ- ‘GASTRO-INTESTINAL PAROXYSMS’
Stem 1	feel need to belch/burp [CPT = to belch/burp]
Stem 2	feel need to vomit [CPT = to vomit]
Stem 3	feel need to fart [CPT = to fart]

	-PSŘ- ‘HAVE AN ITCH; TO ITCH’
Stem 1	have an itch; to itch
Stem 2	feel a tingling sensation (on skin)
Stem 3	feel a burning sensation (on skin)

	-CXW- ‘TACTILE INJURIES TO SKIN’
Stem 1	feel a scrape
Stem 2	feel a bruising/contusion
Stem 3	feel a pinch(ing)

	-FN- ‘HUNGER / THIRST’
Stem 1	feel hungry
Stem 2	feel thirsty
Stem 3	feel undernourished

	-ḶM- ‘FEEL TIREDNESS/FATIGUE’
Stem 1	feel tiredness/fatigue
Stem 2	feel drowsiness/sleepiness
Stem 3	feel unfocused/groggy

	-ČŘ- ‘BODILY WASTE ELIMINATION’
Stem 1	feel need to urinate [CPT = to urinate]
Stem 2	feel need to defecate [CPT = to defecate]
Stem 3	feel need to spit [CPT = to spit]

	-TFŘ- ‘FEEL INTEROCEPTIVE BODILY MOVEMENT’
Stem 1	feel bloated/gassy
Stem 2	feel stomach/intestines “rumbling”
Stem 3	feel stomach contents “shift”

	-LW- ‘ABNORMAL INTEROCEPTIVE SENSATION’
Stem 1	feel light-headed / dizzy
Stem 2	feel faint
Stem 3	feel shock / be in shock

	-FTR- ‘ABNORMAL AFFECTIVE TACTILE SENSATION [ON SKIN]’
Stem 1	feel a tickle
Stem 2	feel a prickly sensation
Stem 3	feel an “ants/spiders crawling” sensation

	-MBŘ- ‘ABNORMAL VESTIBULAR-PROPRIOCEPTIVE SENSATION’
Stem 1	feel vestibular lack of balance; feel off-balance/unbalanced / having impaired balance / off-kilter
Stem 2	feel awkwardness/unfamiliarity with one’s bodily motor coordination (e.g., when drunk, following a stroke, during puberty, etc.)
Stem 3	feel “shaky”, difficulty in controlling one’s vestibular/muscular coordination (e.g., due to shock, illness, etc.)

	-CTW- ‘PENETRATIVE SENSATION THROUGH SKIN’
Stem 1	feel a sting/prick
Stem 2	feel a stab; feel a piercing; sharp penetration through skin
Stem 3	feel a bite (by a toothed entity)

	-ŘŘX- ‘PHYSICAL PAIN’
Stem 1	feel external tactile pain
Stem 2	feel interoceptive/proprrioceptive pain
Stem 3	feel muscular strain

	-VZW- ‘SOCIALY-BASED PLEASURABLE TACTILE SENSATION’
Stem 1	sensation from having body or part of body massaged
Stem 2	sensation from having back scratched
Stem 3	caress / feel of “soft touch” / “social touch” (a.k.a. affective touch, somatosensory touch)

	-JDW- ‘AFFECTIVE TACTILE REACTIONS’
Stem 1	feel “a thrill down one’s spine”
Stem 2	feel one’s “hairs standing on the back of one’s neck”
Stem 3	“have the creeps / have the willies”

	-LBW- ‘CARDIOGENIC SENSATION’
Stem 1	feel one’s heart beating
Stem 2	feel one’s heart racing
Stem 3	feel one’s heart fluttering

	-KR- ‘FEEL ILL / SICK’
Stem 1	feel ill/sick/unhealthy; feeling of general malaise, feel “blah”, feel so-so, feel poorly
Stem 2	feel torpor/lethargy
Stem 3	feel weakness

	-KSN- ‘POSITIVE OVERALL PHYSICAL STATE’
Stem 1	feel energized/alert
Stem 2	feel physically in shape
Stem 3	feel physically strong

	-MMH- ‘PHYSICAL/SENSORY PLEASURE’
Stem 1	feel physical/sensory pleasure
Stem 2	feel physical relief (from previous state of pain/strain/fatigue, etc.)
Stem 3	feel physical satisfaction/satiety

	-GH- ‘BRUISE / SWELLING / INFLAMMATION’
Stem 1	have/feel a bruise
Stem 2	feel sore, have/feel inflammation, swelling
Stem 3	have a sensitive/tender feeling on the body (no visible swelling or bruise)

	-ZGY- ‘INTERNAL BURNING/TINGLING/PRICKLY SENSATION’
Stem 1	have/feel an internal “burning” sensation
Stem 2	have/feel an internal tingling sensation
Stem 3	have/feel an internal prickly/stinging sensation

	-ZG- ‘ACHE / SHARP PAIN / RADIATING PAIN’
Stem 1	feel/have an ache (i.e., diffuse, non-sharp pain) [using SUF/EXN affixes, this stem can mean ‘feel throbbing/pounding pain’]
Stem 2	feel sharp/stabbing pain
Stem 3	feel radiating “shooting” pain

	-PFN- ‘TWITCHING / FLUTTERING / TREMBLING’
Stem 1	feel a twitch or twinge
Stem 2	feel a fluttering sensation
Stem 3	feel/experience a tremor or trembling

	-JBY- ‘NUMBNESS / “PINS & NEEDLES” FEELING’
Stem 1	feel that a limb has “fallen asleep”,
Stem 2	“pins & needles” feeling in one’s limb (after it has been “asleep”)
Stem 3	feel internal numbness or “dead” feeling (i.e., a lack of an expected internal sensation)

	-TXL- ‘QUEASINESS / NAUSEA / VOMITING’
Stem 1	have no appetite (even though one has not recently eaten)
Stem 2	feel queasy (mildly nauseous feeling)
Stem 3	feel nauseous; have nausea, feel as if one is going to vomit [CPT version = ‘to vomit’]

	-DĀ- ‘BLACK-OUT / SPELL / SEIZURE’
Stem 1	experience a feeling of “blacking out” or “blacking out”
Stem 2	experience an episode or spell of inattention or loss of awareness/focus; to “zone out”/ “space out”
Stem 3	experience a seizure

	-ŇH- ‘FEEL FLUSHED / PERSPIRATION / FATIGUE’
Stem 1	feel sweaty, be in a sweat; perspire
Stem 2	feel fatigue from physical exertion
Stem 3	feel flushed; have flushed feeling

10.3 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:

BSC	(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]
CTE	(to be) the semiotic-informational content of the particular affective state
CSV	(to be) the physical manifestation(s) of the affective state; to undergo/experience the physical manifestation(s) of the particular affective state
OBJ	(to be) the circumstance(s)/event/situation/encounter which triggers or gives rise to the particular affective state

	-TW- ‘DREAM’
Stem 1	dream
Stem 2	lucid dream
Stem 3	nightmare

	-LDŘ- ‘ILLUSION / SYNAESTHESIA / HALLUCINATION’
Stem 1	sensory illusion (i.e., misinterpretation of a real sensory experience)
Stem 2	synaesthetic experience
Stem 3	hallucination; apparition

	-ZKŘ- ‘PARANORMAL EXPERIENCE’
Stem 1	paranormal experience
Stem 2	telepathathic experience
Stem 3	state/act of clairvoyance

	-DGW- ‘PREMONITION / PRESCIENCE’
Stem 1	premonition / a vision
Stem 2	state of prescience / precognition
Stem 3	interpret/read “signs” (e.g., haruspex, fortune-telling, divination, aeromancy, etc.)

	-LŘ- ‘INSTINCT’
Stem 1	instinct; act/behave on instinct [state + content]
Stem 2	involuntary state/act; reflex
Stem 3	autonomic state/reflex

	-MN- ‘MOOD /TEMPERAMENT / NATURE’
Stem 1	mood; behave based on a mood
Stem 2	one’s natural/usual “default” demeanor / temperament
Stem 3	one’s nature / the essence of one’s sense of self and one’s place in the world

	-FTW- ‘DECEPTION / BEGUILEMENT/ DELUSION’
Stem 1	state of being deceived/fooled; act/behave based on being under a deception
Stem 2	state of being beguiled/ /seduced; act/behave based on having been beguiled/seduced or psychologically manipulated
Stem 3	state of delusion, be deluded

	-ŠFW- ‘DÉJÀ VU / JAMAIS VU’
Stem 1	state of déjà vu
Stem 2	state of jamais vu
Stem 3	state of disbelief in one’s circumstance / sense of unreality regarding the present moment

	-STW- ‘DISSOCIATIVE STATE’
Stem 1	state of daydreaming
Stem 2	state of being mesmerized (inattentive to surroundings)
Stem 3	state of sleepwalking

	-ŽDW- ‘INDUCED DISSOCIATIVE STATES’
Stem 1	meditative state
Stem 2	hypnotic state
Stem 3	out-of-body experience

	-BŘ- ‘IRRATIONALITY / MENTAL ILLNESS’
Stem 1	state of irrationality
Stem 2	state of having a non-violent psychological disorder
Stem 3	state of violent or dangerous madness/insanity

	-VZN- ‘SPONTANEOUS SUSPICION OVER PERSONAL SPACE’
Stem 1	feeling of being watched
Stem 2	feeling that one is not alone; feeling that someone else is present
Stem 3	feeling that something ominous is about to happen

	-ŇC- ‘RELUCTANCE / SQUEAMISHNESS / COWARDICE’
Stem 1	feel reluctance, feel reluctant
Stem 2	feel squeamishness, feel squeamish, have qualms about
Stem 3	feel cowardice, feel cowardly

	-FF- ‘PSYCHOLOGICAL PLEASURE’ Associated Affix: PLE
Stem 1	feel psychological/emotional pleasure
Stem 2	feel psychological relief (from previous state of mental stress, grief, worry, etc.)
Stem 3	feel psychological sense of satisfaction/satiety

10.4 Roots Related To Affective Unconscious/Semi-Conscious Autonomic States/Acts

Similar to the interoceptive/proprioceptive/vestibular roots above, the roots below designate various affective bodily states or acts. They take the following Specification pattern:

BSC	(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]
CTE	(to be) the particular affective experience, the affective act/state itself
CSV	(to be) the physical manifestation(s) of the affective experience; to undergo/experience the physical manifestation(s) of the particular affective state
OBJ	(to be) an organ/bodily system/process which gives rise to the particular affective state

	-JW- ‘LAUGHTER’
Stem 1	laugh
Stem 2	snicker
Stem 3	chuckle

	-SŇ- ‘ORAL-NASAL REFLEX’
Stem 1	make oral sound of derisiveness (e.g., “pfft”, “pshhh”, etc.)
Stem 2	drop jaw (i.e., open mouth suddenly in surprise/shock/pain)
Stem 3	snort (e.g., in disgust)

	-BDY- ‘MISC. AUTONOMIC BODILY PROCESSES’
Stem 1	blink eyelids
Stem 2	digest stomach contents
Stem 3	sweat

	-ŽBŘ- ‘OSCILLATIVE AFFECTIVE BODILY STATE’
Stem 1	shiver
Stem 2	fidget (unconscious)
Stem 3	shake leg or foot (unconscious)

	-GŽ- ‘FLINCH / JOLT / DUCK’
Stem 1	flinch/jolt
Stem 2	duck/crouch (as self-preservation reflex)
Stem 3	jump/leap out of the way (as self-preservation reflex)

	-ZN- ‘AFFECTIVE SEXUAL RESPONSE’
Stem 1	sexual arousal response (e.g., erection, lubrication, hardening of nipples, etc.)
Stem 2	approach orgasm [CPT = achieve orgasm]
Stem 3	ejaculation

	-TKŘ- ‘NEURO-MUSCULAR REACTION’
Stem 1	nervous tic
Stem 2	spasm
Stem 3	cramp

10.5 Roots Related To Semi-Conscious Habitual Acts

The following roots for semi-conscious habitual acts follow the same Specification pattern as the affective states immediately above.

	-STN- ‘NERVOUS HABIT’
Stem 1	bite fingernails
Stem 2	pick nose
Stem 3	crack knuckles

	-XPW- ‘HABITUAL ACTION’
Stem 1	scratch oneself (unconsciously)
Stem 2	rub or pinch oneself
Stem 3	suck thumb

	-DMW- ‘EMOTION-BASED PHYSICAL REACTION’
Stem 1	shrug
Stem 2	roll eyes
Stem 3	drop one’s jaw in surprise/shock

	-TPŘ- ‘HABITUAL ORAL ACTIONS’
Stem 1	purse lips
Stem 2	make smacking or other oral clicking sound
Stem 3	trill lips

	-- ‘NEGATIVE FACIAL EXPRESSION’
Stem 1	frown
Stem 2	scowl
Stem 3	have crestfallen/dejected look

	-- ‘ATYPICAL FACIAL EXPRESSION’
Stem 1	“scrunch up” one’s face in irritation/puzzlement/concentration
Stem 2	look of distraction / not paying attention / being “far away”
Stem 3	raise eyebrows due to encountering/considering something unexpected

	-MW- ‘SMILE / GRIN / SMIRK’
Stem 1	smile (lips closed)
Stem 2	grin (i.e., smile with teeth visible)
Stem 3	smirk

	-RTN- ‘FIDDLE / PLAY ABSENT-MINDEDLY’
Stem 1	play with hair
Stem 2	play with piece of clothing or jewelry (unconsciousness)
Stem 3	fiddle with object

10.6 Roots For 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.

-ÇM- ‘AFFECTIVE STATE’		Associated Affix: EMO
BSC	STEM 1: (to be in) a non-volitional (affective) state (both internal, psychological manifestations and external, visible manifestations)	STEM 2: [same as Stem 1 except that the affective state is specifically a non-volitional emotional state] STEM 3: [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.]
CTE	(to be) the internal psychological, and proprioceptive sensation of being in such a state; to experience such manifestations	
CSV	(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	
OBJ	(to be) the act/event/situation/circumstance(s) which trigger or give rise to an affective state	

INFORMAL stems refer to the state as affective (unwilled, involuntary, spontaneous, autonomic), while **FORMAL** stems refer to the emotion as consciously/deliberately willed, its verbal meaning being ‘to work oneself up deliberately into a [particular] emotional state’. Note that this use of FORMAL designation for many roots renders concepts that will often have little semantic utility in a real-world sense (e.g., the notion of ‘*deliberately/consciously willing oneself into a state of emotional shock*’); nevertheless, such forms are available in the language for the sake of lexico-morphological uniformity and easier memorization.

Roots for more than one hundred emotional states are listed below. They all follow the same Stem & Specification pattern as the root above:

10.6.1 Desirable/Positive Emotions

green = will also be a bias category

-ÑV-	<ol style="list-style-type: none"> 1. feel(ing of) jollity/merriment/delight 2. feel(ing of) happiness 3. feel(ing of) jubilation (= short-term sense of joy)
-RPL-	<ol style="list-style-type: none"> 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
-TKY-	<ol style="list-style-type: none"> 1. feel(ing of) gleefulness/fun/amusement 2. feel(ing of) free-spiritedness/frivolity 3. feel(ing of) playfulness, gregariousness

-SMW-	<ol style="list-style-type: none"> 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
-ZMM-	<ol style="list-style-type: none"> 1. feel(ing of) enjoyment 2. feel(ing of) excitement 3. feel(ing of) a thrill, “whee!”
-TPL-	<ol style="list-style-type: none"> 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

-RTK-	<ol style="list-style-type: none"> 1. feel(ing of) sympathy / commiseration 2. feel(ing of) compassion 3. feel(ing of) empathy
-NTK-	<ol style="list-style-type: none"> 1. feel(ing of being) hopeful; wishful for beneficial outcome 2. feel(ing of being) encouraged 3. feel(ing of) optimism
-TMY-	<ol style="list-style-type: none"> 1. feel(ing of being) honored/privileged 2. feel(ing of being) beholden, wanting to give back 3. feel(ing of being) humble, humility
-RKY-	<ol style="list-style-type: none"> 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
-KTR-	<ol style="list-style-type: none"> 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
-TTL-	<ol style="list-style-type: none"> 1. feel(ing of) tolerance 2. feel(ing of being) accepting 3. feel(ing of being) trusting
-NTR-	<ol style="list-style-type: none"> 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 centered on one's social/familial/romantic connections

-VTL-	<ol style="list-style-type: none"> 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
-LKP-	<ol style="list-style-type: none"> 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
-LPW-	<ol style="list-style-type: none"> 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
-RTR-	<ol style="list-style-type: none"> 1. kindness, warm-heartedness 2. benevolent, helpful, beneficent 3. kindness, magnanimity, generosity
-GZZ-	<ol style="list-style-type: none"> 1. feel(ing of) elation, feel(ing of being) on an emotional "high" 2. feel(ing of) euphoria, bliss 3. feel(ing of) ecstasy
-NR-	<ol style="list-style-type: none"> 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
-MCW-	<ol style="list-style-type: none"> 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

10.6.2 Emotions Associated With Personal Relationships/Intimacy

-LTW-	<ol style="list-style-type: none"> 1. feel(ing of) fondness, affection 2. feel(ing of) a bond of fellowship, comradeship 3. feel(ing of) friendship
-KPL-	<ol style="list-style-type: none"> 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

-LPY-	<ol style="list-style-type: none"> 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
-PKR-	<ol style="list-style-type: none"> 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)

-RKW-	<ol style="list-style-type: none"> 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
-RPY-	<ol style="list-style-type: none"> 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
-VPL-	<ol style="list-style-type: none"> 1. feel(ing of) surprise, floating-on-air, and joy when someone you love romantically tells you they love you in return 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 3. feel(ing of) emotional solidity and depth of the mutual bond felt by persons in a longstanding, successful romantic relationship.
-TKR-	<ol style="list-style-type: none"> 1. feel(ing of being) worthy, deserving 2. feel(ing of) appreciated, recognized, honored 3. feel(ing of being) loved, adored, worshipped
-LŠ-	<ol style="list-style-type: none"> 1. feel(ing of) exaltation, "being on top of the world" 2. feel(ing of) ecstatic awareness at the joy and wonder of being alive 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
-CD-	<ol style="list-style-type: none"> 1. feeling of love for existence / pantheistic love 2. feeling of inherent "connection" to or oneness with the universe through space and time 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.

