

SUPPLEMENT TO ITHKUIL LEXICON
[latest roots added March 27, 2015, shown in blue]

-BBR- FALSE (or SUPERSEDED) FUNDAMENTAL CONCEPTS OF SCIENCE			
INFORMAL Stems		FORMAL Stems	
1. false/superseded fundamental concept from physics		1. false/superseded fundamental concept from astronomy and cosmology	
2. false/superseded fundamental concept from chemistry		2. false/superseded fundamental concept from geology	
3. false/superseded fundamental concept from biology		3. false/superseded fundamental concept from medicine and psychology	
COMPLEMENTARY Stems		COMPLEMENTARY Stems	
same as above 3 stems with focus on the concept/entity itself	same as above 3 stems with focus on the consequences/effect/impact	same as above 3 stems with focus on the concept/entity itself	same as above 3 stems with focus on the consequences/effect/impact

SSD Derivatives for Informal Stem 1: 5) phlogiston 7) caloric

SSD Derivatives for Formal Stem 1: 1) lumiferous aether

-BŽ- ECCENTRICITY/WEIRDNESS/UNORTHODOXY			
INFORMAL		FORMAL	
1. state of being eccentric/non-conforming to expected societal norms		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being weird/outlandish			
3. state of being unorthodox / “out of the box” / not per normative standards or guidelines			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state		

-CC- DEGREE OF CAPACITY FOR EMOTION			
INFORMAL Stems		FORMAL Stems	
1. degree of emotional/intellectual engagement or interest vs. degree of boredom		1. degree of emotional/intellectual fulfillment vs. emotional emptiness/hollowness	
2. degree of emotional engagement/involvement or devotion vs. emotional detachment or non-committedness		2. degree of emotional/intellectual stability vs. instability	
3. degree of capacity for or depth of emotional engagement/involvement or interest vs. emotional shallowness or lack of emotional development		3. degree of emotional openness or “being in touch” with one’s emotion vs. degree of emotional repression	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on quality/capacity itself in the abstract	same as above 3 stems with focus on the actual feeling experienced (or lack thereof)	same as above 3 stems with focus on quality/capacity itself in the abstract	same as above 3 stems with focus on the actual feeling experienced (or lack thereof)

MORPHOLOGICAL DERIVATIVES: emotionally shallow, bored, boredom, emotionally detached, emotional detachment, fascinated, fascination, emotionally involved, emotionally devoted to, devotion, emotionally (un-)stable, emotional stability, emotionally “free”, emotionally repressed, emotional repression, emotionally hollow or empty, emotional fulfillment, emotionally fulfilled

-CTW- MEASUREMENT OF ILLUMINATION			
1. measure/measurement of luminous intensity		1. measure/measurement of illuminance, luminous exitance or emittance, as measured by luminous intensity per solid angle per distance squared	
2. measure/measurement of luminous flux, luminous power, i.e. "amount" of visible light emitted by a source, as measured by luminous intensity per solid angle		2. measure/measurement of photon flux, airglow, as measured in photons per distance squared per unit of time per solid angle	
3. measure/measurement of luminance, i.e., brightness of light, as measured by luminous intensity per distance squared		3. measure/measurement of other illumination-based phenomena utilizing units of illumination-based measurement along with units of distance, time, power	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement	Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement

SSD₁/5 derivative of Informal P3/S1 of the above root = candela; SSD₁/9 of Informal P3/S1 = candlepower

SSD₁/5 derivative of Informal P3/S2 of the above root = lumen

SSD₁/5 derivative of Informal P3/S3 of the above root = lux; SSD₁/9 of Informal P3/S1 = foot-candle

SSD₁ Derivatives for Formal Stem 1, Pattern 3:

Degree 1	stilb	Degree 4		Degree 7	apostilb
Degree 2	foot-lambert	Degree 5	candela per sq. meter = nit	Degree 8	skot
Degree 3	lambert	Degree 6		Degree 9	bril

SSD₁/5 derivative for Formal P3/S2 = rayleigh

SSD₁ Derivatives for Formal Stem 3, Pattern 1 of the above root:

Degree 1	measurement of power of lens or eye, as measured in the reciprocal of distance (e.g., diopters)
Degree 3	luminous energy, perceived energy of light, as measured by luminous intensity times unit of time per solid angle (e.g., talbots)
Degree 5	luminous energy density, as measured by luminous intensity times unit of time per solid angle per cubic distance
Degree 7	luminous exposure, as measured by luminous intensity times unit of time per distance squared (e.g., lux second)
Degree 9	luminous efficacy, as measured by luminous intensity per solid angle per unit power (e.g., lumen per watt)

-CX- tactile faculty, faculty of touch, feel (via one's tactile faculty) — the stems of this root are modeled identically with those of the root -DY-

-ČQ'- a deep abiding sense of disgust, contempt, and being "fed-up" with other people after years of dealing with other's unrelenting flakiness, lying, betrayals, hypocrisy, sanctimoniousness, stupidity, and short-sightedness. This root is patterned after the root -PK-.