-LTY-	<ol style="list-style-type: none"> 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
-RPR-	<ol style="list-style-type: none"> 1. feel(ing of) devotion 2. feel(ing of) personal loyalty 3. feel(ing of) allegiance/fealty
-MTL-	<ol style="list-style-type: none"> 1. feel(ing of) poignancy (= "aaw" reaction to an event characterized by irresistible cuteness) 2. feel(ing of) poignancy, feeling touched or moved by witnessing an act/event of compassion/tenderness/love, etc.) 3. feel(ing of having) the capacity to be easily moved
-LTR-	<ol style="list-style-type: none"> 1. feel(ing of being) romantic (i.e., preoccupied with idealized, fabulous notions of life, adventure, and love) 2. feel(ing of having) a head-in-the-clouds fantasy feeling, "dreaming" 3. feel(ing of being) lost in one's fantasies and daydreams
-ŽY-	<ol style="list-style-type: none"> 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] 2. feel(ing of) wanting to participate or help out; desire to make an effort to accomplish something for others 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
-MML-	<ol style="list-style-type: none"> 1. feel(ing of) sudden clarity/understanding upon discovery of the solution to a problem/puzzle/mystery — the "a-ha!" moment 2. feel(ing of) personal triumph, of conquering a personal challenge 3. feel(ing of) victory, that one has vanquished an enemy

10.6.3 Ambivalent Emotions

-CG-	<ol style="list-style-type: none"> 1. feel(ing of) pity 2. feel(ing of) mercy 3. feel(ing of) charitableness, altruism, self-sacrifice 	-KŠŠ-	<ol style="list-style-type: none"> 1. feel(ing of being) judgmental 2. feel(ing of) contempt; morally superior feeling + disgust, anger, or resentment 3. feel(ing of) vindictiveness, feeling of an “injustice collector”
-ZT-	<ol style="list-style-type: none"> 1. feel(ing of) curiosity 2. feel(ing of) interest 3. feel(ing of) being intrigued 	-KSD-	<ol style="list-style-type: none"> 1. feel(ing of) bittersweetness 2. feel(ing of) solace/comfort in the face of sadness or grief 3. feel(ing of) forbearance/fortitude/inner strength in the face of sadness
-ŽČ-	<ol style="list-style-type: none"> 1. feel(ing of) wistfulness/longing/yearning 2. feel(ing of) sentimentality/nostalgia 3. feel(ing of) saudade 	-BZT-	<ol style="list-style-type: none"> 1. feel(ing of) determination/earnestness 2. feel(ing of) eagerness/fervor, feel driven 3. feel(ing of) zeal/zealotry/fanaticism
-KFF-	<ol style="list-style-type: none"> 1. feel(ing of) nonchalance/indifferenc /incuriosity/lack of interest 2. feel(ing of) disdain/dismissiveness 3. feel(ing of) apathy 	-GZP-	<ol style="list-style-type: none"> 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
-GŽT-	<ol style="list-style-type: none"> 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 	-VZK-	<ol style="list-style-type: none"> 1. craving (i.e., a greedy hunger for food, adventure, power, money, salacious or forbidden experiences, etc.) 2. sexual lust 3. greed / avarice
-PSB-	<ol style="list-style-type: none"> 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 	-KSG-	<ol style="list-style-type: none"> 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
-VVR-	<ol style="list-style-type: none"> 1. feel(ing of) passion 2. feel(ing of) infatuation/obsessiveness 3. feel(ing of) worship/adoration 	-ŽŽJ-	<ol style="list-style-type: none"> 1. feel(ing of) fascination; be/feel fascinated 2. feel(ing of) enthralment; be/feel enthralled 3. feel(ing of) entrancement/rapture; be/feel entranced/rapturous
-DK-	<ol style="list-style-type: none"> 1. feel(ing of) contemplation; feel contemplative 2. feel(ing of) pensiveness; feel pensive 3. feel(ing of) brooding; feel in brooding mood 	-GZT-	<ol style="list-style-type: none"> 1. feel(ing of) impulsiveness; feel impulsive 2. feel(ing of) inspiration; feel inspired 3. feel(ing of) compulsion; feel compelled
-KLL-	<ol style="list-style-type: none"> 1. feel(ing of) surprise 2. feel(ing of) amazement, astonishment 3. feel(ing of) awe, wonder 	-LĹČ-	<ol style="list-style-type: none"> 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
-JK-	<ol style="list-style-type: none"> 1. feel(ing of) willingness to take a risk, steeling one’s nerves against 2. brave, fearless 3. feel(ing of) intrepidity, courageousness 	-BZK-	<ol style="list-style-type: none"> 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

-PSG-	<ol style="list-style-type: none"> 1. feel(ing of) smugness 2. feel(ing of) conceit, feel(ing of being) full of oneself 3. feel(ing of) narcissism, self-aggrandizement
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-ČB-	<ol style="list-style-type: none"> 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
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10.6.4 Undesirable/Negative Emotions

-KSK-	<ol style="list-style-type: none"> 1. annoyance/irritation (caused by external event/state/situation/person) 2. anger, ire 3. rage, fury; feel furious
-JG-	<ol style="list-style-type: none"> 1. feel(ing of) disappointment, feel let down 2. feel(ing of) disillusionment 3. feel(ing of being) jaded, cynical
-MRŘ-	<ol style="list-style-type: none"> 1. sadness/grief 2. sorrow/lamentation 3. woefulness/despair/desolation
-PŠŠ-	<ol style="list-style-type: none"> 1. feel(ing of being) misunderstood 2. feel(ing of) indignation/being offended/feel insulted 3. feel(ing of) resentment, bitterness, being treated unfairly
-KČÇ-	<ol style="list-style-type: none"> 1. feel(ing of) frustration 2. feel(ing of being) disconcerted, defeated 3. feel(ing of) exasperation
-MDR-	<ol style="list-style-type: none"> 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
-RŇG-	<ol style="list-style-type: none"> 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
-KSB-	<ol style="list-style-type: none"> 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

-ŠŠTL-	<ol style="list-style-type: none"> 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
-GZJ-	<ol style="list-style-type: none"> 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
-BGR-	<ol style="list-style-type: none"> 1. feel(ing of) boredom 2. mental lassitude, mental laziness, uninspired / “stuck in a rut” 3. mental fatigue/weariness at the state one has let their life become; tired of the same stale dead-end routine
-JBR-	<ol style="list-style-type: none"> 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
-ZGL-	<ol style="list-style-type: none"> 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
-ZGR-	<ol style="list-style-type: none"> 1. feel(ing of) apprehension, foreboding 2. feel(ing of) anxiety/nervousness/unease 3. feel(ing of) /trepidation /fright
-BZG-	<ol style="list-style-type: none"> 1. feel(ing of) melancholy/emotional malaise 2. feel(ing of being) glum / gloomy 3. feel(ing of) (monopolar) depression
-ŘRN-	<ol style="list-style-type: none"> 1. feel(ing of) envy 2. feel(ing of) jealousy 3. feel(ing of) covetousness

-RKŠ-	<ol style="list-style-type: none"> 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 Version = loss of emotional control; nervous breakdown] 	-RMZ-	<ol style="list-style-type: none"> 1. feel(ing of being) sullen/moody/morose 2. feel(ing of being) churlish, antisocial, irascible 3. feel(ing of being) rebellious
-FKT-	<ol style="list-style-type: none"> 1. feel(ing of being) flustered at not knowing how to react or what to think/do 2. feel(ing of) embarrassment due to social faux pas/misstep 3. feel(ing of being) foolish, feel(ing of) guilt/shame over playing the fool 	-VVZ-	<ol style="list-style-type: none"> 1. feel(ing of) worry/ feel(ing of being) preoccupied/fretful/concerned over 2. feel(ing of) dread (anticipation of something negative/detrimental) 3. feel(ing of) feel(ing of) angst
-GVV-	<ol style="list-style-type: none"> 1. feel(ing of) puzzlement, perplexity 2. feel(ing of) confusion, feel one doesn’t understand a situation 3. feel(ing of) bewilderment 	-ZDR-	<ol style="list-style-type: none"> 1. feel(ing of) emotional emptiness/hollowness/shalowness 2. feel(ing of being) unemotional / lacking emotion / feel nothing 3. feel(ing of) cavaliness/lack of empathy
-KTP-	<ol style="list-style-type: none"> 1. feel(ing of being) spiteful, vindictive 2. feel(ing of being) begrudged, feel rancorous. unforgiving, holding a grudge 3. feel(ing of being) vengeful / feel a desire for revenge 	-RGZ-	<ol style="list-style-type: none"> 1. feel(ing of being) flustered due to conflicting sensory/emotional input 2. feel(ing of) emotional overload/feel need to “take a break” emotionally 3. feel(ing of being) emotionally overwhelmed / swooning
-TMW-	<ol style="list-style-type: none"> 1. feel(ing of being) cheated 2. feel(ing of being) victimized/used/violated 3. feel(ing of being) traumatized 	-VGY-	<ol style="list-style-type: none"> 1. feel(ing of) shame 2. feel(ing of) guilt 3. feel(ing of) self-hate/self-loathing over one’s own failings/wrongdoings
-JD-	<ol style="list-style-type: none"> 1. feel(ing of being) mean/malicious/malevolent/ill-willed 2. feel (a desire to be) cruel or sadistic 3. feel(ing of) sadistic pleasure at another’s pain or torment 	-RNŽ-	<ol style="list-style-type: none"> 1. feel(ing of) doubt, dubiousness (= uncertainty as to whether to believe) 2. feel(ing of) skepticism 3. feel(ing of) disbelief, incredulity
-BZB-	<ol style="list-style-type: none"> 1. feel(ing of) bashfulness, timidity 2. feel(ing of) shyness 3. feel(ing of) stagefright 	-MMF-	<ol style="list-style-type: none"> 1. feel(ing of) doubt (= feel misgivings, feel one is being fooled or doesn’t have all the facts) 2. feel(ing of) suspicion (that someone/something is not what it seems) 3. feel(ing of) caution (= feeling that one may be in unsafe situation)
-LLČ-	<ol style="list-style-type: none"> 1. feel(ing of) dismay 2. feel(ing of) alarm, surprise (at negative occurrence/experience) 3. feel(ing of) shock/reeling (from unexpected bad news/experience) 	-ŽŽG-	<ol style="list-style-type: none"> 1. feel(ing of) dejection, downheartedness, crestfallenness 2. feel(ing of) rejection 3. feel(ing of) heartbreak, heartache
-GVR-	<ol style="list-style-type: none"> 1. feel(ing of) awkwardness 2. feel(ing of) embarrassment 3. feel(ing of) humiliation 	-KSP-	<ol style="list-style-type: none"> 1. feel(ing of) pessimism / feeling that things are not okay 2. feel(ing of) defeatism, feel defeatist 3. feel(ing of) paranoia, feel paranoid

-JGL-	<ol style="list-style-type: none"> 1. feel(ing of) world-weariness (German: <i>Lebenskrankheit</i>) 2. feel(ing of) Weltschmerz 3. feel(ing of) feeling of futility in the face of realizing the transience and seeming meaninglessness of life and the universe
-KNY-	<ol style="list-style-type: none"> 1. feel(ing of) stinginess, feel stingy 2. feel(ing of) selfishness 3. feel(ing of) uncharitableness, uncompassionate, miserliness
-XPL-	<ol style="list-style-type: none"> 1. feel(ing of being) distracted, distraction, feel difficulty in focusing or paying attention, feel unable to get one's mind off something 2. feel(ing of being) unaware/ignorant of what's going on in a situation 3. feel(ing of being) unaware/ignorant of what's going on in the world or in life
-SGR-	<ol style="list-style-type: none"> 1. feel(ing of being) indecisive 2. feel(ing of being) fickle, vacillating 3. feel(ing of being) irresolute, lacking commitment, half-hearted
-FSL-	<ol style="list-style-type: none"> 1. feel(ing of) mental fatigue/weariness at the state one has let their life become; tired of the same stale dead-end routine... 2. feel(ing of) worthlessness, uselessness 3. feel(ing of being) suicidal
-PXR-	<ol style="list-style-type: none"> 1. feel(ing of) reluctance/disinclination, feel(ing of) a desire to avoid 2. feel(ing of) unwillingness/aversion 3. feel(ing of) opposition, feel desire to stand against/oppose
-VKR-	<ol style="list-style-type: none"> 1. feel(ing of) resignation, no further willingness to fight, giving up 2. feel(ing of) helplessness/inefficacy/inability 3. feel(ing of) renunciation, desire to turn one's back on the world and become a hermit
-VZG-	<ol style="list-style-type: none"> 1. feel(ing of being) like a stranger in one's own life, like one does not understand oneself 2. feel(ing of) alienation from self and others (resigned disgust with oneself and one's inability to understand the world) 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

-VGR-	<ol style="list-style-type: none"> 1. feel(ing of being) full of nervous energy, feel manic 2. feel(ing a) need to lash out or to make a scene, 3. feel(ing of being) nihilistic, feel like destroying/defacing the sublime
-PMW-	<ol style="list-style-type: none"> 1. feel(ing of) stubbornness, obstinacy 2. feel(ing of) unyielding, steadfast 3. feel(ing of) intransigence/implacability
-ŽŽV-	<ol style="list-style-type: none"> 1. feel(ing of) impatience 2. feel(ing of) irritability/being easily-angered, being on-edge 3. feel(ing of) needing to take matters into one's own hands, get things moving; feeling tired of sitting around not doing anything
-FFX-	<ol style="list-style-type: none"> 1. feel(ing of) dislike/distaste/disapproval 2. feel(ing of) loathsomeness/abhorrence/repugnance/detesting 3. feel(ing of) hate/hatred/enmity
-XTL-	<ol style="list-style-type: none"> 1. feel(ing of) aesthetic fatigue/saturation; exposure to so much beauty that one ceases to appreciate it 2. feel(ing of) compassion fatigue 3. feel(ing of) futility, feel that all one's efforts are for naught in that they make no difference
-LNY-	<ol style="list-style-type: none"> 1. feel(ing of being) lonesome, wanting company/companionship 2. feel(ing of) loneliness, feel a lack of love/friendship 3. feel(ing of) invisibility (as if no one ever even notices you)
-KSG-	<ol style="list-style-type: none"> 1. feel(ing of) pettiness, feel(ing of) unwarranted concern for trivial matters 2. feel(ing of) fussiness, finickiness (= spirit of uncooperativeness over trivial matters) 3. feel(ing of) a need to meddle/interfere/ "butt in"
-VTR-	<ol style="list-style-type: none"> 1. feel(ing of) sadness or melancholy in the face of happiness due to knowing the happiness is transient/ephemeral 2. feel(ing of) sadness or melancholy in the face of happiness due to knowing others are not happy 3. feel(ing of) inability to feel/enjoy happiness even upon achieving one's desires due to believing one does not deserve happiness

-RKR-	<ol style="list-style-type: none"> 1. feel(ing of) aloofness 2. feel(ing of) emotional superiority/maturity/feeling “above it all” 3. feel(ing of) disgust/spite at the inferiority/stupidity of other people
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-PFC-	<ol style="list-style-type: none"> 1. light-hearted or innocent amusement at another’s behavior or words 2. mean-spirited amusement at another’s behavior or predicament 3. Schadenfreude
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In addition to over 100 emotion roots, the **EMO** Emotion **V_xC_s** 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.

10.7 Additional Roots Associated With Bias Categories (See Sec. 3.14 of the Morpho-Phonology Design Document)

Besides those emotion roots and other sensory roots previously indicated as having associated Bias categories, the following new roots have associated Bias categories:

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

ACH ARCHETYPAL BIAS Affix: what (a) ...!; how . . . !; Boy! Did (does) X ever ...

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

ACC ACCIDENTAL BIAS Affix: ‘As luck would have it...’ ‘Fate has decided that...’ ‘What luck!’

-VLL- IMPLICATION / INFERENCE / CONNOTATION / ALLUSION		
BSC	STEM 1: (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	Stem 2: (process of) connotation; to connote
CTE	(be) an inference; that which is inferred/deduced from an implication	Stem 3: (process of) allusion; to allude (to)
CSV	(be) a process of implying; offer/manifest evidence from which an inference can be made	
OBJ	(be) an object/entity/party/situation which gives rise to, or is the basis for, an implication (and subsequent inference)	

IPL — Implicative Bias affix: = ‘of course,’ ‘after all,’ or ‘needless to say.’

-RRJ- ASSERTION / CERTAINTY / ASSURANCE / ALLEGATION / AFFIRMATION		
BSC	STEM 1: (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.
CTE	(be in) a state of certainty about something based on one’s belief/knowledge about it	Stem 3: (process of) affirmation; to affirm/swear that something is so.
CSV	(be) a process of asserting; declare that something is so	
OBJ	(be) that which is being asserted; an asserted fact	

ASV — Assertive Bias affix: = ‘I’m telling you...’, ‘*I told you so!*’, ‘*You see?!*’

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

OPT — Optimal Bias affix: = prolonged ‘so’ or ‘totally’ as in ‘*I so don’t care!*’ or ‘*That is totally what I wanted.*’

-DRR- ‘APPEAR / MANIFEST / SHOW / EXHIBIT / DISPLAY / EXPOSE / ANNOUNCE’	
BSC	(be) a manifestation, a showing, an appearance, i.e., be/make observable/discernible to others; to show, to manifest, to appear
CTE	(be) the state of appearing, being shown, being manifest
CSV	(be) the physical act/process of making something appear, or be shown, or be manifest
OBJ	(be) the object/entity/party being shown/manifested or appearing to others
Stem 2: (be) an act/process of exposure, i.e., letting others observe/discern something they otherwise would not observe/discern Stem 3: (be) an act of bringing/calling attention to something, i.e., make others aware of the appearance/showing of something Formal Stem 1: (be) an act/process of displaying or exhibiting something; display, exhibition; to display, to exhibit Formal Stem 2: (be) an act/process of showing off, flaunting; to show off, to flaunt Formal Stem 3: (be) an announcement, an advertisement; to announce, to advertise (i.e., utilize means of mass communication to make others aware of something)	

ANN — ANNUNCIATIVE Bias Affix: = *‘Guess what!’* or *‘Wait till you hear this!’*

-LZP- IRONIC FORTUITOUSNESS / DRAMATIC IRONY	
BSC	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.
CTE	(be) the psychological state/reaction by a party subject to the type of irony described by the BSC Specification
CSV	(be) the physical/tangible acts/events constituting a situation involving the type of irony described by the BSC Specification
OBJ	(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.
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).	

FOR — Fortuitous Bias affix: = *‘It’s just as well that...’* or *‘All’s well that ends well...’*

-ŠŠČ- COINCIDENCE	
BSC	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
CTE	(be) the psychological impact of perceiving a coincidence
CSV	(be) the physical/tangible circumstances constituting what makes an event/occurrence/state/act perceivable as being a coincidence
OBJ	(be) a party/entity/object that is involved in, or is the focal point of, a coincidence
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)	

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

COI — Coincidental Bias affix: = “What a coincidence!”

-ÑÑS- ‘SOLICITATION / SUPPLICATION / IMPLORE / BESEECH / ENTREATY / APPEAL’	
BSC	(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
CTE	(be) the psycho-social aspects of an act of solicitation
CSV	(be) the physical act/process/words involved in making a solicitation
OBJ	(be) the object/entity/service which the soliciting party hopes to obtain
Stem 2: (be) an act/process of begging/imploping/beseeching/entreating, i.e., an emotionally earnest/intense form of solicitation; to beseech, entreat, beg Stem 3: (be) an act of prayer; to pray (i.e., to a deity or supernatural entity)	
Formal Stem 1: (be) a process of claiming; to make a claim (i.e., to seek relief from some injustice done) Formal Stem 2: (be) an act/process of suing; to sue, file a (law)suit Formal Stem 3: (be) an act/process of appealing; to appeal (i.e., to seek reversal of some punishment meted)	

SOL SOLICITATIVE Bias Affix: ‘please’ ññss

-MLL- ‘IRONIC RELIEF / IRONIC SURPRISE’ (Specification pattern for this root follows that of the Emotion roots)
Stem 1: 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) Stem 2: feel(ing of) negative astonishment (i.e., astonishment at perceiving/experiencing/discovering something awful/sad/horrible/devastating/terrible, etc.) Stem 3: 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.)

PPT PROPITIOUS Bias Affix: — ‘it’s a wonder that’ as in *It’s a wonder he didn’t break a bone in that fall.*

-LLH- ‘UNEXPECTED/EXASPERATED BEWILDERMENT’ (Specification pattern for this root follows that of the Emotion roots)
Stem 1: 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. Stem 2: 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 Stem 3: 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.

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

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

SATIATIVE Bias Affix: ‘How satisfying...!’ ‘At last, the pleasue of knowing/being/seeing/doing....’ [psychological/emotional pleasure/satiety only]

-NNT- SINGLE-MINDEDNESS / PRESUMPTUOUSNESS / NARROW-MINDEDNESS	
BSC	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
CTE	(be) the feeling/state of being single-minded
CSV	(be) the actions/words or physical manifestation associated with being single-minded
OBJ	(be) the idea/ /opinion/belief/event/act/state that one is single-minded about
	Stem 2: (be) an instance of presumptuousness; having pre-conceived notion/idea before (or without) considering evidence to the contrary
	Stem 3: (be) an instance of narrow-mindedness; imperviousness to differing points of view; unable to consider any viewpoint

PSM PRESUMPTIVE 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,....’

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

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

IRO: Ironic Bias affix: “Oh, nice!” “Just great!” “Well, now, isn’t this lovely!”

-ŘS- ‘ASSENT / AGREEMENT / PERMISSION / AFFIRMATION / APPROVAL’		Affix: CNS
BSC	Stem 1: (to be) a state/act of being okay with something, accepting the idea of something; to be okay with something, to accept the idea of something	Stem 2: (to be) a state /act of assenting/consenting; to assent/consent to something Stem 3: (to be) a state/act of concurring/agreeing, concurrence/agreement/accord; to concur, to agree, be in agreement/accord with
CTE	(to be) a state of acceptability/being accepted	
CSV	(to be) a physical act of being okay with, accepting of an idea; to say/do something to convey one’s being okay with something	
OBJ	(to be) a	
FML Stem 1: a state/act of permitting; to grant permission, to permit		
FML Stem 2: a state/act of affirming/confirming, affirmation/confirmation/formal recognition; to affirm, confirm, formally recognize		
FML Stem 3: a state/act of approval/endorsement; to approve, endorse		

APB APPROBATIVE Bias Affix: ‘(That’s) OK’ ‘(That’s) alright’ ‘(That’s) good’ ‘(That’s) fine’ ‘Very well’ ‘Sure’

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

CRR CORRECTIVE Bias Affix: ‘that is to say....,’ ‘What I mean(t) to say is....’ ‘I mean....’

-VVT- ‘TACT(FULNESS) / INGRATIATE / OBSEQUIOUSNESS / SYCOPHANCY’		
BSC	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	STEM 2: (to be) ingratiating STEM 3: (to be) obsequious, unctuous, sycophantic
CTE	(be) a state of tactfulness; to manifest tactfulness, have a tactful air/manner	
CSV	(be) the tangible action(s)/word(s) used in an act/display of tact(fulness)	
OBJ	(be) the matter/issue/subject/situation requiring/necessitating/eliciting a display of tact(fulness)	

EUP EUPHEMISTIC Bias Affix: ‘Let’s just say that....’ or ‘Well, let me put it this way....’

-RRC- ‘SELF / IDENTITY / OPINION / PERSONAL BELIEF / PERSONALITY’		
BSC	STEM 1: (be) one’s own self (= one’s own person as an object of reflection or reference), oneself; to be/act (as) oneself	STEM 2: (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 STEM 3: (be) a one’s personality
CTE	(be) one’s sense of self-awareness, one’s sentience, i.e., the conscious subjective sense that one exists as an individual	
CSV	(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	
OBJ	(be) a person/entity [as observed externally by others] having a conscious self	

RFL RELECTIVE Bias Affix: ‘Look at it this way...’ ‘As I see it,...’ ‘In my opinion,...’ or ‘From my point of view,...’

-CČ- ‘MODESTY / HUMBLENESS / MEEKNESS’		
BSC	STEM 1: (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.)	STEM 2: (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) STEM 3: (be) an act/instance of meekness; be meek (i.e., patient and mild in character/personality and not inclined to anger or resentment)
CTE	(be) a modest person, have a modest character/personality	
CSV	(be) an appearance of modesty, i.e., to behave/act as (if) one who is modest	
OBJ	(be) a person whom others generally perceive as being modest	

DFD DIFFIDENT Bias Affix: ‘sorry, but...’ ‘It’s nothing. It’s just...’

-LTC- ‘SUGGESTION / ADVICE / PROFFER / RECOMMENDATION / PROPOSITION’		
BSC	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
CTE	(be) a state of having a suggestion made to one; listening to/hearing/reading a suggestion being made	
CSV	(be) the words/means/method of making a suggestion	
OBJ	(be) a suggestion; the idea offered as a potential course of action or way of thinking	
Formal Stem 1: (be) a proposal; to propose Formal Stem 2: (be) an instance of counselling; to counsel Formal Stem 3: (be) an act of advocating; to advocate		

SGS SUGGESTIVE Bias Affix: ‘How about...’ ‘We could...’ ‘Might I suggest...’

-SL- ‘THOUGHT / IDEA / CONTEMPLATION / CONCEPT / REASON / ANALYZE’		
BSC	STEM 1: (to be) an act of thinking/cogitating; to think/cogitate	STEM 2: (to be) an idea one is considering/mulling/contemplating; to consider, mull, contemplate, take into account
CTE	(to be) the state/process of thinking/cogitating	
CSV	(to be) the thought one is thinking	STEM 3: (to be) an act of reasoning; to reason [= employ a strict process of logic when thinking/analyzing]
OBJ	(to be) the basis/trigger for a thought; that which makes one think of something	
FML Stems: <ol style="list-style-type: none"> 1. (to be) an act of thinking up/of an idea; to brainstorm; to come up with an idea CSV = an idea 2. (to be) an act of analysis; to analyze 3. (to be) an act of abstraction/; to abstract CPT = conceptualization/conceptualize CSV = a concept 		

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

PPV PROPOSITIVE The intensive form shifts this to a sense of a formal suggestion or proposition, as in ‘*what if...*’ ‘*It could be that...*’ ‘*Consider this: ...*’ ‘*Posit the following: ...*’ ‘*Assume for the sake of argument that...*’

-PŁŁ- HUMOR / WIT / JEST		
BSC	Stem 1: (be) something funny or humorous, i.e., comical	Stem 2: (be) something witty, i.e., subtly and cleverly humorous
CTE	(be) a state of experiencing humor, funniness, i.e., the psychological, emotional state associated with laughter caused by something comical	Stem 3: (be) something sardonic, i.e., double-edged humor based in sarcasm
CSV	(be) physical/tangible aspects/characteristics of a party/entity/object/event/situation that is humorous	
OBJ	(be) what is funny, i.e., the party/entity/object/event/situation that is the focus of the humor	
Formal Stem 1: (be) a joke; tell a joke (i.e., a stylized/formulaic narrative statement designed to be humorous) Formal Stem 2: (be) a jest; make a jest (i.e., a phrase and/or seemingly innocuous act deliberately made to elicit humor) Formal Stem 3: (be) a prank; pull a prank (i.e., instigate an act/event or series of events designed to embarrass/humiliate another party sufficiently to elicit humor from all parties)		

CMD COMEDIC Bias Affix: — **-płł** ‘Funny!’ ‘LOL’

-ŽŽT- ORDINARINESS / UNORIGINALITY		
BSC	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.)
CTE	(be) a state of being ordinary or commonplace (i.e., the subjective state of ordinariness)	
CSV	(be) physical/tangible aspects/characteristics of a party/entity/object/event/situation that make it ordinary or commonplace	Stem 3: (be) something unoriginal and predictable (i.e., lacking in any original or innovative aspects)
OBJ	(be) what is common-place or ordinary, i.e., the party/entity/object/event/situation that is commonplace or ordinary	

PSC PROSAIC Bias Affix: — ‘*Meh... (said in disappointment)*’ ‘*How ordinary!*’

-LQP- BOREDOM / TEDIUM / INSIPIDITY	
BSC	Stem 1: (be) something boring (based on inactivity) which causes one to feel languor or torpidity; to be bored by something boring
CTE	(be) a state of experiencing boredom; be bored
CSV	(be) physical/tangible aspects/characteristics of a party/entity/object/event/situation that is boring
OBJ	(be) what is boring, i.e., the party/entity/object/event/situation that is the source of the boredom

ISP INSIPID Bias Affix: — *‘Meh... (said due to lack of interest)’ ‘How boring/tedious/dull!’*

-RRS- URGENCY / EXIGENCY / EMERGENCY	
BSC	Stem 1: (be) something pressing or urgent, requiring one’s attention/action
CTE	(be) a state of pressing or urgent need, a state of urgency
CSV	(be) the physical/tangible aspects/characteristics of an event/situation that is pressing/urgent
OBJ	(be) what is pressing or urgent, i.e., the entity/event/situation that is the source of the urgency

EXG EXIGENT Bias Affix: — *‘It’s now or never!’*

-MSK- REQUIREMENT / DEMAND / ORDER / MANDATE / ULTIMATUM	
BSC	Stem 1: (be) a requirement, something required of someone
CTE	(be) a state of there being something required of someone
CSV	(be) the physical/tangible aspects/characteristics of an event/situation requiring something of someone
OBJ	(be) what is required

Stem 2: (be) a demand; to make a demand

Stem 3: (be) an order or command; to order, to (issue a) command

Formal Stem 1: (be) an imperative, something essential; to state an imperative
 Formal Stem 2: (be) a mandate or injunction or precept; to mandate
 Formal Stem 3: (be) an ultimatum; to issue an ultimatum

MND MANDATORY Bias Affix: — *‘take it or leave it,’ ‘this is your last chance,’*

-MZT- ABANDONMENT / GIVING UP ON / RENUNCIATION / RESIGNATION		
BSC	Stem 1: (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])	Stem 2: (be) an act/instance of abandonment; to abandon Stem 3: (be) a act/instance of resignation (i.e., officially vacating one's role, duty, job)
CTE	(be) a state of having given up	
CSV	(be) an act of giving up	
OBJ	(be) what one gives up on, what one no longer believes in	
Formal Stem 1: (be) an act of renunciation; to renounce Formal Stem 2: (be) an act of desertion Formal Stem 3: (be) an act/instance of abdication; to abdicate, to abjure		

RNC RENUNCIATIVE Bias Affix: — ‘So much for...!’ ‘There goes...!’

-ŃJ- ‘AWARENESS’		
BSC	STEM 1: (to be) an act of noticing something; to notice; take note of	STEM 2: (to be) an act of being aware of something; the awareness of something STEM 3: (to be) an act of keeping/bearing something in mind; to have in the back of one's mind
CTE	(to be) the ability/capacity to notice something	
CSV	(to be) the physical/mental process of (an act of) noticing something	
OBJ	(to be) what one notices	

ATE ATTENTIVE Bias Affix: ‘Well, whaddya know...’ ‘Well, will you look at that...!’ ‘Well, go figure...’ ‘Who would’ve thought...?’ ‘Well I’ll be!’

-LL- ACKNOWLEDGEMENT / ADMISSION / CONCESSION / ASSENT / ACQUIESCENCE / CONFESSION		
BSC	Stem 1: (be) an act/instance of acknowledgement of something (i.e., demonstrating to another one's awareness of something)	Stem 2: (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)
CTE	(be) the state of mutual awareness/understanding created by an act of acknowledgement	
CSV	(be) an act of physically acknowledgement; to physically acknowledge (e.g., nodding, verbally, a wave of one's hand, a wink, etc.)	Stem 3: (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)
OBJ	(be) that which is acknowledged	
Formal Stem 1: (be) an act of assent/acquiescence Formal Stem 2: (be) an act of divulging/exposing something; to divulge or expose something (i.e., let others see/know something which has previously been private or assumed secret) Formal Stem 3: (be) an act/instance of confessing something, owning up to something; to confess or own up to something (i.e., admission of awareness of, association with, or involvement in something illicit or embarrassing)		

ADM ADMISSIVE Bias Affix: ‘mm-hmm’ ‘uh-huh’

11.0 THE BASIC NUMBER ROOTS

0	1	2	3	4	5	6	7	8	9	10	100	100²	100⁴	100⁸
-VR-	-LL-	-KS-	-Z-	-PŠ-	-ST-	-CP-	-NS-	-ČK-	-LZ-	-ŠŠ-	-GZ-	-PC-	-KZ-	-ČG-

As in Ithkuil, 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 a different number base). Beginning with ‘two’, the stems of the number follow the same Stem & Specification pattern illustrated by the root **-Z-** ‘three’ below:

-Z- ‘THREE / TRINARY’ Associated Affix: 3XX			
	STEM 1	STEM 2	STEM 3
BSC	(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
CTE	(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
CSV	(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) one of the aspects/facets of a trinary, tri-fold, tri-faceted entity	(to be) a process which determines/identifies an entity’s sequential place in a sequence or group/pattern to be third
OBJ	(to be) one in a group or sequence of 3; to be one of 3	(to be) the party/entity having three aspects or facets; (to be a) trinary or tri-fold or 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’			
	STEM 1	STEM 2	STEM 3
BSC	(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.
CTE	(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
CSV	(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
OBJ	(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’			
	STEM 1	STEM 2	STEM 3
BSC	(to be) a set or group of one; to have one member	(to be) something indivisible, inseparable, unified, unitary	(to be) the first entity/party in a group or sequence
CTE	(to be) a party/entity of whom/which there is only one	(to be) the state of having only one aspect/facet; to be a single unit with no sub-parts	(to be) the state of being first in a sequence/group/pattern
CSV	(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 aspect/facet; to determine that an entity is an indivisible whole/unit	(to be) a process which determines/identifies an entity’s sequential place in a sequence or group/pattern to be first
OBJ	[same as CTE]	(to be) the party/entity having only one aspect/facet; to be an entity which is single unit with no sub-parts	(to be) the entity/party whose numerical place in a sequence/group/pattern is first

11.1 Additional Number Roots Used With Non-Decimal Number Bases

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.