-DhB- COMMON-SENSE/PRUDENCE/WISDOM		
INFORMAL		FORMAL
1. state of having common sense; use common sense		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.
2. state of being prudent/circumspect/discerning		
3. state of being wise/sagacious based on keen analysis and introspection regarding one's experiences and long-term observations		
COMPLEMENTARY STEMS		
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state	

MORPHOLOGICAL DERIVATIONS: common sense; prudence; wisdom

-DhG- CHARACTER TRAITS: COURAGE/BRAVERY/VALOR		
INFORMAL	FORMAL	
1. state of being brave, undaunted by dangerous situation at hand	FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being courageous/intrepid; have courage		
3. state of being valorous/gallant/bold; act with valor/gallantry/boldness		
COMPLEMENTARY STEMS		
Same as above 3 stems with focus on the state or feeling itself		Same as above 3 stems with focus on the consequences of being in such a state

-DhR- REPRESENTATION FOR AESTHETIC OR INTELLECTUAL PURPOSE / ARTISTIC ELEMENT			
INFORMAL		FORMAL	
1. design element or motif for purpose of functional or intellectual appreciation; be/create such a design element or motif		1. design element or motif for purpose of aesthetic or artistic appreciation; be/create such a design element or motif	
2. depiction or representation for purpose of functional or intellectual appreciation; be/create such a depiction or representation		2. depiction/representation/creation for purpose of aesthetic or artistic appreciation; be/create such a depiction or representation	
3. act of consideration/appreciation of external entity for purposes of functional/intellectual contemplation		3. act of consideration/appreciation of external entity for purposes of aesthetic/artistic admiration/contemplation	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems referring to the process/act of inspired creation thereof	same as above 3 stems referring to the design element, motif, depiction, or representation itself	same as above 3 stems referring to the process/act of inspired creation thereof	same as above 3 stems referring to the design element, motif, depiction, or representation itself

MORPHOLOGICAL DERIVATIVES: work of art, art, artist, artisan

Type 1 SSD Derivatives designate a particular static creative medium: sculpture, 2-dimensional visual composition (painting, photo, drawing, graphic), collage, 3-D construction, musical composition, written (literary) composition, multimedia composition, other static medium

Type 2 SSD Derivatives designate a particular dynamic creative medium: dance performance, motion picture, music performance, dramatic performance (i.e., a play), multimedia performance, a reading/recital,

-DhV- EMOTIONALISM/WHIM-WORSHIPPING/MYSTICISM		
INFORMAL	FORMAL	
1. state of being emotion-driven and controlled by melodrama in one's daily life decisions, as opposed to relying on reason	FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. 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		
3. 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		
COMPLEMENTARY STEMS		
Same as above 3 stems with focus on the state or feeling itself		Same as above 3 stems with focus on the consequences of being in such a state

-FĀ- disdain, contempt, despise — The stems of this root are patterned after the root **-PK-**

-FK- BELIEF/TRUST/CERTAINTY			
INFORMAL		FORMAL	
1. a belief; to believe		1. an article of faith / an item of doctrine or dogma; to be/constitute an article of faith/doctrine/dogma	
2. a feeling of trust/reliability; to trust, to rely upon		2. an act of assurance/insurance; to assure/ensure	
3. a state of self-confidence/belief in oneself		3. something certain, something sure; to be/make sure/certain	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the state/act itself	Same as above 3 stems with focus on thing believed/trusted/certain about	Same as above 3 stems with focus on the state/act itself	Same as above 3 stems with focus on thing believed/trusted/certain about

MORPHOLOGICAL DERIVATIVES: convince, conviction, cedula, cedula, gullible, gullibility

-FQ- EGOISM/SELF-INTEREST/INDIVIDUALISM/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 -LFQ- "selfishness/self-centeredness" which implies negative traits which potentially affect others adversely.			
INFORMAL		FORMAL	
1. state of being egoistic; concerned with one's self-interest (not at the expense of other's rights)		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being individualistic; pursuing of one's own rationally-conceived goals to one's own benefit and implicitly to the benefit of others			
3. state of having personal integrity / adherence to one's own values in the face of real-life circumstances			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state		

-FST- EXTENT / REACH / DIMENSIONAL MEASUREMENT	
INFORMAL Stems	FORMAL Stems
1. extend linearly/uni-dimensionally (up/out/along/back, etc.) to a certain point/level/height, etc., "reach" (to) a certain point/level/height, etc.	1. to (be) measure(d) a particular uni-dimensional/linear amount (i.e., to reach/measure/extend a certain length/height/depth/distance, etc.), to be a particular height/depth/length, etc., to have a particular amount/extent of length/depth/height, etc; amount of linear extension (i.e., length/height/depth, etc.)
2. extend two-dimensionally (out/among/away, etc.) to a certain distance/edge/linear landmark/linear boundary, etc., "reach" (to) a certain distance/edge/linear landmark/boundary, etc.	2. to (be) measure(d) a particular two-dimensional/planar extent/distance/expanse (i.e., to reach/measure/extend a certain area/planar extent, etc.), to be a particular two-dimensional/planar extent/expanse, etc., to have a particular amount/extent of planar area
3. extend 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.	3. to (be) measure(d) a particular three-dimensional extent/expanse/area/volume (i.e., to reach/measure/extend a certain volume.), to be a particular three-dimensional volume, to have a particular (extent/amount of) volume