11	12	13	14	15
-CG-	-JD-	-LJ-	-BC-	-TZ-

12.0 PARTS OF THE BODY

The various roots/stems below for bodily parts/organs/tissues all have the following Specification pattern:

BSC	(to be) a particular bodily part/organ/tissue [both the material/physical aspect and the functional aspect thereof]
CTE	(to be) the function of a particular bodily part/organ/tissue
CSV	(to be) the physical/material make-up of a particular bodily part/organ/tissue
OBJ	(to be) the body to whom the particular bodily part/organ/tissue belongs or is from

-GW- ‘BODILY ORGAN / GLAND / TISSUE’	
STEM 1	bodily organ
STEM 2	gland
STEM 3	tissue (non-organ, non-gland)

-PN- ‘UPPER G.I. ORGANS’	
STEM 1	stomach
STEM 2	esophagus
STEM 3	pancreas

-ŠM- ‘MANIPULATIVE OR AMBULATORY APPENDAGE’	
STEM 1	limb
STEM 2	tentacle
STEM 3	pseudopod

-LŇ- ‘TAIL / CAUDAL STRUCTURE’	
STEM 1	tail
STEM 2	flagellum
STEM 3	tail-like body part or appendage; caudal structure

-ŠN- ‘LEG’	
STEM 1	leg/strut as support structure of animal or inanimate entity
STEM 2	leg as ambulatory appendage of animal or ambulatory entity
STEM 3	leg as functional “tool”/manipulator (e.g., with which to kick, push, press, apply force, etc.)

-CM- ‘ARM’	
STEM 1	arm as support(ing) structure of animal or inanimate entity
STEM 2	arm as appendage of animal (or anthropomorphic entity) for holding, carrying, lifting
STEM 3	arm as functional “tool”/manipulator by which to reach, hit, push, press, apply force, protect oneself, etc.

-TY- ‘HEAD’	
STEM 1	head as a living being’s primary “interface” or “access point” for communication, ingestion, non-tactile sensory input, etc.
STEM 2	head as seat of one’s consciousness/personality/identity/mind/brain
STEM 3	head as “top” or “forward” extension of bodily form

-NL- ‘HAND’	
STEM 1	hand as an animal’s primary body part for fine-motor physical manipulation/handling of external entities
STEM 2	hand as holder, grasper, striker
STEM 3	hand as primary tactile-sensory interface, “feeler”, toucher

-NR- ‘FOOT / PAW’	
STEM 1	foot/paw as an entity’s primary contact/support point with ground/firmament when standing/ambulating
STEM 2	foot/paw as ambulatory appendage
STEM 3	foot/paw as functional “tool”/manipulator (e.g., with which to kick, push, press, apply force, etc.)

-MFR- ‘PARTS OF HAND OR FOOT’	
STEM 1	quasi-flat ventral mid-part of appendage (incorporate ‘hand’ or ‘foot’ to specify whether palm or underside of foot)
STEM 2	ball of the foot or upper palmar ridge of the hand (incorporate ‘hand’ or ‘foot’ to specify which)
STEM 3	butt of the hand or foot (incorporate ‘hand’ or ‘foot’ to specify whether butt of the palm or heel)

-NK- ‘BODILY DIGIT’	
STEM 1	finger
STEM 2	thumb
STEM 3	toe

-DL- ‘CARDIO-PULMONARY ORGANS’	
STEM 1	heart
STEM 2	lung
STEM 3	diaphragm

-NDY- ‘BLOOD VESSEL’	
STEM 1	artery
STEM 2	vein
STEM 3	capillary

-VZ- ‘CENTRAL NERVOUS SYSTEM ORGAN/TISSUE’	
STEM 1	brain
STEM 2	brain stem
STEM 3	spinal chord

-NGY- ‘PERIPHERAL NERVOUS TISSUE’	
STEM 1	sensory (afferent) nerve tissue
STEM 2	motor (efferent) nerve tissue
STEM 3	somatic nerve tissue

-RDY- ‘AUTONOMIC NERVOUS TISSUE’	
STEM 1	sympathetic nerve tissue
STEM 2	parasympathetic nerve tissue
STEM 3	enteric nerve tissue

-TR- ‘BODILY LIMB-JOINT’	
STEM 1	mid-limb joint [incorporate stems for leg or arm to specify knee or elbow]
STEM 2	proximal limb joint [incorporate stems for leg or arm to specify hip-joint or shoulder-joint]
STEM 3	distal limb joint [incorporate stems for leg or arm to specify ankle or wrist]

-GR- ‘BONE’	
STEM 1	quasi-cylindrical bone (e.g., tibia, ulna, phalanx, etc.)
STEM 2	plate-like or quasi-planar bone (e.g., skull-section, scapula, pelvis)
STEM 3	special-shaped bone (e.g., vertebra, rib, calcaneus, talus, antler, etc.)

-PFL- ‘DETOXIFICATION/FILTRATION/RECYCLING ORGAN/TISSUE’	
STEM 1	liver
STEM 2	kidney
STEM 3	spleen

-LT- ‘INTEGUMENT / SKIN / PELLICLE’	
STEM 1	skin / hide / pellicle / integument
STEM 2	bark / integument of tree trunk/limb or plant main stem
STEM 3	peel / rind / husk / casing of seed or pod or fruit

-VMR- 'ENDOCRINE GLANDS OF THE BRAIN'	
STEM 1	hypothalamus
STEM 2	pituitary gland
STEM 3	pineal gland

-FSR - 'ENDOCRINE GLANDS OF THE BODY'	
STEM 1	thyroid gland
STEM 2	parathyroid gland
STEM 3	adrenal gland

-MḐ- 'BODILY HAIR / FUR / FEATHER'	
STEM 1	a (single strand of) human body hair (other than thick scalp/facial/pubic/armpit hair)
STEM 2	a (single strand of) non-human bodily hair/fur/fleece
STEM 3	a(n avian) feather

-NḐ- 'HUMAN-SPECIFIC HAIR'	
STEM 1	a (single strand of) human head hair (other than androgenic facial hair or eyebrows/eyelashes)
STEM 2	a (single strand of) human androgenic facial hair
STEM 3	a (single strand of) human armpit or pubic or eyebrow/eyelash hair (i.e., thick body hair that stops growing at a certain length)

-ḐḐR- 'SPECIALTY HAIR-LIKE TISSUE'	
STEM 1	an eyelash
STEM 2	a whisker/vibrissa
STEM 3	barbel

-NZG- 'HARD KERATINOUS TISSUE'	
STEM 1	fingernail/toenail or claw
STEM 2	hoof
STEM 3	horn of animal

-ḐZB- 'MUCOSAL TISSUE'	
STEM 1	inside surface of oral/naso-pharyngeal cavity
STEM 2	interior lining of gastro-intestinal tract
STEM 3	interior lining of bodily orifice (anus/rectum, vaginal canal, etc.)

-LDL- 'MUSCLE / LIGAMENT / TENDON'	
STEM 1	muscle
STEM 2	ligament
STEM 3	tendon

-GZG- 'SMALL INTESTINE'	
STEM 1	duodenum
STEM 2	jejunum
STEM 3	ileum

-RGḐ- 'LARGE INTESTINE / COLON'	
STEM 1	ascending colon
STEM 2	transverse colon
STEM 3	descending and sigmoid colon

-DŘ- ‘TOOTH’	
STEM 1	tooth
STEM 2	fang
STEM 3	tusk

-ŇW- ‘NECK’	
STEM 1	neck
STEM 2	neck (as bodily support/swivel point for head)
STEM 3	neck (as narrowest, most vulnerable body part)

-LR- ‘WING’	
STEM 1	wing (avian/feathered)
STEM 2	wing (mammalian or reptilian, i.e., a membrane extending from arm-like appendages)
STEM 3	wing-like extension (mechanical, but still used for flying, e.g., wing of an airplane)

-PKL- ‘FIN / FLIPPER’	
STEM 1	fin (e.g., of a fish)
STEM 2	flipper (e.g., of a dolphin, seal, walrus, manatee, etc.)
STEM 3	fin- or flipper-like extension (mechanical)

-ŘC- ‘THROAT’	
STEM 1	throat (i.e., front/ventral portion of neck)
STEM 2	upper portion of throat (i.e., the underside of the jaw)
STEM 3	lower portion of the throat (i.e., overlying the gullet/trachea/larynx)

-XBY- ‘PARTS OF A BODILY JOINT’	
STEM 1	(to be) the superior/dorsal side of a bodily joint [i.e., the “hard/bony” side of a bodily joint]*
STEM 2	(to be) the inferior/ventral side of a bodily joint [i.e., the soft, concave side of a bodily joint]*
STEM 3	(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.

-STY- ‘ORIENTATIONAL BODY SURFACE’	
STEM 1	dorsal surface (i.e., the back [or topside] of a corporeal body)
STEM 2	ventral surface (i.e., the front [or underbelly] of a corporeal body)
STEM 3	lateral surface (i.e., the side/flank of a corporeal body)

-LŽ- ‘FACE / VISAGE’	
STEM 1	face (as gestalt entity made up of the various facial quasi-planar surfaces plus the eyes, nose, lips, eyebrows, etc.)
STEM 2	face (as one’s primary interface area for vocalization and display of emotion)
STEM 3	face/visage (as one’s primary source/trait for recognition/identification)

-BF- 'GENERIC REPRODUCTIVE ORGANS / CELLS'	
STEM 1	gonad (i.e., testicle, ovary)
STEM 2	gamete (i.e., ovum/egg cell, spermatozoon/sperm cell)
STEM 3	transport duct/tubule for gametes from gonad (i.e., Fallopian tube, vas deferens)

-NM- 'FEMALE REPRODUCTIVE ORGANS'	
STEM 1	uterus / womb
STEM 2	cervix
STEM 3	vagina

-GČ- 'MALE REPRODUCTIVE ORGANS / TISSUES'	
STEM 1	penis
STEM 2	glans of penis
STEM 3	scrotum

-BDW- 'TISSUES ASSOCIATED WITH FEMALE REPRODUCTIVE ORGANS'	
STEM 1	clitoris
STEM 2	inner labium
STEM 3	outer labium

-PČ- 'MOUTH / GULLET / ORAL CAVITY'		
BSC	Stem 1: (to be) the mouth [of a chordate animal]	Stem 2: (to be) the gullet [of a non-chordate animal, plant, protist] Stem 3: (to be) the bodily apparatus/process by which an entity takes in external food
CTE	(to be) the oral cavity (i.e., the interior space of a mouth)	
CSV	(to be) the structural tissue(s) which form a mouth	
OBJ	(to be) that which enters or is placed within one's mouth	

-LDN- 'GUM TISSUE / HARD PALATE'	
STEM 1	gum tissue
STEM 2	alveolar ridge
STEM 3	hard palate

-LPF- 'INTERIOR SURFACE TISSUES OF MOUTH'	
STEM 1	soft area between jaws underneath the front half of the tongue
STEM 2	soft palate
STEM 3	uvula

13.0 KINSHIP TERMS

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

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

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

-MP- NUCLEAR FAMILY MEMBER (signifies functional relationship, not necessarily genetic relationship) (use SEX affix if necessary)	
STEM 1	(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
STEM 2	(to be) a child (i.e., person being raised by a parent/guardian)
STEM 3	(to be) a grandparent (i.e., parent of a parent)

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

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

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

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

14.0 ROOTS ASSOCIATED WITH V_xC_s AFFIXES

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

FML Stems elevate the **IFL** meanings to the level of formal analysis/measurement in comparison to a formal/established standard.

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

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

FML Stems elevate the **IFL** meanings to the level of formal analysis/measurement in comparison to a formal/established standard.

-NT- ‘SEQUENTIAL ENUMERATION’		Associated Affix: SEQ
BSC	STEM 1: (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	STEM 2: (to be) a sequential numerical labeling [of entities by positive integer] for purpose of identification, individuation, arrangement, etc. STEM 3: (to be) a numerical(ly-based) pattern/arrangement; to enumerate
CTE	(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]	
CSV	(to be) the process of counting/tallying; to count (up)/tally [= focusing on the counting process itself irrespective of the eventual total]	
OBJ	(to be) the entity/entities so counted	

-RF- PORTION / AMOUNT / RATION / ALLOTMENT		Associated Affix: PTW
BSC	INF STEM 1: (to be an) amount/quantity of a non-countable substance/entity [both the entity/substance and its amount]	FML STEM 1: (to be a) measure of, dose of, a formally pre-determined amount of a substance/entity FML STEM 2: (to be) an official/authorized share/ration, doled-out amount FML STEM 3: (to be) an official/authorized allotment/allocation/quota
CTE	(to be) the entity/substance contained in or comprising an amount/quantity	
CSV	(to be) an amount/quantity	
OBJ	(to be) the object/entity made of/consisting of an amount/quantity of something	
	INF STEM 2: (to be) a share, a portion (to be) distributed INF STEM 3: (to be) an allotment/allocation, set distribution	

Derivations: to share, distribute, allocate, allot

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

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

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

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

-X- ‘SIZE / MEASURE / MEASURED DURATION’		Affix: SIZ	(use SUF/EXN/EXD, etc. affixes to specify degree)
BSC	STEM 1: (to be/manifest a) degree of spatio-temporal size (= the amount/volume of space or time taken up by an entity)		STEM 2: (to be/manifest a) degree of spatial size, i.e., volume of space (whether uni-dimensional, 2-D, or 3-D)
CTE	(to be) something with a size [focus on the entity itself]		
CSV	(to be) a size (= the volume of space or time taken up)		
OBJ	(to be) the particular size of an entity; to measure the size of an entity		
			STEM 3: (to be/manifest a) degree of temporal “size” (= an “amount” of time)

Morphological derivations: enlarge, swell, expand, grow (in size); shrink, make smaller.

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

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

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

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

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

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

FORMAL stems: 1) request + entity requested 2) a preference; to prefer something 3) a demand; to demand

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

-RD- ‘DEGREE OF TRUTH/GENUINENESS/VERACITY/VALIDITY/FACTUALITY’ Affix: REA (use SUF/EXN/EXD, etc.)		
BSC	STEM 1: (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]	STEM 2: (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) STEM 3: (to be/manifest a) degree of validity/factuality/actuality (in terms of being an accurate assessment, description, representation, or identification)
CTE	(to be) something with a degree of truth/veracity/reality	
CSV	(to be) a degree of truth/veracity/reality	
OBJ	(to be) an entity/party impacted/affected by one’s degree of truth/veracity/reality	

-LM- ‘DEGREE OF BODILY ENERGY / VIGOR / STRENGTH’ Affix: STR (use SUF/EXN/EXD, etc.)		
BSC	STEM 1: (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]	STEM 2: (to be/manifest a) degree of bodily energy/vigor/vitality; “feel weak/strong” STEM 3: (to be/manifest a) degree of stamina
CTE	(to be) something with a degree of brute bodily strength	
CSV	(to be) a degree of brute bodily strength	
OBJ	(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.)		
BSC	STEM 1: (to be/manifest a) degree of applied physical force — [both the quality and the entity manifesting such]	STEM 2: (to be/manifest a) degree of enrgy STEM 3: (to be/manifest a) degree of potency, “might” (= potential strength/power to cause or accomplish something)
CTE	(to be) something with a degree of applied physical force	
CSV	(to be) a degree of applied physical force	
OBJ	(to be) an entity/party impacted/affected by one’s degree of applied physical force	

-FM- ‘DEGREE OF VELOCITY’ Affix: VEL (use SUF/EXN/EXD, etc.)		
BSC	STEM 1: (to be/manifest a) degree of speed/velocity (= ratio of distance over time)	STEM 2: (to be/manifest a) degree of acceleration (i.e., increasing rate of speed/velocity) STEM 3: (to be/manifest a) degree of deceleration (i.e., decreasing rate of speed/velocity)
CTE	(to be) something with a degree of speed/velocity	
CSV	(to be) a degree of speed/velocity	
OBJ	(to be) an entity/party impacted/affected by one’s degree of speed/velocity	

-TM- ‘DEGREE OF INTENSITY’ Affix: ITY (use SUF/EXN/EXD, etc.)		
BSC	STEM 1: (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]	STEM 2: (to be/manifest a) degree of activity/acuteness STEM 3: (to be/manifest a) degree of agitation/ebullience/bustle
CTE	(to be) something with a degree of intensity/power	
CSV	(to be) a degree of intensity/power	
OBJ	(to be) an entity/party impacted/affected by one’s degree of intensity/power	

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

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

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

-KṬ- ‘DEVELOPMENT / GROWTH / MATURATION / DECLINE’		Affix: MAT
BSC	STEM 1: (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]	STEM 2: (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
CTE	(to be) something manifesting a developmental stage, stage of developmental or maturational cycle; stage of a life-cycle	
CSV	(to be/manifest) a developmental stage, stage of developmental or maturational cycle; stage of a life-cycle	
OBJ	(to be) an entity/party impacted/affected by one’s developmental stage, stage of developmental or maturational cycle; stage of a life-cycle	STEM 3: (to be/manifest) the declining stage(s) of a life-cycle; decline, fade, age; CPT Version = die

-KH- ‘DEGREE OF SUBTLETY / NUANCE / CUNNING / GUILLE / STEALTH / INSIDIOUSNESS’		Affix: SBT (use SUF/EXN/EXD, etc.)
BSC	STEM 1: (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]	STEM 2: (to be/manifest a) degree of cunning / guile (= subtlety/nuance in terms of wordplay/behavior/actions, etc. with intention to manipulate a situation)
CTE	(to be) something with a degree of subtlety/nuance	
CSV	(to be) a degree of subtlety/nuance	STEM 3: (to be/manifest a) degree of stealth/insidiousness (= attempt to manipulate/act in an unseen/hidden/discreet manner for (quasi-)nefarious purposes)
OBJ	(to be) an entity/party impacted/affected by one’s degree of subtlety/nuance	

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

-PH- ‘DEGREE OF PRECISION / DEFINITION / SCRUTINY’ Affix: PCN (use SUF/EXN/EXD, etc.)		
BSC	STEM 1: (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]	STEM 2: (to be/manifest a) degree of definition, being well-defined (= exactness of distinction, contrast with background, separability from background milieu) STEM 3: (to be/manifest a) degree of scrutiny / attention / scrupulousness (= thoroughness/exactitude in procedure / task / activity)
CTE	(to be) something with a degree of precision	
CSV	(to be) a degree of precision	
OBJ	(to be) an entity/party impacted/affected by one’s degree of precision	

-XT- ‘DEGREE OF CONCERN / EMPATHY / CARE / INDIFFERENCE / NEGLECT’ Affix: CNC (use SUF/EXN/EXD, etc.)		
BSC	STEM 1: (to be/manifest a) degree of concern for, worry over — [both the quality and the entity manifesting such]	STEM 2: (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 STEM 3: (to be/manifest a) degree of vigilance, watchfulness, surveillance
CTE	(to be) something with a degree of concern for, worry over	
CSV	(to be) a degree of concern for, worry over	
OBJ	(to be) an entity/party impacted/affected by one’s degree of concern for, worry over	
FML Stem 1: (to be/have a) degree of empathy for FML Stem 2: (to be/have a) degree to which one nurses / nurtures / provides for / has responsibility for the health and well-being of FML Stem 3: (to be/have a) degree to which one guards something (= protection via watchfulness/vigilance)		

-BM- ‘DEGREE OF SOPHISTICATION/CRUDENESS/REFINEMENT/PRIMITIVENESS’ Affix: SPH (use SUF/EXN/EXD, etc.)		
BSC	STEM 1: (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]	STEM 2: (to be/manifest a) degree of evolvment (vs. primitiveness, i.e., temporal, evolutionary perspective over time) STEM 3: (to be/manifest a) degree of cultural refinement/sophistication/finesse (vs. cultural primitiveness/savagery/simplicity)
CTE	(to be) something with a degree of physical/technical refinement/sophistication	
CSV	(to be) a degree of physical/technical refinement/sophistication	
OBJ	(to be) an entity/party impacted/affected by one’s degree of physical/technical refinement/sophistication	

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

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

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

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

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

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

-JH- ‘DEGREE OF PHYSICAL CONTROL’		Affix: CRL (use SUF/EXN/EXD, etc.)
NOTE: This root does not mean control in terms of hierarchical authority, oversight or influence.		
BSC	STEM 1: (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]	STEM 2: (to be/manifest a) degree of physical fine motor control / dexterity / finesse (= degree of ability to manipulate/handle delicate or fragile entity) STEM 3: (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.)
CTE	(to be) something with a degree of physical control	
CSV	(to be) a degree of physical control	
OBJ	(to be) an entity/party impacted/affected by one’s degree of physical control	

-ŘH- ‘DEGREE OF TRUSTWORTHINESS / RELIABILITY / DEPENDENCY’		Affix: TRS (use SUF/EXN/EXD, etc.)
BSC	STEM 1: (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]	STEM 2: (to be/manifest a) degree of reliance upon; degree to which one must rely on the aid/help/resources/energy, etc. of another STEM 3: (to be/manifest a) degree of dependency upon; degree to which one’s status/identity/nature/essence/form, etc. is determined by another
CTE	(to be) something with a degree of trust(worthiness)	
CSV	(to be) a degree of trust(worthiness)	
OBJ	(to be) an entity/party impacted/affected by one’s degree of trust(worthiness)	

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

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

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

-SP- ‘DEGREE OF NEWNESS’ Affix: NEW (use SUF/EXN/EXD, etc.)		
BSC	STEM 1: (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]	STEM 2: (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>) STEM 3: (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>)
CTE	(to be) something with a degree of newness	
CSV	(to be) a degree of newness	
OBJ	(to be) an entity/party impacted/affected by one’s degree of newness	

-Ž- ‘CAPACITY / ABILITY / CAPABILITY’		Affix: -CPC-
BSC	STEM 1: (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	STEM 2: (to have) the physical stamina, fortitude or strength (needed) to do something STEM 3: (to have) the physical prowess or finesse or specialized physical skill (needed) to do something
CTE	(to be) the physical capability/ability; to be able (= have the or physical capability/ability)	
CSV	(to be) the particular (nature of the) physical capacity/ability needed	
OBJ	(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

FML stems: The capability/strength/stamina/prowess/finesse needed is consciously acquired by specialized training or experience, etc.

-FS- ‘WAITING / ANTICIPATION / EXPECTATION / READINESS / PREPAREDNESS’		Affix: ATI (use SUF/EXN/EXD, etc.)
BSC	STEM 1: (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	STEM 2: (to be in a) state of readiness / preparedness for an anticipated / expected occurrence / phenomenon STEM 3: (to be in a) state of readiness / preparedness in case of an unexpected / unpredictable occurrence / phenomenon
CTE	(to be) something in a state of anticipating/expectating/awaiting something	
CSV	(to be) a a state of anticipating/expectating/awaiting something	
OBJ	(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 **-VDR-**.

-ŘS- ‘DEGREE OF ACCEPTANCE/TOLERANCE/CONSENT/PERMISSION/APPROVAL/AGREEMENT’		Affix: CNS
BSC	INF STEM 1: (to be/manifest a) degree of acceptance/tolerance, “being okay with something” [both the state of acceptance and that which is accepted]	FML STEM 1: (to be/manifest a) degree of permission; granting license to FML STEM 2: (to be/manifest a) degree of affirmation, formal recognition, official confirmation FML STEM 3: (to be/manifest a) degree of approval (= official/authorized sanctioning of an act/event/state)
CTE	(to be) that which one accepts/tolerates or is okay with	
CSV	(to be) the state of acceptance or being okay with	
OBJ	(to be) the party/entity that accepts/tolerates or is okay with something	
INF STEM 2: (to be/manifest a) degree of assent/consent (= granting of informal permission) INF STEM 3: (to be/manifest a) degree of agreement/concurrence/accordance with		

-CB- ‘MOTIVE / INTENTION’		Affix: RSN
BSC	STEM 1: (to be/manifest) a motive / reason why / basis for one’s intention — [both the psychological/epistemological state of having a motive and its content]	FML STEM 1: (to be/manifest a) principle (moral or ontological) / grounds / basis; be/have a principle / be/have grounds / be/have basis FML STEM 2: (to be/manifest) an aspiration / “dream” ; to aspire, to dream of FML STEM 3: (to be) one’s (free) will; to follow one’s will
CTE	(to be) a motive / reason why	
CSV	(to be) the psychological/epistemological state of having a motive/reason	
OBJ	(to be) the party/entity having a motive/reason	
	INF STEM 2: (to be/manifest) a purpose/intention/goal/aim; to aim to/for INF STEM 3: (to be manifest) an incentive/stimulus	

-SS- ‘TOOL / INSTRUMENT’		Affix: TDM
BSC	STEM 1: (to be) a tool, instrument, implement 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]	FML STEM 1: (to be a) utensil, specialized implement for assisting in refined task FML STEM 2: (to be a) mechanical / motorized / electric / electronic implement/device FML STEM 3: (to be a) supply-like resource/implement used as fuel or input for a mechanical / electrical / electronic implement/device
CTE	(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	
CSV	(to be) a tool, instrument or implement; use a tool	
OBJ	(to be) the party/entity using a tool or implement	
	INF STEM 2: (to be) a tool, instrument, implement 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] INF STEM 3: (to be a) supply-like resource/implement 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.)	

-ÇN- ‘SOURCE / ORIGIN’ Affix: OAU		
BSC	STEM 1: (to be the) origin / source of something — [both the point in spacetime and the fact of being the initial manifestation of something]	FML STEM 1: (to be/manifest a) basic element / fundamental starting point or principle FML STEM 2: (to be/manifest a) fundamental reason for something; fundamental reason why; a basis for something FML STEM 3: (to be a) first principle / foundational principle / axiom / underlying
CTE	(to be) an act/process of origin(ating) or functioning as a/the source	
CSV	(to be) the physical spacetime point/location that is the source of something; where something originates	
OBJ	(to be) that whose source/origin is being identified	
	INF STEM 2: (to be) a beginning / start / point of initiation; begin, start, commence, initiate INF STEM 3: (to be a) (primary or direct) cause	

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

* NOTE: The word for a “door” itself would be the BSC stem for ‘access/passageway’ plus the new MDF_{2/3} 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.”

-R- ‘NEGATION / NULLIFICATION / ABSENCE / DENIAL / REMOVAL’ Affix: NEG		
BSC	STEM 1: (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]	FML STEM 1: (to be) an instance/act of nullification or abrogation; to nullify, render null, abrogate, render as having no effect FML STEM 2: (to be) an instance/act of contradiction or contravention; to contradict or contravene FML STEM 3: (to be) an instance/act of elimination/removal; to eliminate, remove
CTE	(to be) an instance/act of denial; to deny -- to act as if something is not true or non-existent or inapplicable	
CSV	(to be) the physical/tangible process of negation, whether verbal, physical, by written proclamation, by memory loss, etc.	
OBJ	(to be) that which is negated	
	INF STEM 2: (to be) an instance/act of denial; to deny -- to act as if something is not true or non-existent or inapplicable INF STEM 3: (to be) an instance of being absent; an absence; to be absent	

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

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

-Š- SEX		Associated Affix: SEX
(i.e., genetically-based, the normally 2-way distinction in higher living organisms for evolutionarily procreative purposes)		
BSC	Stem 1: (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]	Stem 2: (to be/manifest) the female sex of an organism that is normally one of two biological sexes. Stem 3: (to be/manifest) the male sex of an organism that is normally one of two biological sexes.
CTE	(be) a particular biological sex	
CSV	(be) an act/process/state of clinical/biological determination/identification of sex; to clinically/biologically determine a particular sex	
OBJ	(to be) that which biologically determines or by which one identifies a particular sex	

-ŃŹ- ‘ARRANGEMENT / ORDER / SYMMETRY / CLASSIFICATION’		Affix: CLS
BSC	STEM 1: (to be/manifest) an arrangement (= placement in some sort of order or discernible pattern); arrange, order — [both the arrangement itself and the act/process of arranging]	FML STEM 1: (to be) something regular or displaying regularity (= having an expected/conventionalized pattern); be/make regular, regularize
CTE	(to be) an arrangement or order	
CSV	(to be) an act of arranging or ordering; to arrange, order	
OBJ	(to be) the entity/party being arranged or ordered	
	INF STEM 2: (to be/manifest) a hierarchical ranking; rank INF STEM 3: (to be) a symmetrical arrangement; arrange symmetrically	FML STEM 2: (to be/manifest) an assortment; sort FML STEM 3: (to be) a classification; classify

MORPHOLOGICAL DERIVATIVES: array, setting, hierarchy, symmetry, regularity, regulate, systematize, method, methodize, disarray, scatter, mess, chaos

-FR- ‘SHAPE / FORM / MOLD / CAST’		Associated Affix: SHP
BSC	INF STEM 1: (to be/manifest a) two-dimensional shape or outline form — [both the shape and the entity manifesting that shape]	FML STEM 1: (to be/manifest a) two-dimensional contour, pattern, or outline as a representation/model for something
CTE	(to be) the entity manifesting a particular 2-D shape or outline form	
CSV	(to be/manifest) a two-dimensional shape or outline form	
OBJ	[same as CTE]	
	INF STEM 2: (to be/manifest a) three-dimensional shape/form INF STEM 3: (to be a) figure (reminiscent of something) based on shape/form	FML STEM 2: (to be/manifest a) three-dimensional contour, pattern, or outline as a representation/model for something FML STEM 3: (to be a) mold/pattern/cast (of/for something)

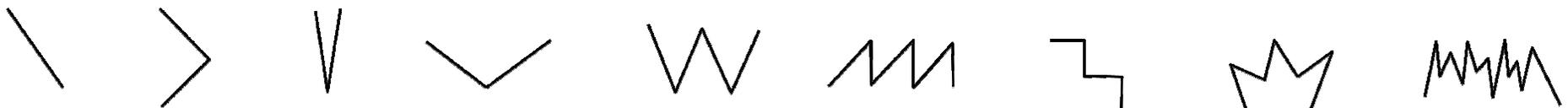
-JB- ‘TWO-DIMENSIONAL DECORATIVE PATTERN/TEXTURE’		Affix: PAT
BSC	STEM 1: (to be/manifest a) two-dimensional (quasi-)overlying simple visual surface design/pattern (= repetitive visual design)— [both the design/pattern and the entity manifesting such]	STEM 2: (to be/manifest a) two-dimensional (quasi-) overlying complex/multi-faced visual surface pattern (= complex repetitive visual design)
CTE	(to be) something manifesting a 2-D overlying simple visual surface pattern	
CSV	(to be) a 2-D (quasi-)overlying simple visual surface pattern	
OBJ	[same as CTE]	STEM 3: (to be/manifest a) two-dimensional (quasi-) overlying visual surface texture (= repetitive visual-tactile design)

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

15.0 Roots/Stems for Open-Ended Linear Outline Shapes

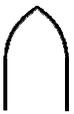
-CKL- OPEN-ENDED LINEAR OUTLINE SHAPE	
BSC	Stem 1: (be) an open-ended (quasi-)linear outline shape (i.e. for describing the outline shape of any visual or tactile object/entity), e.g., an arc, a straight line, an S-shape, a V-shape, a squiggly line, etc. Stem 2: (be) the (quasi-)planar extension (in 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-shaped or wedge-shaped indentation based on the Stem-1 linear shape of a V-shape. Stem 3: (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.
CTE	(be) the state of having a particular (quasi-)linear outline shape
CSV	(be) the act of discerning/observing/perceiving a (quasi-)linear outline shape
OBJ	(be) an object/entity which manifests the particular (quasi-)linear outline shape

The following roots all have a Stem & Specification pattern based on the above root. 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:

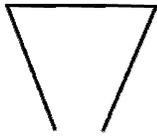
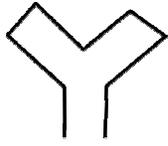


-VŘ- STRAIGHT LINE	-PLW- RIGHT- ANGLE	-PLY- ACUTE- ANGLE	-FTY- OBTUSE-ANGLE	-JKL- W-SHAPED	-JKR- SAWTOOTH- SHAPED	-JKW- STAIRCASE- SHAPED	-VTÇ- 3-POINTED SHAPE	-VPÇ- IRREGULAR POINTS
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-DGL- ARC	-DGR- SEMI-CIRCLE	-RZW- CIRCULAR	-GBL- HUMPED-SHAPE	-ŃL- U-SHAPED	-GBR- DOUBLE-HUMPED	-GZB- S-SHAPED

						
-KṬM- BULLET-SHAPED	-KṬK- ARISTATE*	-KṬT- MUCRONATE*	-KṬN- FLATTENED ARISTATE	-JBL- FLATTENED BULLET-SHAPED	-ḐDL- SCALLOP-SHELL-SHAPED	-ḐDW- TRUNCATE*

* Term borrowed from biology/botany for a particular leaf shape.

						
-VGL- SPADE-SHAPED	-VGW- POINTED SPADE-SHAPED	-XPY- WEDGE-SHAPED	-XPR- CONCAVE WEDGE	-ZGL- Y-SHAPED	-MNY- TRIPLE-LOBE	-SSKR- IRREGULAR LINEAR

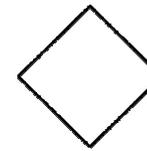
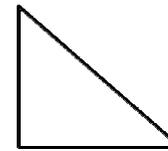
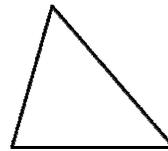
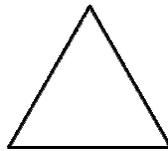
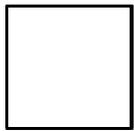
						
-PFW- SPADE-SHAPED	-PFY- AURICULATE*	-PFL- OBCORDATE *	-PFR- PAIRED LOBES	-ŘFL- ROUNDED Y-SHAPED	-ŘFY- HASTATE *	-ŘTR- MIXED ROUNDED & POINTED

* Term borrowed from biology/botany for a particular leaf shape.

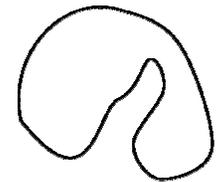
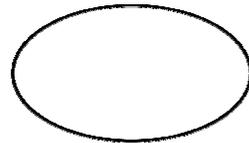
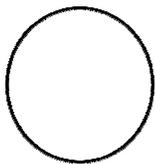
15.1 Roots/Stems for Closed Linear Outline Shapes

-CKR- 'CLOSED LINEAR OUTLINE SHAPE'	
BSC	Stem 1: (be) a closed (quasi-)linear outline shape (i.e. for describing the outline shape of any visual or tactile object/entity)
CTE	(be) the state of having a particular closed (quasi-)linear outline shape
CSV	(be) the act of discerning/observing/perceiving a closed (quasi-)linear outline shape
OBJ	(be) an object/entity which manifests the particular closed (quasi-)linear outline shape
	Stem 2: (be) the (quasi-)planar extension (in 3-dimensional space) of the Stem 1 closed linear shape, e.g., a cube based on the outline shape of a square or diamond or hexagon.
	Stem 3: (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.