COMPLEMENTARY Stems		COMPLEMENTARY Stems	
same as above 3 stems with focus on the impact/effect/consequences on or to the entity reaching/extending to such a point	same as above 3 stems with focus on the impact/effect/consequences on the external situation or environment or audience due to an entity's having extended/reached to such a point	same as above 3 stems with focus on the amount of dimensional length/area/space taken up/inhabited/utilized by the entity in question	same as above 3 stems with focus on the state/act/process of extension/reach/expansion, the state of being so long/wide/extended/voluminous

NOTE: The formal stems should be contrasted with the Pattern 1 Formal stem of the root -ST-. The latter stem means an agential act of measuring something or to agentially measure something (i.e., to discern/discover one's dimensional measurements in terms of some arbitrary system of units)

-FTÇ- 'bat' [the mammal]. Stems modelled after the root -SK-.

-FW- ARRANGEMENT / ORDER / SYMMETRY			
1. arrangement (= placement in some sort of order or discernible pattern); arrange, order		1. something regular or displaying regularity (= having an expected/conventionalized pattern); be/make regular, regularize,	
2. hierarchical ranking; rank,		2. assortment; sort	
3. symmetrical arrangement; arrange symmetrically		3. classification; classify	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on the process/state of arranging/ranking	same as above 3 stems with focus on resulting order	same as above 3 stems with focus on the process/state of regularization/sorting/classifying	same as above 3 stems with focus on resulting order

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

-GŽ- 'heartache (romance-induced) / heartache / feeling of having one's heart broken by failed or unrequited love' – the stems of this root are modelled after the root -PK-.

-JG- MEASUREMENT OF TEMPERATURE & THERMODYNAMIC PHENOMENA			
1. measure/measurement of temperature		1. measure/measurement of specific heat capacity or specific entropy, as measured in energy per mass times temperature	
2. measure/measurement of heat capacity or entropy, as measured in energy per unit temperature		2. measure/measurement of thermal resistance, as measured in temperature per unit of power	
3. measure/measurement of enthalpy, as measured in units of energy		3. measure/measurement of thermal conductivity, as measured in power per distance times temperature	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement	Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement

SSD₁ Derivatives for Informal Stem 1, Pattern 3 of the above root:

Degree 1	Planck temperature / in T_p
Degree 2	degrees Newton / in °N
Degree 3	degrees Celsius / in °C

Degree 4	degrees Rankine / in °R
Degree 5	kelvin / in kelvins
Degree 6	degrees Delisle / in °D

Degree 7	degrees Fahrenheit / in °F
Degree 8	degrees Rømer / in °Rø
Degree 9	degrees Réaumur / in °Ré

-JJ- ACTION IN SITU / MOTION IN SITU			
1. action/movement/motion in situ (non-translative)		1. bodily action/movement/motion in situ	
2. move intrinsic part of larger whole; movement/motion (in situ) of part of an entity		2. move one's appendages or limbs	
3. specific pattern of movement (as determined by SSD suffix		3. dance; act of dancing	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on movement itself	same as above 3 stems with focus on impact/effect on surrounding space or environment	same as above 3 stems with implication that movement is purposeful, deliberate, or conscious	same as above 3 stems with implication that movement is random, instinctive/inherent, non-purposeful or unconscious

MORPHOLOGICAL DERIVATIVES: stir

SSD Derivatives for P1 S3: 1) expand/enlarge; 2) spin/revolve on axis; vibrate; 3) random/unpredictable in situ movement; 4) morph from one form to another; 5) shake back/forth; 6) shake laterally (left-to-right-and back) 7) extend appendage(s) or pseudopod(s) or part(s) of oneself 8) shake/bob up and down 9) contract/shrink;

-JR- CHARACTER TRAITS: TENACITY/PERSEVERENCE/AUDACITY/ RESOLUTENESS			
INFORMAL		FORMAL	
1. state of being tenacious/perservering; to persevere, act tenaciously, be tenacious, have tenacity/perseverence		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being audacious; have the audacity to do something / have "nerve" or pluck or "balls"			
3. state of being defiant, resolute; act or behave defiantly/resolutely			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state		

MORPHOLOGICAL DERIVATIVES: insolent/insolence, effrontery

-JV- IMITATION / MIMICRY / IMPERSONATION / DRAMATIC ACTING			
1. act/state of imitation; imitate		1. act of simulation; to simulate	
2. act of mimicry; to mimic, to feign		2. act of impersonation; to impersonate	
3. act of pretending to be (a state or role) / act of make-believe; to pretend (to be) / to make-believe		3. a dramatic performance / an acting performance; act / enact / enact a (dramatic) role	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on the act/process undergone by the performer	same as above 3 stems with focus on the role/performance/effect as observed/felt by the intended audience	same as above 3 stems with focus on the act/process undergone by the performer	same as above 3 stems with focus on the role/performance/effect as observed/felt by the intended audience

MORPHOLOGICAL DERIVATIVES: to mock, to parody, to caricature

-KB- 'feeling of mental clarity and/or extreme mental efficacy' – the stems of this root are patterned after **-PK-**