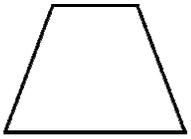
The following roots all have a Stem & Specification pattern based on the above root.



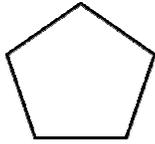
-TLW - SQUARE	- TLY- RECTANGLE	-FTR- ISOSCELES TRIANGLE	-LFTR- TRIANGLE	-RFTR- RIGHT TRIANGLE	-RTLW- DIAMOND SHAPED	-RTLY- RHOMBOID
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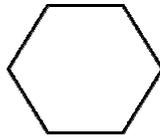
-ZW- CIRCLE	-RZY- ELLIPSE	-ṬTL- SLIVER-MOON SHAPED	-ṬTR- HALF-MOON SHAPED	-ṬTW- GIBBOUS-MOON SHAPED	-VBZ - TEARDROP- SHAPED	-SSTR - IRREGULAR ROUNDED SHAPE
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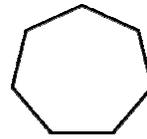
-XPL-
TRAPEZOID



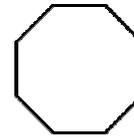
-STR-
PENTAGON



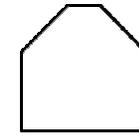
-CPR-
HEXAGON



-NSR-
HEPTAGON



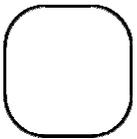
-ČKR-
OCTOGON



-XČW-
DOUBLY-
TRUNCATED
SQUARE



-SSPR-
IRREGULAR
POLYGONOID



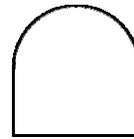
-NLW-
ROUNDED
SQUARE



-NLY-
ROUNDED RECTANGLE



-MZW-
OVAL



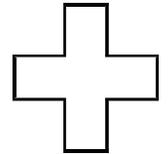
-ŃLW-
HALF-
ROUNDED
SQUARE



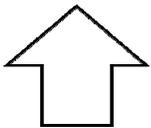
-RDGR-
THICK ARCH SHAPED



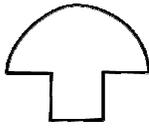
-PFN-
VALENTINE
SHAPED



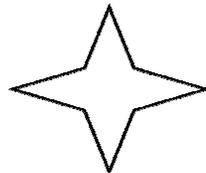
-STR-
CROSS SHAPED



-STL-
ARROW-SHAPED



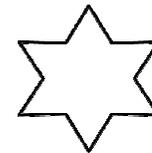
-LKL-
MUSHROOM-SHAPED



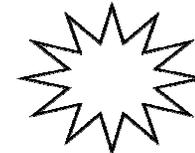
-RPŠ -
4-POINTED STAR



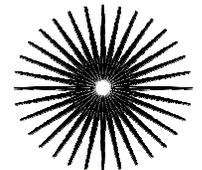
-RST -
5-POINTED STAR



-RCP-
SIX-POINTED STAR



-RPW-
MULTI-POINTED
STAR



-ŘZW-
SPIKED CIRCLE

16.0 ROOTS RELATING TO CHEMICAL ELEMENTS

-RZ- 'CHEMICAL ELEMENT'		
BSC	Stem 1: (to be) a chemical element	Stem 2: (to be) a positive ion of a chemical element
CTE	(to be) an elemental state; at a level involving individual chemical elements	
CSV	(to be) a state/act of manipulating/combining chemical elements; to perform chemistry	Stem 3: (to be) a negative ion of a chemical element
OBJ	(to be) a chemical compound or chemical element in its naturally occurring state, e.g., O ₂	

The roots for the elements below follow the same Specification and Stem pattern as the root **-RZ-** 'CHEMICAL ELEMENT' above:

-PČK- Hydrogen	-PLW- Titanium	-TLN- Manganese	-MŽ- Copper	-LXT- Nitrogen	-BZTW- Fluorine
-PČKW- Lithium	-PLM- Zirconium	-TLNW- Technetium	-RL- Silver	-LXTW- Phosphorus	-BZTY- Chlorine
-PČKY- Sodium	-PLN- Hafnium	-TLŇ- Rhenium	-LJ- Gold	-LXTY- Arsenic	-BZTL- Bromine
-PČKL- Potassium	-PLY- Rutherfordium	-TLŇW- Bohrium	-LJŇW- Roentgenium	-LXTL- Antimony	-BZTR- Iodine
-PČKR- Rubidium				-LXTR- Bismuth	-BZTRĚ- Astatine
-PČKŘ- Caesium	-RTŇ- Vanadium	-ŽPL- Iron	-DBW- Zinc	-LXTRĚ- Moscovium	-BZTLĚ- Tennessine
-PČKF- Francium	-RTŇW- Niobium	-ŽPR- Ruthenium	-DBY- Cadmium		
	-RSŇ- Tantalum	-ŽPŘ- Osmium	-DBL- Mercury	-ŇN- Oxygen	-GZPW- Helium
-LVG- Beryllium	-RSŇW- Dubnium	-ŽPW- Iridium	-DBR- Copernicium	-ŇZD- Sulfur	-GZPY- Neon
-LVGW- Magnesium		-ŽPY- Meitnerium		-ŇZDW- Selenium	-GZPL- Argon
-LVGY- Calcium	-ŠKR- Chromium		-FPW- Boron	-ŇZDY- Tellurium	-GZPR- Krypton
-LVGL- Strontium	-ŠKW- Molybdenum	-XDW- Nickel	-FPY- Aluminum	-ŇZDL- Polonium	-GZPŘ- Xenon
-LVGR- Barium	-ŠKY- Tungsten	-XDY- Palladium	-FPL- Gallium	-ŇZDR- Livermorium	-GZPF- Radon
-LVGŘ- Radium	-ŠKŘ- Seaborgium	-XDR- Platinum	-FPR- Indium		-GZPLĚ- Oganesson
-LVGV- Scandium		-XDL- Darmstadtium	-FPŘ- Thallium		
-LVGZ- Yttrium			-FPF- Nihonium		

-ŘCP-	Lanthanum	-ŘPST-	Actinium
-ŘCPW-	Cerium	-ŘPSTW-	Thorium
-ŘCPY-	Praseodymium	-ŘPSTY-	Protactinium
-ŘCPL-	Promethium	-ŘPSTL-	Uranium
-ŘCPF-	Samarium	-ŘPSTR-	Neptunium
-ŘCPL̇-	Europium	-ŘPSTṘ-	Plutonium
-ŘCPṘ-	Gadolinium	-ŘPSTF-	Americium
-ŘCPR-	Terbium	-ŘPSTL̇-	Curium
-ŘCPS-	Dysprosium	-ŘPSC-	Berkelium
-ŘCPṠ-	Holmium	-ŘPSĊ-	Californium
-ŘCC-	Erbium	-ŘPSCW-	Einsteinium
-ŘCCW-	Thulium	-ŘPSĊW-	Fermium
-ŘCĊ-	Ytterbium	-ŘPSS-	Mendelevium
-ŘCĊW-	Lutetium	-ŘPSSW-	Nobelium
		-ŘPSSY-	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 for chemical compounds.

17.0 ROOTS RELATING TO 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:

-ŠW- ‘LIFE FORM, LIVING THING’		
BSC	STEM 1: (to be) a living being; a life-form; a form of life; to be something that is alive	STEM2: (to be) vital; manifest vitality; activity consistent with being alive
CTE	(to be) the individual essence/soul, set of instincts, or mind of a life-form (that distinguishes it from other individuals)	
CSV	(to be) the physical body or corporeal aspect of a living thing	STEM 3: (to be) something reproduced or brought to life; to reproduce [biologically], bring to life
OBJ	(to be) an entity/party impacted/affected by the presence of, or interaction with a living being	

The following additional non-scientific/non-taxonomic roots follow the same Specification pattern as the root **-ŠW-** above.

-FST- 'PROKARYOTIC, NON-VISIBLE LIFE FORMS'

1. bacterium
2. archaeon
3. virus

-SV- 'EUKARYOTIC LIFE FORM'

1. plant
2. animal
3. non-plant / non-animal eukaryote, i.e., protist, fungus, or chromist)

-KST- 'NON-PLANT & NON-ANIMAL EUKARYOTIC LIFE-FORM'

1. protist (i.e., protozoa, amoeboids, protophytic algae, slime molds)
2. fungus
3. chromist (brown algae, diatoms, water molds)

-LD- 'TREE / SHRUB / BUSH'

1. tree
2. shrub
3. bush

**-ZHW- 'GRASS-LIKE, STALK-LIKE, or
NON-VASCULAR PLANT FORM'**

1. grass
2. stalk-like plant
3. non-vascular, flattened/matted plant (e.g., moss, lichen, hornworts, liverworts)

-ZTC- '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

-TL- '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, 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)

-ML- '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

-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

-ŽJW- 'INVERTEBRATE OTHER THAN ARTHROPOD'

1. worm (i.e., annelid worm, nematode worm, flatworm, tapeworm, fluke or leech)
2. mollusc (i.e., snail, octopus, squid, chiton, or bivalve)
3. cnidarian (i.e., jellyfish, coral, sea anemone, or hydra)

-DP- 'LARGE DECAPODIAN CRUSTACEAN'

1. lobster / crayfish (i.e., decapod infraorder Astacidea)
2. crab (i.e., decapod infraorders Brachyura and Anomura)
3. shrimp / prawn (i.e., decapod order Dendrobranchiata and infraorders Caridea and Stenopodidea)

17.0.1 Preliminary Note on Quasi-Taxonomic Roots/Stems Denoting Biological Life-form

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 $V_X C_S$ 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 $V_X C_S$ affix would be used or a Type- 2 incorporated stem. At this time the author has not yet assigned specific affixes or stems to any such stems 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 a plains bison from a wood bison from 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.)

17.0.2 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.)

-čč	PG1 Physical Features Based on Geography 1 for Species or Sub-Species Differentiation
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 sub-Saharan African origin or environment
8	having physical features characteristic of North African/Mediterranean origin or environment
9	having physical features characteristic of New World / American origin or environment

-jj	PG2 Physical Features Based on Geography 2 for Species or Sub-Species Differentiation
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

-šb	GEO Geographic or Environmental Niche for Species or Sub-Species Differentiation
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

-šd	WBN Water-based Environmental Niche for Species or Sub-Species Differentiation
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

-šg	ENS Environmental Niche for Species or Sub-Species Differentiation
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

-tč	DBM Distinctive Bodily/Fur Markings for Species or Sub-Species Differentiation
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)

-vž	MB1 Morphological Bodily Distinctions for Species or Sub-Species Differentiation 1
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 than average

-tj	MB2 Morphological Bodily Distinctions for Species or Sub-Species Differentiation 2
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

-cd	RES Resemblances to Other Species
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.

17.0.3 Affixes for Grouping Biological Life-Form Roots/Stems into Classificatory Schemata/Taxonomies

-px	TXN Taxonomic Classification Hierarchy (to be added to the Base Root forms for various groupings)	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

-tx	HSR Hierarchical Sub- and Super-Rankings
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)

17.0.3 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).

-rç-	PEB Overall Presence/Participation Within an Environmental Niche or Biosphere
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

-xn-	PZE Paleozoic Era
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

-pn-	MZE Mesozoic Era
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

-gn-	CZE Cenozoic Era
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

17.1 Roots For Animals

All of the following stems referring to living animals have the following Specification structure:

BSC	(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
CTE	(to be) that which gives a particular animal its individual identity; the living essence mental identity of an animal
CSV	(to be) the physical body of an animal; the corporeal aspect of an animal
OBJ	(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 kingdom Animalia with the exception of arthropods (including insects). 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 arthropods (including insects) remain to be worked on, as well as the other zoological kingdoms (i.e., plants, fungi, protocists, and bacteria/archaea).

17.1.1 Mammals

17.1.1.1 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 FELINES' (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 ANIMALS' (genus *Lynx*) 1. (species *rufus*) bobcat 2. (species *lynx*, *pardinus*) Eurasian or Iberian lynx 3. (species *canadensis*) Canada lynx
- RRN- 'OCELOT-LIKE FELINES' (genus *Leopardus*) 1. ocelot 2. margay 3. other ocelot-like feline (e.g., oncilla, pampas cat, kodkod, tigrina, etc.)
- RRL- 'PUMA-LIKE FELINES' 1. (genus *Acinonyx*) cheetah 2. (genus *Puma*) cougar (a.k.a. puma/panther/catamount) 3. (genus *Herpailurus*) jaguarundi
- RRF- 'BAY CAT FELINES' (genera *Catopuma*, *Pardofelis*) 1. bay cat 2. Asian golden cat 3. marbled cat
- RR᠒- 'CARACAL FELINES' (genera *Caracal*, *Leptailurus*) 1. caracal 2. African golden cat 3. serval
- RRC- 'OTHER FELIFORMS' 1. (genus *Nandinia*) African palm civet 2. (genus *Prionodon*) banded linsang 3. (genus *Prionodon*) spotted linsang

17.1.1.2 Canines

- ZV- 'COMMON CANINES' 1. (*Canis lupus familiaris*, *C.lupus dingo*) domestic dog, dingo 2. (*Canis lupus*) gray wolf 3. (*Canis latrans*) coyote (= American jackal)
- ZVY- 'OTHER CANINES' 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 FOXES/DOGS/WOLVES' 1. (genus *Lycalopex*; species *vetulus*, *sechurae*, *fulvipes*, *gymnocercus*, *griseus*, *culpaeus*) [South American] fox 2. (genus *Speothos*) bush dog 3. other South American cerdocyonine canines (e.g., genera *Chrysocyon*, *Dusicyon*, *Cerdocyon*, *Atelocynus*)
- ZVR- 'OTHER CANINE GENERA' 1. (genus *Urocyon*) gray fox 2. (genus *Urocyon*) island fox 3. (genus *Nyctereutes*) raccoon dog

17.1.1.3 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 ANIMALS' 1. (genus *Capricornis*) serow 2. (genus *Nemorhaedus*) goral 3. (genera *Oreamnos*, *Rupicapra*) mountain goat, chamois
- NÇR- 'OVIBOVINES' 1. (genus *Ovibos*) musk-ox 2. (genus *Budorcas*) takin 3. golden takin
- NÇŘ- 'ANTELOPES' 1. (genus *Hippotragus*) antelope 2. (genus *Oryx*) oryx, gemsbok 3. (genus *Addax*) addax
- NÇF- 'ALCELAPHINE ANTELOPES' 1. (genus *Alcelaphus*) hartebeest 2. (genus *Connochaetes*) wildebeest 3. (genera *Damaliscus*, *Beatragus*) topi, bontebok, blesbok, tsessebe, korrigum, hirola
- NÇ᠒- 'ANTELOPE-LIKE ANIMALS' 1. (genus *Aepyceros*) impala 2. (genera *Gazella*, *Eudorcas*, *Nanger*, *Procapra*, *Antidorcas*) gazelle, springbok 3. (genera *Litocranius*, *Antilope*, *Ammodorcas*) East-African or Asian antelope (e.g., dibatag, gerenuk, blackbuck)

- NČV**- ‘DWARF ANTELOPES’ 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
- NČM**- ‘DUIKER’ 1. (genus *Cephalophus*) duiker 2. (genus *Philantomba*) blue duiker, Maxwells’s duiker, Walter’s duiker 3. (genus *Sylvicapra*) common duiker
- NČN**- ‘REDUNCINE ANTELOPES’ 1. (genus *Redunca*) reedbuck 2. (*Kobus ellipsiprymnus*) waterbuck 3. (genus *Kobus* other than *ellipsiprymnus* species) kob, puku, lechwe

17.1.1.4 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 athabascae*) 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 BOVINES’ 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 ANIMALS’ 1. (genus *Giraffa*) giraffe 2. (genus *Okapia*) okapi 3. (genus *Pseudoryx*) saola
- MVŘ**- ‘OTHER BOVINE-RELATED ANIMALS’ 1. (genus *Antilocapra*) pronghorn 2. (genera *Hyemoschus*, *Moschiola*) chevrotain 3. (genus *Tragulus*) mouse-deer
- MVM**- ‘BOVINE HYBRIDS’ 1. dzo/yakow (cow/bull + yak) 2. “beefalo”/ “zubron” (cow + bison) 3. “yakalo” (bison + yak)

17.1.1.5 Cervines

- LV**- ‘CERVINES (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 CAPREOLINES (NEW WORLD DEER)’ 1. (genus *Alces*) moose / Eurasian elk 2. (genus *Rangifer*) reindeer/caribou 3. (genus *Blastocerus*) marsh deer
- LVY**- ‘SMALLER CAPREOLINES (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 ANIMALS)’ 1. (genus *Muntiacus*) muntjac 2. (genus *Elaphodus*) tufted deer 3. (genus *Moschus*) musk deer

17.1.1.6 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 LIVING BEAR GENERA: 1. giant panda (genus *Ailuropoda*) 2. Qinling panda 3. spectacled bear (genus *Tremarctos*)

17.1.1.7 Musteloids

- ČT**- ‘PROCYONINE’ 1. (genus *Procyon*) raccoon 2. (genera *Nasua*, *Nasuela*) 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*, *Hydrictris*, *Lutrogale*, *Pteronura*)
 -**ČTRĚ**- ‘BADGER’ 1. (genus *Taxidea*) American badger 2. (genus *Meles*) European/Asian/Japanese badger 3. (genus *Arctonyx*) hog badger
 -**ČTM**- ‘SKUNK’ 1. (genera *Mephitus*, *Spilogale*) skunk 2. (genus *Conepatus*) hognose skunk 3. (genus *Mydaus*) stink badger
 -**ČTF**- ‘OTHER MUSTELOID’ 1. (genus *Ailurus*) red panda 2. (genera *Melogale*, *Mellivora*) ferret-badger, honey badger 3. ictonychine (genera *Galictis*, *Ictonyx*, *Lyncodon*, *Poecilogale*, *Vormela*) grison, polecat (various)

17.1.1.8 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 *Babyrousa*) babirusa
 -**PXL**- ‘SUID-LIKE ANIMAL’ 1. (genus *Phacochoerus*) warthog 2. (genus *Hylochoerus*) giant forest hog 3. (genus *Tayassu*) peccary/javelina/skunk pig

17.1.1.9 Hippopotamus

- VD**- HIPPOPOTAMUS 1. (genus *Hippopotamus*) hippopotamus 2. (genus *Choeropsis*) pygmy hippo 3.