-KCT- EXPLANATION / RENDERING / INTERPRETATION / TRANSLATION			
INFORMAL Stems		FORMAL Stems	
1. explain; explanation		1. define, definition	
2. render (= create/establish something which [subjectively] corresponds to an original source entity); a rendering,		2. create a rendition; a rendition	
3. interpret; interpretation (= act/function as skilled go-between medium between information source and audience for purposes of making source information comprehensible to audience; as opposed to interpretation for one's own personal comprehension – see -TP-)		3. translate; translation	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on act/process itself of explaining, rendering, or interpreting	same as above 3 stems with focus on resulting explanation, rendering, or interpretation	same as above 3 stems with focus on act/process itself of defining, creating a rendition, or translating	same as above 3 stems with focus on resulting definition, rendition, or translation

Morphological derivatives: decipher

-KD- CAPTURE / SEIZURE / DEPRIVATION OF FREEDOM OF MOVEMENT			
1. apprehend, capture (= apprehension or removal from present location/environs for purpose of restriction of freedom of movement or seizure)		1. confiscate, appropriate; act of confiscation or appropriation	
2. catch (= stop trajectory-based movement for purpose of seizure or control)		2. [legally] seize, [legally] stop (= bring a stop to a current state/process/act from proceeding further)	
3. take over, take the reigns from, relieve someone of duty, take charge		3. usurp; act of usurpation	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on act of capturing	same as above 3 stems with focus on effect of deprivation of freedom/movement on entity captured	same as above 3 stems with focus on act of seizure/confiscation/usurping	same as above 3 stems with focus on effect of deprivation on target entity

MORPHOLOGICAL DERIVATIVES: snare, trap, seize, ensnare, abduct, take over, snatch, steal, thief, theft, extort, extortion, usurp, fleece, abduct, plunder, kidnap

-KPL- MEASUREMENT OF ENERGY/FORCE/PRESSURE/POWER			
1. measure/measurement of mass		1. measure/measurement of pressure = (mass x (distance/time ²))/distance ²	
2. measure/measurement of energy/work = (mass x distance ²)/time ²		2. measure/measurement of power = mass x distance ² /time ³	
3. measure/measurement of force = mass x distance/time ²		3. measure/measurement of the rate of other phenomena utilizing units of energy/force/pressure/power	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement	Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement

SSD₁ Derivatives for Informal Stem 1, Pattern 3 of the above root:

Degree 1	Planck mass / in Planck masses
Degree 2	dalton / in daltons
Degree 3	grain / in grains

Degree 4	gram / in grams
Degree 5	kilogram / in kg
Degree 6	metric tonne / in m. tonnes

Degree 7	pound / in lbs.
Degree 8	(short) ton (= 2000 lbs.)
Degree 9	solar mass / in solar masses

SSD₁ Derivatives for Informal Stem 2, Pattern 3 of the above root:

Degree 1	Planck energy / in E_p
Degree 2	electronvolt / in eV
Degree 3	erg / in ergs

Degree 4	hartree / in hartrees
Degree 5	joule / in joules
Degree 6	therm / in therms

Degree 7	calorie / in calories
Degree 8	thermie / in thermies
Degree 9	quad / in quads

SSD₁ Derivatives for Informal Stem 3, Pattern 3 of the above root:

Degree 1	Planck force / in F_p
Degree 2	dyne / in dynes
Degree 3	poundal / in poundals

Degree 4	pound-force / in lbf
Degree 5	newton / in newtons
Degree 6	kilipond / in kiliponds

Degree 7	sthène / in sthènes
Degree 8	kip / in kips
Degree 9	ton-force / in ton-forces

SSD₁ Derivatives for Formal Stem 1, Pattern 3 of the above root:

Degree 1	bar / in bars
Degree 2	barye / in baryes
Degree 3	pounds per sq. inch / in lbs. per sq. inch

Degree 4	torr / in torrs
Degree 5	pascal / in pascals
Degree 6	pièze / in pièzes

Degree 7	millimeters of mercury / in millimeters of mercury
Degree 8	inches of mercury / in inches of mercury
Degree 9	standard atmosphere / in standard atmospheres

SSD₁ Derivatives for Formal Stem 2, Pattern 3 of the above root:

Degree 1	ton of refrigeration
----------	----------------------

Degree 5	watt / in watts
----------	-----------------

Degree 9	horsepower
----------	------------

SSD₁ Derivatives for Formal Stem 3, Pattern 1 of the above root:

Degree 1	line density, as measured by mass per distance
Degree 2	volumetric density, as measured by mass per volume
Degree 3	specific volume, as measured by volume per mass
Degree 4	spread rate, as measured by mass per area
Degree 5	area density, as measured by mass per area
Degree 6	momentum, as measured by mass times distance/time
Degree 7	angular momentum, as measured by mass times distance ² /time
Degree 8	thrust, as measured by mass times distance ² /time ²
Degree 9	torque or moment, as measured by mass times distance ² /time ²

SSD₂ Derivatives for Formal Stem 3, Pattern 1 of the above root:

Degree 1	yank, as measured by mass times distance/time ³
Degree 2	rate of absorbed dose of ionizing radiation, as measured by energy per mass/time
Degree 3	specific energy, as measured by energy per unit mass (e.g., joules per kg, sieverts, grays, rads)
Degree 4	radiant exposure of a surface, energy distribution over a surface, insolation, solar radiation; as measured by energy per square distance
Degree 5	energy density, as measured by energy per cubic distance
Degree 6	surface tension, as measured by force per distance
Degree 7	stiffness, as measured by force per distance
Degree 8	dynamic viscosity, as measured by pressure multiplied by time (e.g., poises, poiseuilles)
Degree 9	acoustic impedance, as measured by pressure multiplied by time per distance (e.g., rayls)

Additional SSD Derivatives for Formal Stem 3, Pattern 1, formed by suffixing the following SSD₁ affixes to the SSD₁/5 affix:

Degree 1	spectral flux by frequency, as measured by power per cycle/time
Degree 2	spectral flux by wavelength, as measured by power/distance
Degree 3	Heat flux density, irradiance, radiant exitance, radiosity; as measured by power/distance ²
Degree 4	Spectral exitance/radiosity/irradiance by frequency; strength of radio wave emission, as measured by power/distance ² per cycle/time (e.g., in janskys)
Degree 5	Spectral exitance/radiosity/irradiance by wavelength, as measured by power/distance ² per distance
Degree 6	radiant intensity, as measured by power/distance ² per steradian
Degree 7	spectral intensity, as measured by power/distance ² per steradian per cycle/time
Degree 8	radiance, as measured by power/distance ² per steradian per distance ²
Degree 9	Spectral radiance by frequency, as measured by power/distance ² per steradian per distance ² per cycle/time

-K ^P - MEASUREMENT OF SPATIO-TEMPORAL OR DIMENSIONAL PROPERTY			
1. measurement of (quasi-)linear dimensionality, e.g., length, height, width, etc.; to measure the length of		1. measure/measurement of temporal duration; to time something	
2. measurement of a planar angle; to measure a planar angle		2. measure/measurement of cyclic/periodic frequency = number of cycles per unit of time	
3. measurement of a volumetric (solid) angle		3. measure/measurement of recurring but non-cyclic/aperiodic activity or events = number of events per unit of time	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement	Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement

SSD₁ Derivatives for Informal Stem 1 for Patterns 1, 2, and 3 of the above root:

Degree 1	Planck length / in Planck lengths	Degree 4	millimeter / in mm	Degree 7	astronomical unit / in AUs
Degree 2	in angstrom / in angstroms	Degree 5	meter / in meters	Degree 8	light-year / in light years
Degree 3	micron / in microns	Degree 6	kilometer / in km	Degree 9	parsec / in parsecs

SSD₂ Derivatives for Informal Stem 1 for Patterns 1, 2, and 3 of the above root:

Degree 1	inch / in inches	Degree 4	fathom / in fathoms	Degree 7	mile / in miles
Degree 2	foot / in feet	Degree 5	rod / in rods	Degree 8	nautical mile / in nautical miles
Degree 3	yard / in yards	Degree 6	furlong / in furlongs	Degree 9	league / in leagues

SSD₁ Derivatives for Informal Stem 2 for Patterns 1, 2, and 3 of the above root:

Degree 1	point / in points	Degree 4	mil / in mils	Degree 7	second (of arc) / in seconds
Degree 2	hour angle / in hour angles	Degree 5	radian / in radians	Degree 8	minute (of arc) / in minutes
Degree 3	grad / in grads	Degree 6	sextant / in sextants	Degree 9	degree / in degrees

SSD_{1/5} derivative for Informal Stem 3 in Pattern 3 = steradian

SSD₁ Derivatives for Formal Stem 1 for Patterns 1, 2, and 3 of the above root:

Degree 1	Planck time unit / in Planck t.u.	degree 4	minute / in minutes	degree 7	week / in weeks
Degree 2	millisecond / in milliseconds	degree 5	hour / in hours	degree 8	month / in months
Degree 3	second / in seconds	degree 6	day (24-hrs) / in days	degree 9	calendar year / in c. years

SSD₂ Derivatives for Formal Stem 1 for Patterns 1, 2, and 3 of the above root:

Degree 1	sidereal year / in s. yrs	degree 4	millenium / in millenia	degree 7	era (= 10 epochs) / in eras
Degree 2	decade / in decades	degree 5	age (= 1 million yrs.) / in ages	degree 8	galactic year / in g.yrs.
Degree 3	century / in centuries	degree 6	epoch (= 10 ages) / in epochs	degree 9	eon (= 5 eras) / in eons

SSD_{1/5} derivative for Formal Stem 3 in Pattern 1 = hertz

SSD₁ Derivatives for Formal Stem 3 for Patterns 1, 2, and 3 of the above root:

Degree 1	rutherford / in rutherfords	Degree 5	becquerel / in becquerels	Degree 9	curie / in curies
----------	-----------------------------	----------	---------------------------	----------	-------------------