17.1.1.10 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 DOLPHINS’ 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 DELPHINOIDS’ 1. (genus *Delphinapterus*) beluga whale, white whale 2. (genus *Monodon*) narwhal

17.1.1.11 Camelids

- ŇĽW**- ‘CAMEL (genus *Camelis*)’ 1. dromedary camel 2. domesticated bactrian camel 3. wild bactrian camel
 -**ŇĽY**- ‘LAMINID’ 1. (genus *Lama*) llama, guanaco 2. (*Vicugna pacos*) alpaca 3. (*Vicugna vicugna*) vicuña

17.1.1.12 Rhinoceros

- PŽ**- RHINOCEROS 1. (genus *Rhinoceros*) Indian & Javan rhinoceros 2. (genus *Dicerorhinus*) Sumatran rhinoceros 3. (genera *Ceratotherium*, *Diceros*) African white and black rhinoceros

17.1.1.13 Tapirs

-XJ- TAPIR (genus *Tapirus*) 1. Central American tapir 2. South American and Mountain tapir 3. Asian tapir

17.1.1.14 Equines

-XC- 'EQUINES (genus *Equus*)' 1. (subgenus *ferus*) horse 2. (subgenus *asinus*) ass, kiang, onager, kulan, donkey 3. (subgenus *hippotigris*) zebra

-XCW- 'EQUINE HYBRIDS' 1. mule 2. hinny 3. "zebroid" (including "zorse", "zeedonk", "zony")

17.1.1.15 Viverroids

-ZB- 'VIVERRIDS' 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- 'HYAENAS' 1. (genus *Crocuta*) spotted hyaena 2. (genera *Hyaena*, *Parahyaena*) hyaena (striped, brown) 3. (genus *Proteles*) aardwolf

-ZBW- 'MONGOOSESES' 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

17.1.1.16 Eulipotyphla (Hedgehogs, Gymnures, Shrews, Moles, Shrew-Moles, Desmans, Solenodons)

-DX- 'HEDGEHOG' 1. (genus *Erinaceus*) common hedgehog 2. (genus *Aterix*) 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. (genera *Crocidura*, *Diplomesodon*, *Feroculus*, *Palawanosorex*, *Paracrocidura*, *Ruwenzorisorex*, *Scutisorex*, *Solisorex*, *Suncus*, *Sylvisorex*) white-toothed shrew 2. (genera *Myosorex*, *Congosorex*, *Surdisorex*) African shrew 3. (genera *Anourosorex*, *Blarinella*, *Blarina*, *Cryptotis*, *Chimarrogale*, *Chodsigoa*, *Episoriculus*, *Nectogale*, *Neomys*, *Soriculus*, *Megasorex*, *Notiosorex*, *Sorex*) red-toothed shrew

-DXR- 'MOLE/SHREW-MOLE/DESMAN/SOLENODON' 1. (genera *Condylura*, *Parascalops*, *Scalopus*, *Scapanulus*, *Scapanus*, *Uropsilus*, *Euroscaptor*, *Mogera*, *Parascaptor*, *Scaptochirus*, *Talpa*, *Scaptonyx*, *Dymecodon*, *Urotrichus*, *Neurotrichus*) mole, shrew-mole 2. (genera *Desmana*, *Galemys*) desman 3. (genus *Solenodon*) solenodon

17.1.1.17 Leporiforms And Rodents

-BZ 'RABBITS/HARES/PIKAS' 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*, *Notocitellus*, *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*, *Sciurillus*, *Tamiasciurus*, *Sciurillus*) tree squirrel, neotropical pygmy squirrel 3. (genera *Eoglacomys*, *Glaucomys*, *Hylomys*, *Iomys*, *Petaurillus*, *Petinomys*, *Aeretes*, *Aeromys*, *Belomys*, *Biswamoyopterus*, *Eupetaurus*, *Petaurista*, *Pteromys*, *Pteromyscus*, *Trogopterus*) flying squirrel

-BZR- ‘VOLE/LEMMING/MUSKRAT’ 1. (genera *Arvicola*, *Blanfordimys*, *Chionomys*, *Lasiopodomys*, *Lemmiscus*, *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

-BZŘ- ‘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- ‘HETEROMYIDS’ 1. (genus *Heteromys*) spiny pocket mouse 2. (genera *Dipodomys*, *Mirodipodops*) kangaroo rat, kangaroo mouse 3. (genera *Perognathus*, *Chaetodipus*) pocket mouse

-BZMR- ‘DIPODIDS’ 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

-BZMŘ- ‘PLATACANTHOMYIDS’ 1. (genus *Platacanthomys*) spiny dormouse 2. (genus *Typhlomys*) Chinese pygmy dormouse

-BZVW- ‘SPALACIDS’ 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 RODENTS’ 1. (genus *Calmyscus*) mouse-like hamster 2. (genus *Pedetes*) springhare 3. (genus *Petromus*) dassie rat

-BZVR- ‘GERBILS/JIRDS/TATERILS’ 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 SQUIRRELS’ 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 RODENTS’ 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/ACOUCHE/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
- BZDR̂-** OCTODONTID RODENTS 1. (genus *Aconaemys*) Andean rock rat 2. (genera *Octodon*, *Octodontomys*,) degu 3. (genera *Octomys*, *Pipanacoctomys*, *Tympanoctomys*) viscacha rat
- BZDW-** ‘ECHIMYID RODENTS’ 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 RODENTS’ 1. (genus *Ctenomys*) tuco-tuco 2. (genera *Abrocoma*, *Cuscomys*) chinchilla-rat 3. (genus *Spalocopus*) coruro

17.1.1.18 Bats

- BH-** ‘BATS’ 1. (Microchiroptera; numerous genera) [micro]bat 2. (Megachiroptera; numerous genera) [mega]bat / fruit-bat [other than flying foxes] 3. (genera *Pteropus*, *Acerodon*) flying fox

17.1.1.19 Treeshrews

- JÑW-** ‘TREESHREW’ 1. (genus *Anathana*) Indian treeshrew 2. (genera *Dendrogale*, *Tupaia*, *Urogale*) Asian treeshrew 3. (genus *Ptilocercus*) pen-tailed treeshrew

17.1.1.20 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
- LGR̂-** ‘OTHER BABOON-LIKE MONKEYS’ 1. (genus *Mandrillus*) drill, mandrill 2. (genus *Theropithecus*) gelada 3. (genus *Rungwecebus*) kipunji
- LGZW-** ‘COLOBUS MONKEYS’ 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 MONKEYS’ 1. (genus *Pygathrix*) douc 2. (genus *Rhinopithecus*) snub-nosed monkey 3. (genus *Nasalis*) proboscis monkey
- LGZR-** ‘CAPUCHIN/SQUIRREL MONKEYS’ 1. (genus *Cebus*) [gracile] capuchin monkey 2. (genus *Sapajus*) [robust] capuchin monkey 3. (genus *Saimiri*) squirrel monkey
- LGR̂-** ‘CERCOPITHECINE MONKEYS’ 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**- ‘MARMOSSET/TAMARIN’ 1. (genera *Cebuella*, *Callibella*, *Mico*, *Callithrix*, *Callimico*) marmoset 2. (genus *Saguinus*) tamarin 3. (genus *Leontopithecus*) lion tamarin

17.1.1.21 Seals, Sea Lions & Walrus

-**VXL**- ‘PHOCID (“EARLESS”/ “TRUE”) SEALS’ 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”) SEALS’ 1. (genera *Arctocephalus*, *Callorhinus*) fur seal 2. (genera *Neophoca*, *Phocarctos*, *Zalophus*, *Otaria*, *Eumetopias*) sea lion 3. (genus *Odobenus*) walrus

17.1.1.22 Pangolins

-**ZDW**- ‘PANGOLINS (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

17.1.1.23 Elephant Shrews, Sengis

-**ZKTJ**- ‘ELEPHANT SHREW / SENGI’ 1. (genus *Elephantulus*) ‘elephant shrew’ 2. (genera *Macroscelides*, *Petrodomus*, *Petrosaltator*) sengi 3. (genus *Rhynchocyon*) checkered elephant shrew / giant sengi

17.1.1.24 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 INSECTIVORES (other than tenrecs)’ 1. (genus *Orycteropus*) aardvark 2. (genera *Potamogale*, *Micropotamogale*) otter shrew 3. (Chrysochloridae; numerous genera) golden mole

17.1.1.25 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

17.1.1.26 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

17.1.1.27 (New World) Anteaters and Sloths

-**ÑDW**- ‘(NEW WORLD) ANTEATER’ 1. (genus *Myrmecophaga*) giant anteater 2. (genus *Cyclopes*) silky anteater 3. (genus *Tamandua*) tamandua

-**ÑDY**-- ‘SLOTH’ 1. (genus *Bradypus*) three-toed sloth 2. (*Choloepus didactylus*) Linnaeus’ two-toed sloth / unau 3. (*Choloepus hoffmanni*) Hoffmann’s two-toed sloth

17.1.1.28 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)

17.1.1.29 Marsupials

-**RDK** - ‘DASYURINE MARSUPIALS’ 1. (genus *Dasyurus*) quoll 2. (genus *Myoictis*) dasyure 3. (genus *Neophascogale*) speckled dasyure

-**RDKW**- ‘OTHER DASYURINE MARSUPIALS’ 1. (genus *Dasyercus*) mulgara 2. (genus *Dasykaluta*) kaluta 3. (genus *Dasyuroides*) kowari

-**RDKY**- ‘MORE DASYURINE MARSUPIALS’ 1. (genus *Pseudantechinus*) false antechinus 2. (genus *Phascosorex*) marsupial shrew 3. (genus *Parantechinus*) dibbler

-**RDKL**- ‘PHASCOGALINE MARSUPIALS’ 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 MARSUPIALS’ 1. (genus *Sminthopsis*) dunnart 2. (genus *Planigale*) planigale 3. (genera *Antechinomys*, *Ningau*) kultarr, ningau

-**RDKŘ**- ‘OTHER DASYUROMORPHS’ 1. (genus *Sarcophilus*) Tasmanian devil 2. (genus *Myrmecobius*) numbat 3. (genus *Thylacinus*) thylacine [Tasmanian tiger]

-**RDKF** - ‘PHALANGERIFORM POSSUMS’ 1. (Phalangerides; numerous genera) cuscus 2. (Trichosurines; genera *Trichosurus*, *Wyulda*) brushtail possum, scaly-tailed possum 3. (Burramyides; genera *Burrarnys*, *Cercartetus*) pygmy possum

-**RDK†**- ‘PETAUROID POSSUMS’ 1. (Pseudocheirides; numerous genera) ring-tailed possum 2. (Petaurides; genera *Dactylopsila*, *Gymnobelideus*, *Petaurus*) triok, glider 3. (Tarsipedides and Acrobatides; genera *Tarsipes*, *Acrobates*, *Distoechurus*) honey possum, feathertail glider, feather-tailed possum

17.1.1.30 Bandicoots and Bilbies

-**KTXW**- ‘PERAMELEMORPHS & NOTORYCTEMORPHS’ 1. (Peramelines; numerous genera) bandicoot 2. (genus *Macrotis*) bilby 3. (genus *Notoryctes*) marsupial mole

17.1.1.31 Wombats and Koalas

-**LJXW**- ‘WOMBAT/KOALA’ 1. (genus *Vombatus*) common wombat 2. (genus *Lasiorhinus*) hairy-nosed wombat 3. (genus *Phascolarctos*) koala

17.1.1.32 Kangaroos, Wallaroos, Wallabies

-**LMKW**- ‘KANGAROO/WALLAROO/WALLABY (genera *Macropus*, *Onychogalea*, *Wallabia*)’ 1. kangaroo 2. wallaroo 3. wallaby

-**LMKY**- ‘POTOROIFORMS’ 1. (genera *Aepyprymnus*, *Hypsiprymnodon*) rat-kangaroo, musky rat-kangaroo 2. (genus *Bettongia*) bettong 3. (genus *Potorous*) potoroo

-**LMKL**- ‘OTHER MACROPODIDS’ 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 MACROPODINES’ 1. (Genus *Petrogale*) rock-wallaby, monjon, nabarlek 2. (Genus *Setonix*) quokka 3. (Genus *Thylogale*) pademelon

17.1.1.33 Monotremes

-LCXW- ‘MONOTREMES’ 1. (genus *Ornithorhynchus*) platypus 2. (genus *Tachyglossus*) short-beaked echidna 3. (genus *Zaglossus*) long-beaked echidna

17.1.2 Reptiles

17.1.2.1 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

17.1.2.2 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*, *Laemanctus*) 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 ANIMALS’- 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

17.1.2.3 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

17.1.2.4 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

17.1.2.5 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 SNAKES’ 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.

-ZZD- ‘NON CAENOPHID and NON-CONSTRICTING BOOIDE SNAKE’ 1. (Scolerophids and Anomalepidids; numerous genera) blind snake, thread snake, dawn blind snake 2. (Cyndrophiiids, Anomochiids, and Aniliids; numerous genera) pipe snake 3. (Uropeltids; several genera) shield-tailed snake

17.1.2.6 Crocodylians

-GZW- ‘CROCODYLIAN’ 1. (genera *Crocodylus*, *Osteolaemus*, *Mecistops*) crocodile 2. (genera *Alligator*, *Caiman*, *Paleosuchus*) alligator, caiman 3. (genera *Gavialis*, *Tomistoma*) gharial, false gharial

17.1.2.7 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)

17.1.3 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. (Salamandrines, Cryptobranchids and Hynobiids; numerous genera) [mole, lungless, torrent, giant, Asiatic] salamander, mudpuppy/olm, 2. (Pleurodelines; numerous genera) newt 3. (genera *Siren*, *Pseudobranchus*) siren, dwarf siren

17.1.4 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*, *Aepyodius*) brushturkey 2. (genus *Leipoa*) malleefowl 2. (Megapodiids; genera *Macrocephalon*, *Eulipoa*, *Megapodius*) scrubfowl, maleo, megapode

-**NSDL**- ‘CRACID (GUAN & CURASSOW)’ 1. (Cracida - Penelopines and Ortalidines; several genera) guan, chalacala 2. (Oreophasines; genus *Oreophasis*) horned guan 3. (Cracini; several genera) curassow

-**NSDR**- ‘ODONTOPHORIDS & NUMIDIDS (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**- ‘TETRAOGALLINES (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 Percidines - genera *Pternistis*, *Dendroperdix*, *Francolinus*, *Galloperdix*, *Peliperdix*, *Scleroptila*) francolin, spurfowl 3. (other Percidines; 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 *Syrmaticus*) 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**- ‘TETRAONINES (GROUSE)’ 1. (genera *Falciipennis*, *Dendragapus*, *Tetrao*, *Tetrastes*, *Bonasa*, *Centrocercus*) 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**- ‘TADORNE (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*, *Rallicula*, *Dryolimnas*, *Gymnocrex*, *Hypotaenidia*, *Pardirallus*, *Aramides*, *Himantornis*, *Megacrex*, *Coturnicops*) rail, weka 2. (genus *Crex*, *Anurolimnas*, *Mustelirallus*, *Amaurolimnas*, *Porzana*, *Aenigmatolimnus*, *Amaurornis*, *Gallicrex*, *Rallina*, *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*) owlet-nightjar
- NSGV**- ‘CAPRIMULGIFORM (NIGHTJAR / NIGHTHAWK)’ II 1. (Podargids; genera *Podgarus*, *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 *Hemiproctus*) treeswift / crested swift
- NSDV**- ‘TROCHILID (HUMMINGBIRD)’ 1. Trochilines; numerous genera) hummingbird 2. (Phaethornithines; several genera) hermit, sicklebill, barbthroat