-K ^R - FRACTION / RATIO / RATE	
1. fraction; to be/comprise a fraction of	1. ratio
2. factor; to be/determine a factor	2. trigonometric or hyperbolic ratio + inverse trigonometric or hyperbolic ratio
3. be proportional to, be in direct variance to + the constant/coefficient of proportionality; something proportional to something else + the constant/coefficient of proportionality	3. rate

COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
1. numerator	1. denominator	1. part-to-part ratio	1. part-to-whole ratio
2. greatest common factor	2. least common multiple	2. trigonometric or hyperbolic ratio	2. inverse trigonometric or hyperbolic ratio
3. be proportional to, be in direct variance to; something proportional to something else	3. coefficient of proportionality / the constant of proportionality	3. first term of a rate (i.e., the term subject to change in comparison to the fixed second term)	3. second term of a rate (i.e., the fixed term against which the first term is subject to change; the term preceded in English by “per”)

SSD₁ Derivatives for Formal Stem 2, Pattern 2:

Degree 1	cosine
Degree 2	cotangent
Degree 3	secant

Degree 4	arcsine
Degree 5	sine
Degree 6	arccosine

Degree 7	cosecant
Degree 8	arctangent
Degree 9	tangent

SSD₁ Derivatives for Formal Stem 2, Pattern 3:

Degree 1	hyperbolic cosine
Degree 2	hyperbolic cotangent
Degree 3	hyperbolic secant

Degree 4	hyperbolic arcsine
Degree 5	hyperbolic sine
Degree 6	hyperbolic arccosine

Degree 7	hyperbolic cosecant
Degree 8	hyperbolic arctangent
Degree 9	hyperbolic tangent

-KSN- ‘NAIVETE / FOOLISHNESS / IGNORANCE’	
INFORMAL	FORMAL
1. state of being naïve/foolish; act naïvely or foolishly (= ill-conceived thinking/acting due to failure to analyze a situation or one’s circumstances realistically and/or thoroughly)	FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.
2. state of being obtuse or “clueless”; be obtuse or clueless (= fail to draw appropriate/expected conclusions from situation or fail to recognize situation for what it is despite the seeming obviousness thereof)	
3. state of ignorance, “blindness” or unawareness; be unaware or ignorant of something	
COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state

-KST- MATHEMATICAL LIMIT / MATHEMATICAL DIFFERENTIATION & INTEGRATION	
1. numerical/mathematical limit (i.e., the limiting value of a function or summation of a series); to approach a limit in the output/dependent variable as the input/independent variable(s) of a function increases or decreases or as the process of summation of a series proceeds	1. express/calculate an equation involving limiting values (i.e., a definite integral or a series)
2. differential/derivative (i.e., the first differential coefficient of a function with respect to the independent variable); dy/dx or $f'(x)$ or $\Delta y/\Delta x$ as $\Delta x \rightarrow 0$.	2. express/calculate an equation involving differentiation/derivation
3. integral/antiderivative	3. express/calculate an equation involving an indefinite integral

COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
1. the limiting value of a function); to approach a limit in the output/dependent variable as the input/independent variable(s) of a function increases or decreases	1. the limiting value of the summation of a series); to approach a limit as the process of summation of a series proceeds	1. express a mathematical integration or series; an expression/equation involving a definite integral or a series	1. calculate a mathematical integration or series; a calculation of a definite integral or a series
2. increment of the dependent variable, i.e., Δy	2. increment of the independent variable, i.e., Δx	2. express an equation involving differentiation/derivation; an expression/equation involving differentiation/derivation	2. calculate an equation involving differentiation/derivation; a calculation of a derivative / solving of a differential equation
3. indefinite integral / antiderivative	3. definite integral	3. express an equation involving an indefinite integral/antiderivative; an expression/equation involving an indefinite integral or antiderivative	3. calculate an indefinite integral or antiderivative; a calculation of an indefinite integral or antiderivative

Morphological derivatives: differential calculus, integral calculus

SSD₁ Derivatives for Formal and Informal Stem 2 refer to the hierarchy of derivatives:

Degree 1	3rd derivative; d^3y/dx^3 or $f'''(x)$	Degree 4	9th derivative; d^9y/dx^9 or $f^{IX}(x)$	Degree 7	6th derivative; d^6y/dx^6 or $f^{VI}(x)$
Degree 2	7th derivative; d^7y/dx^7 or $f^{VII}(x)$	Degree 5	2nd derivative; d^2y/dx^2 or $f''(x)$	Degree 8	8th derivative; d^8y/dx^8 or $f^{VIII}(x)$
Degree 3	5th derivative; d^5y/dx^5 or $f^V(x)$	Degree 6	10th derivative; $d^{10}y/dx^{10}$ or $f^{X}(x)$	Degree 9	4th derivative; d^4y/dx^4 or $f^{IV}(x)$

- KSV- EXPONENTIATION / LOGARITHM

1. act/process of exponentiation; raise a value to the power indicated by an exponent; multiply a value by itself for the number of iterations indicated by an exponent		1. express/calculate a value mathematically as a base and exponent, i.e., as a value raised to a particular power	
2. act/process of finding the logarithm of a number given a particular base		2. express/calculate a value mathematically as a logarithm	
3. act/process of finding the antilogarithm of a number, i.e., the number resulting from a base being raised to the power of a given exponent		3. express/calculate a value mathematically as an antilogarithm, (inverse function of a logarithm of a number)	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
1. base value to be multiplied exponentially	1. exponent or power of a base value	1. express a mathematical value exponentially, i.e., as a value raised to a particular power	1. calculate an exponential value
2. logarithmic base (i.e., the fixed value which must be raised the number of times indicated by an exponent to result in a particular value)	2. logarithm of a number (i.e., the exponent to which a base value must be raised to produce that number)	2. express a mathematical value logarithmically	2. calculate a mathematical value logarithmically
3. antilogarithmic base	3. the antilogarithm of a base and exponent, i.e., the number resulting from a base being raised to the power of a given exponent)	3. express a mathematical value as an antilogarithm	3. calculate an anti-logarithm

-KTR- ‘ASSOCIATION / DEAL WITH / TREAT WITH / FACE / CONFRONT’ [see also the root -K ^h - and various roots modelled upon it specifying various associations, e.g., -ÇKT-, -ÇKV-, -FFR-, -FQR-, -FSP-, -KK’-, etc.]			
INFORMAL Stems		FORMAL Stems	
1. deal with / spend time or effort dealing with / having to focus attention upon		1. engage in / be(come) involved with	
2. treat with / face / confront		2. do business with / have formal public relationship with	
3. relate to or with / bear upon / pertain to / have to do with; relation		3. associate (with) / affiliate (with) / interact (with) / have ties to; association / interaction / affiliation / ties	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on the act/process/state itself	same as above 3 stems with focus on the purpose (i.e., desired outcome) or (anticipated) result/effect	same as above 3 stems with focus on the act/process/state itself	same as above 3 stems with focus on the purpose (i.e., desired outcome) or (anticipated) result/effect

MORPHOLOGICAL DERIVATIVES: relationship, confrontation, engagement

-KTKL- ‘heron’ – stems patterned after the root **-SK-**

-LBR- SET, SEQUENCE, SERIES, MATRIX			
1. element or member of a set; to be/comprise/make an element of member of a set		1. a mathematical matrix and its solution/value; to be/comprise a mathematical matrix	
2. element or member of an arithmetic sequence; to be/comprise/make an element of member of an arithmetic sequence		2. an arithmetic series and its solution/value; to create/reference/obtain result from an arithmetic series (i.e., summation of an arithmetic sequence)	
3. element or member of a geometric sequence; to be/comprise/make an element of member of a geometric sequence		3. a geometric series and its solution/value; to create/reference/obtain the result of a geometric series (i.e., summation of a geometric sequence)	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the element’s/number’s membership as an abstract concept	Same as above 3 stems with focus on the relationship of the element’s/number’s membership to a practical application.	1. a mathematical matrix; to constitute/create a mathematical matrix	1. solution/value of a mathematical matrix; to determine the result of a mathematical matrix
		2. an arithmetic series; to constitute/create an arithmetic series (i.e., summation of an arithmetic sequence)	2. solution/value of an arithmetic series; to determine the result of an arithmetic series (i.e., summation of an arithmetic sequence)
		3. a geometric series; to constitute/create a geometric series (i.e., summation of a geometric sequence)	3. solution/value of a geometric series; to determine the result a geometric series (i.e., summation of a geometric sequence)

-LFQ- CHARACTER TRAITS: SELF-CONCERN/SELFISHNESS/SELF-CENTEREDNESS	
INFORMAL	FORMAL
1. state of being self-centered and inconsiderate of the state of others	FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.
2. state of being selfish (in negative context, i.e., where one’s being considerate of others would not constitute altruism or self-sacrifice)	
3. state of being self-indulgent and whim-worshiping at the expense of others	
COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state

-LKW- FRIENDLINESS / VIVACIOUSNESS / BOISTEROUSNESS			
INFORMAL		FORMAL	
1. state of being friendly/amiable; having a sunny/amiable/warm disposition		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being vivacious; having joie-de-vivre; be vivacious, display joie-de-vivre			
3. state of being larger-than-life/boisterous/ebullient			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state		

-LY- ARITHMETICAL/MATHEMATICAL OPERATIONS			
1. add/subtract; act/process of adding/subtracting		1. sum/difference	
2. multiply/divide; act/process of multiplying/dividing		2. product/quotient	
3. express arithmetically/mathematically, apply arithmetical operation; arithmetical/mathematical expression		3. solve arithmetically/mathematically, calculate; arithmetical/mathematical calculation/computation	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
1. add; act/process of adding	1. subtract; act/process of subtracting	1. sum	1. difference
2. multiply; act/process of multiplying	2. divide; act/process of dividing	2. product	2. quotient
3. apply arithmetical operation, express arithmetically; arithmetical expression	3. apply mathematical operation, express mathematically; mathematical expression	3. solve arithmetically, calculate arithmetically; arithmetical solution/calculation	3. solve mathematically, calculate mathematically; mathematical solution/calculation