- NŠT**- ‘CHARADRIIFORM’ I 1. (Charadriids; genera *Pluvialis*, *Pluvianus*, *Charadrius*, *Thinornis*, *Phegornis*) plover 2. (Ibidorhynchids; genus *Ibidorhyncha*) ibisbill 3. (Charadriines, Anarhynchines, and Vanellines; genera *Orepholus*, *Eurodromias*, *Peltohyas*, *Erythrogonus*, *Anarhynchus*, *Vanellus*) dotterel, wrybill, lapwing
- NŠTW**- ‘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
- NŠTČ**- ‘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**- ‘SCOLOPACIDS (SANDPIPER)’ I 1. (genera *Calidris*/*Eriola*/*Ereunetes*, *Limicola*, *Bartramia*, *Actitis*, *Xenus*, *Prosobonia*,) sandpiper, stint / peep, knot, sanderling, dunlin, ruff, surfbird 2. (genus *Numenius*) curlew, whimbrel 3. (genus *Limosa*) godwit
- NŠTR**- ‘SCOLOPACIDS (SANDPIPER)’ II 1. (genus *Arenaria*) turnstone 2. (genus *Phalaropus*) phalarope 3. (genus *Tringa*) tattler, yellowlegs, shank
- NŠTŘ**- ‘SCOLOPACINE (SNIPE)’ 1. (genera *Gallinago*, *Coenocorypha*, *Lymnocyptes*) 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*, *Stiltia*, *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 *Cepphus*, *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 & PEDIONOMID’ 1. (Phoenicopterids; several genera) flamingo 2. (Podicipedids; several genera) grebe
- NŠKW**- ‘EURYPYGIMORPH’ 1. (Phaetontids; genus *Phaethon*) tropicbird 2. (Eurypygidids; genus *Eurypyga*) sunbittern 3. (Rhynochetids; genus *Rhynochetos*) kagu
- NŠKY**- ‘PROCELLARIFORM’ (TUBENOSE) 1. (Gaviids; genus *Gavia*) loon / diver 2. (Diomedeads; 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 3. (genera *Spheniscus*, *Pygoscelis*, *Megadyptes*, *Eudytula*) penguin, banded penguin, fairy penguin
- NŠKŘ**- ‘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

- ŇŠKN**- ‘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
- ŇŠKÇ**- ‘PELECANIFORM’ 1. (Pelecanids; genus *Pelecanus*) pelican 2. (Scopids; genus *Scopus*) hamerkop 3. (Balaenicipitids; genus *Balaeniceps*) shoebill / whalehead
- ŇŠKF**- ‘ARDEID (HERON / EGRET / BITTERN)’ 1. (Ardeines and Tigrionithines; numerous genera) heron 2. (Ardeines; genera *Egretta*, *Bubulcus*) egret, cattle egret 3. (Botaurines; several genera) bittern
- ŇŠKV**- ‘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. (Aegyptines 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. (Acciptrines 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. (Phoeniculids; 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. (Megalaimids, 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*, *Nonnula*, *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

- ÑSPF**- ‘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
- ÑSPV**- ‘CACATUID (COCKATOO)’ 1. (Cacatuines; several genera) cockatoo, corella, galah 2. (Calyptorhynchines; genus *Calyptorhynchus*) black cockatoo 3. (Nymphicines; genus *Nymphicus*) cockatiel / weiro / quarrion
- 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. (Platyrrinchids; genus *Platyrrinchus*) spadebill 3. (Rhynchocyclids; genera *Rhynchocyclus*, *Tolmomyias*,) flatbill
- ÑSBW**- ‘FORMICAROID BIRD’ I 1. (Melanopareids; genus *Malanopareia*) crescentchest 2. (Thamnophilids; numerous genera) antbird, antshrike, antwren, antvireo 3. (Conopophagids; genera *Conopophaga*, *Pittasoma*) gnateater, antpitta
- 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*) anthrush
- 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, firwood-gatherer, brushrunner, cacholote, false canastero, wren-spinetail, prickletail, plushcrown, graveteiro, softtail, barbtail, reedhaunter 2. (Sclerurines; genera *Sclerurus*, *Geositta*) leaflosser, miner 3. (Dendrocolaptines; numerous genera) woodcreeper
- ÑST**- ‘MENUROID BIRD’ 1. 2. (Menurids; genus *Menura*) lyrebird 3. (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
- ÑSTRĀ**- ‘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

- ŇSTM**- ‘MELIPHAGOID BIRD’ 1. (Dasyornithids; genus *Dasyornis*) bristlebird 2. (Pardalotes; genus *Pardalotes*) pardalote / peep-wren 3. (Meliphagids; numerous genera) honeyeater, myzomela, chat, friarbird, kikau, staightbill, wattlebird, melidectes, myza
- ŇSTN**- ‘ORTHOYCHOID 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 *Sphecotheses*) 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. (Paramythiids; genera *Paramythia*, *Oreocharis*) painted berrypicker 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*, *Strepara*, *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 *Coloelus*) 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 *Pyrrhocorax*) 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. (Stenostirids; several genera) fairy fly-catcher, crested flycatcher, canary-flycatcher 2. (Hylotiids; 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 *Lophophanus*) crested tit
- MSTŘ**- ‘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. (Hyltiids; 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**- ‘SYLVIDOID 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**- ‘HIRUNDIDS (SWALLOW / MARTIN)’ 1. (genera *Hirundo*, *Cecropis*, *Alopocheledon*, *Neochelidon*, *Atticora*, *Haplocheledon*, *Notiochelidon*, *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
- ÑSB**- ‘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*, *Sceopymycter*, *Artisomus*, *Poliolais*) [African / Asian] warbler
- ÑSBŘ**- ‘CISTICOLID (AFRICAN & ASIAN WARBLER)’ II 1. (genera *Prinia*, *Schistolais*, *Phragmacia*) prinia 2. (genera *Apalis*, *Oreolais*) apalis 3. (genus *Orthotomus*) tailorbird
- ÑSG**- ‘CISTICOLID (AFRICAN & ASIAN WARBLER)’ III 1. (genus *Micromacronus*) miniature babbler 2. (genus *Urolais*) green longtail 3. (genus *Calamonastes*) wren-warbler
- ÑSGŘ**- ‘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**- ‘SAXICOLINES’ 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**- ‘SAXICOLINES’ 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**- ‘SAXICOLINES’ III 1. (genus *Calliope*) rubythroat, firethroat, blackthroat 2. (genus *Enicurus*) forktail 3. (genera *Ficedula*, *Muscicapella*, *Humblotia*) flycatcher, pygmy flycatcher
- NSKF**- ‘SAXICOLINES’ 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 *Poliottila*, *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**- ‘MUSCICAPID’ 1. (Muscicapini and Niltavines; several genera) [Old Word] flycatcher, forest flycatcher, tit-flycatcher, silverbird 2. (Muscicapinae; genera *Copsychus*, *Cercotrichas*) magpie-robin, shama, scrub robin / bush-chat 3. (Niltavines; genus *Sholicola*) sholakili

- RNSKF-** ‘ZOSTEROPIDS (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, hawkfinch, 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
- ŇŠTRĚ-** ‘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
- ŇŠTÇ-** ‘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*, *Lamprospisar*, *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*, *Cassiculus*, *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. (Teretistrids; 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

-**ŇSPV**- ‘THRAUPID(TANAGER)’ IV 1. (genus *Catamblyrhynchus*) plushcap 2. (genus *Incapiza*) 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

17.1.5 Fish, Tunicates & Lancelets

17.1.5.1 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. zijssron*) [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

17.1.5.2 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 *Charcharias*, *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 *Chyloscyllium*, *Hemiscyllium*) bamboo shark
- PSBR**- ‘CARPET SHARK’ II 1. (genus *Rhincodon*) whale shark 2. (genus *Stegostoma*) zebra shark 3. (genera *Cirrhoscyllium*, *Parascyllium*) collared carpet shark
- PSBŘ**- ‘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*, *Planonasmus*, *Gollum*) false catshark, gollumshark
- PSDV**- ‘CHIMAERA’ 1. (Chimaerids; genera *Chimaera*, *Hydrolagus*) chimaera, rabbitfish, ghostshark, ratfish 2. (Callorhinchids; genus *Callorhinchus*) ploughnose chimaera, Cape elephantfish, Australian ghost shark 3. (Rhinochimaerids; genera *Harriotta*, *Neoharriotta*, *Rhinochimaera*) spookfish, sicklefin chimaera, paddle-nose chimaera, longnose chimaera

17.1.5.3 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
- PSSGŘ**- ‘ELOPIFORM & ALBULIFORM FISH’ 1. (genus *Elops*) ladyfish, skipjack, jack-rash, tenpounder 2. (genus *Megalops*) tarpon 3. (genera *Nemoossis*, *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*, *Pteronotopis*) 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
- PSTŘ-** 'LEUCISCINE FISH' III 1. (genus *Tica*) tench, doctor fish 2. (genus *Campostoma*) stoneroller 3. (genus *Acrocheilus*) chiselmouth
- PSTÇ-** '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 gudeons, 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)
- RPSTŘ-** '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)
- RPSTÇ-** '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. (Spintherobulids and Stethapriionines; 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. (Diplomystiids; 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. (Apterontoids; 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. (Maurolicines 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 / bummalu, 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
- PSKĚ**- ‘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. (Euclichthyids; genus *Euclichthys*) 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
- PŠČW**- ‘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

Percomorphic Fish:

- 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 & BATRACHOID 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, (genera *Tongaichthys*, *Rexichthys*, *Promethichthys*, *Lepidocybium*, *Diplospinus*) escolar, (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. (Oxucerids; several genera) mudskipper
- LPŠTR**- ‘GOBIOID FISH’ II (Ptereleotrids; numerous genera) dartfish 2. (Kraemeriids; genera *Kraemeria*, *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*) 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, barrellfish, butterfly, 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*, *Trichiurus*) 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*, *Euypegus*) 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. (Centrisciids; genera *Aeoliscus*, *Centriscus*) shrimpfish (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 *Naukrates*) pilot fish 2. (genus *Seriola*) amberjack 3. (genus *Seriolina*) black-banded trevally
- LPSPV**- ‘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, roughear scad, Indian scad, redbelly scad, Japanese scad, shortfin scad, koheru 2. (genus *Gnathodon*) golden trevally / golden kingfish / king trevally 3. (genus *Megalespis*) torpedo scan / 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 trevally / 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. (genus *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, yellowfin 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
- PŠKT-** '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 *Psammodytes*) 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 ish, 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 *Engyprosopon*) fringelip dwarf 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*) stiped-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 flounder, 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

-LPSKT- ‘SAMARID FISH (CRESTED FLOUNDER)’ 1. (genus *Samaris*, *Samaretta*) crested flounder, cockatto 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
- PSSKĹ-** ‘ATHERINIFORM 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
- PSSKŤ-** ‘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
- LPSTŘ-** ‘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-** ‘PSEUDOCHROMID FISH (DOTTYBACK)’ 1. (Congrogadines; numerous genera) eel-blenny 2. (Pseudochromines and Anisochromines; numerous genera) dottyback 3. (Pseudoplesiopines; several genera) dottyback
- RPSKĹ-** ‘POMACENTRID FISH’ 1. (Amphiprionines; genera *Amphiprion*, *Premnas*) clownfish / anemonefish 2. (Chromines [other than *Dascyllus*] and Lepidozygines; several genera) damsselfish 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 damsselfish
- RPSKŤ-** ‘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
- RPSPPL**- ‘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
- RPSSPŘ**- ‘CENTRARCHIFORM FISH’ IV: 1. (Kyphosines; several genera) sea chub 2. (Microcantines; several genera) footballer, moonlighter 3. (Scorpidines; several genera) halfmoon, grey knifefish, blue knifefish, sweep
- RPSSPÇ**- ‘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. (Triacanthodids; 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 *Ebosia*) 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 / poge / armed bullhead 3. (Anoplagonines; several genera) alligatorfish
- PSSTRĚ-** ‘SCORPAENIFORM FISH’ VI: 1. (Anoplopomatids; genera *Anoplopoma*, *Erilepsis*) sablefish / butterfly / 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) 1. rockfish, rock perch, ocean perch, sea perch, thornyhead, sea ruffe, rockcod 2. (Neosebastids; genera *Neosebastes*, *Maxillcosta*) 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) deep-sea bristly scorpionfish
- PSSTĽ-** ‘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. (Rhamphocottids; genus *Rhamphocottus*) 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, goosfish, 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 / double spine seadevil 3. (Neoceratiids; genus *Neoceratias*) toothed seadevil / spiny seadevil / netbeard seadevil

-PSSBR- ‘LOPHIIFORM FISH (ANGLERFISH)’ V 1. (Caulophryids; genera *Caulophryne*, *Robia*) fanfin / hairy anglerfish / fanfin seadevil 2. (Melanocetids; genus *Melanocetus*) black seadevil 3. (Thaumaticthyids; genera *Thaumaticthys*, *Lasiognathus*) wolftap 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. (Linophryids; 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. (Ephippids; several genera) spadefish, batfish 2. (Drepaneids; genus *Drepane*) sicklefish, concertina fish 3. (Zanclids; genus *Zanclus*) Moorish idol

-PŠPČ- ‘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. (Epinephelinae; 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. (Pempheids; 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. (Dinoperoids; 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*) leafish 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 *Parascorpiis*) 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

17.1.6 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, Dendrochirotidids, and Elasiopodids) sea cucumber 2. (Molpadiids; several genera) molpadiid sea cucumber 3. (Dendrochirotidids and Elasiopodids; 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

17.1.7 Protostomes (other than Arthropods)

17.1.7.1 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 *Priapulidus*, *Priapulosis*) priapulid worm (a.k.a. penis worm) 2. (genus *Tubilucus*) 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

-LTPĽ- ‘OTHER SPIRALIA’ 1. (Gnathostomulids; numerous genera) jaw worm 2. (Micrognathozoa; genus *Limnognathia*) limnognathia 3. (Gastroticha; numerous genera) gastrottrich / hairyback

- LṬPF**- ‘FLATWORM’ 1. (cestodes; numerous genera) tapeworm 2. (trematodes; numerous genera) fluke 3. (non-cestoid, non trematoid platyhelminths; numerous genera) flatworm, planarian
- LṬPT**- ‘BRYOZOAN / ENTOPROCT’ 1. (Bryozoa/Ectoprocta; numerous genera) moss animal 2. (Entoprocta/Kamptozoa; numerous genera) entoproct/kamptozoa
- LṬPS**- ‘ANNELID-RELATED ANIMAL I’ 1. (Phoronida; genera Phononis, Actinotrocha) horseshoe worm 2. (Brachiopoda; numerous genera) brachiopod 3. (Sipuncula; numerous genera) peanut worm
- LṬPŠ**- ‘ANNELID-RELATED ANIMAL II’ 1. (Nemertea; numerous genera) ribbon worm / proboscis worm 2. (Myzostomida; numerous genera) myzostomid 3. (Dicyemida/Rhombozoa; several genera) dicyemid/rhombozoan

17.1.7.2 Molluscs

17.1.7.2.1 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]

- ṬPW**- ‘SNAIL’ 1. terrestrial snails 2. sea snail / whelk 3. limpet
- ṬPY**- ‘DISTINCTIVE SEA SNAIL’ 1. abalone 2. conch [i.e., sea snail with pointed/spired/horned shell] 3. (Thecosomes; numerous genera) sea butterfly
- ṬPL**- ‘SLUG’ 1. slug 2. sea slug / nudibranch 3. (Anaspids; several genera) sea hare

17.1.7.2.2 Bivalves

- ṬPR**- ‘CLAM’ 1. clam 2. cockle 3. (Limids; several genera) file shell
- ṬPŘ**- ‘MYID / HIATELLID’ 1. (Myids; several genera) soft-shell clam 2. (Hiatellids; several genera) geoduck 3. (genus *Teredo*) shipworm
- ṬPÇ**- ‘OYSTER’ 1. (Ostreoids; numerous genera) [true] oyster, foam oyster / honeycomb oyster 2. (Pterioids; numerous genera) hammer oyster, pearl oyster, tree oyster, winged oyster, feather oyster, pulvinitid 3. (Dimyids; several genera) dimyarian oyster
- ṬPF**- ‘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
- ṬPS**- ‘PTERIOMORPH’ I 1. (Anomiids; several genera) jingle shell / saddle oyster 2. (Placunids; windowpane shell / windowpane oyster 3. (Pinnids; several genera) pen shell
- ṬPŠ**- ‘PTERIOMORPH’ II 1. (Arcids; numerous genera) ark shell / ark clam / bittersweet 2. (genus *Plicatula*) kittenpaw 3. (genus *Spondylus*) spiny oyster / thorny oyster

17.1.7.2.3 Cephalopods

- ṬPT**- ‘OCTOPOD’ 1. (Octopoda; numerous genera) octopus 2. (genus *Vampyroteuthis*) vampire squid 3. (genus *Argonauta*) argonaut / paper nautilus
- ṬPL**- ‘SQUID / CUTTLEFISH’ 1. (Myopsida, Oegopsida; numerous genera) squid 2. (Sepiolida, Spirulida; numerous genera) bobtail squid, ram’s horn squid 3. (Sepiadariids; numerous genera) cuttlefish

17.1.7.2.4 Other Molluscs

- ṬPSS**- ‘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

17.1.8 Arthropods (including Insects)

[in development]

17.1.9 Porifera, Ctenophora, Placozoa, and Cnidaria

17.1.9.1 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

17.1.9.2 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

17.1.9.3 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. (Malacosporia-Saccosporids; genera *Buddenbrockia*, *Tetracapsuloides*) saccosporid myxozoan

17.2 Roots For Plants

[in development] (See Sec. 5.5.1 on pg. 83 for a partial listing of roots/stems for common food plants)

17.3 Roots For Fungi

[in development]

17.4 Roots For Protocists

[in development]

17.5 Roots For Bacteria & Archaea

[in development]