Morphological derivatives of above stems: arithmetic, mathematics

SSD₁/5 derivative of Informal Stem 2: factorial, factorialization

-MBR- SCALAR / VECTOR / TENSOR			
1. a scalar (i.e., first-degree tensor)		1. scalar product	
2. a vector (i.e., a 2 nd -degree tensor)		2. vector space	
3. a (3 rd - degree) tensor		3. tensor field	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
1. scalar as magnitude of a vector	1. scalar as direction of a vector	1. dot product	1. scalar quantity as inner product of two vectors
2. Euclidean vector	2. non-Euclidean vector	2. Euclidean vector space	2. non-Euclidean vector space
3. tensor as n-dimensional array	3. tensor as linear map	3. tensor product of vector space	3. point in a tensor field

-MFT- DAIRY PRODUCT			
(NOTE: for milk in a non-food context, i.e., as a secretion of mammary glands, see the root -SK-)			
INFORMAL Stems		FORMAL Stems	
1. an amount/portion/serving of mammalian milk in the context of food/nutrition		1. amount/portion/serving of fermented/cultured milk product (see SSD derivatives)	
2. an amount of milk by-product (see SSD derivatives)		2. amount/portion/serving of food product made with milk (or milk by-product) as (one of its) main ingredient(s)	
3. an amount/portion/serving of a dairy product		3. an amount/serving/portion of a food/dish made from a recipe based on (a) dairy product(s) (e.g., quiche)	
COMPLEMENTARY Stems		COMPLEMENTARY Stems	
same as above 3 stems in reference to the item/product itself as an ontological entity	same as above 3 stems in reference to the item/product as a source of nutrition/food	same as above 3 stems in reference to the item/product itself as an ontological entity	same as above 3 stems in reference to the item/product as a source of nutrition/food

SSD Derivatives for Informal Stem 2: 1) whey, 3) buttermilk, 5) butter, 7) casein, 8) curd, 9) cream

SSD Derivatives for Formal Stem 1: 1) kefir, 3) soured milk product (e.g., leben, skyr, kumis, etc.), 5) yogurt, 7) soured cream product (sour cream, crème fraîche, etc.)

SSD Derivative for Formal Stem 2: eggnog, 1) custard, 2) ghee/clarified butter, 3) cheese (curdled), 5) ice cream, 7) cheese (non-curdled), 9) cottage cheese

-MPR- MEASUREMENT OF AMOUNT OF SUBSTANCE / DENSITY			
1. measure/measurement of chemical amount, i.e., amount of substance		1. measure/measurement of substance concentration, as measured by amount of substance per cubic distance	
2. measure/measurement of density, as measured by mass per volume		2. measure/measurement of energy per amount of substance	
3. measure/measurement of catalytic activity, as measured by amount of substance per unit time		3. measure/measurement of rate of other density-related phenomena utilizing units of density measurement along with distance, energy, temperature	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement	Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement

SSD_{1/5} derivative of Informal P3/S1 = mole; SSD_{1/9} derivative of P3/S1 = International Unit

SSD_{1/5} derivative of Informal P3/S2 = grams per mole

SSD_{1/5} derivative of Informal P3/S3 = moles per second (katal); SSD_{1/9} derivative of P3/S3 = enzyme unit

SSD_{1/5} derivative of Formal P3/S1 = mole per cubic meter

SSD_{1/5} derivative of Formal P3/S2 = joule per mole

SSD₁ Derivatives for Formal Stem 3, Pattern 1 of the above root:

Degree 1	volume occupied by an amount of a substance at a given temperature and pressure, as measured in cubic distance per amount of substance (e.g., molar volume = cu. meter per mole)
Degree 3	ratio of the heat added to (or subtracted from) an object to the resulting temperature change, as measured in energy per unit temperature times amount of substance (e.g., molar heat capacity, molar entropy = joule per kelvin mole)
Degree 5	efficiency of electrical conductivity of a substance, as measured by electrical conductance times square distance per amount of substance (e.g., molar conductivity = siemens times sq. meter per mole)
Degree 9	chemical concentration, as measured by amount of substance per unit mass (e.g., molal = mole per kilogram)

-MP^h- MEASUREMENT OF ELECTRO-MAGNETIC PHENOMENA	
1. measure/measurement of electric current	1. measure/measurement of magnetic flux, as measured by energy per unit current = mass times distance ² divided by time ² times current
2. measure/measurement of electrical charge, as measured by electric current times unit of time	2. measure/measurement of electrical capacitance, as measured by time ⁴ times current ² per mass times distance ²
3. measure/measurement of electrical potential difference and electromotive force, as measured in mass times distance ² divided by unit of current multiplied by time ³	3. measure/measurement of electrical inductance, as measured by mass times distance ² divided by time ² times current ²

COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement	Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement

SSD₁ Derivatives for Informal Stem 2, Pattern 3 of the above root:

Degree 1	biot (or abampere)	Degree 5	ampere	Degree 9	statampere
----------	--------------------	----------	--------	----------	------------

SSD₁ Derivatives for Informal Stem 2, Pattern 3 of the above root:

Degree 1	franklin	Degree 5	coulomb	Degree 9	statcoulomb
----------	----------	----------	---------	----------	-------------

SSD₁ Derivatives for Informal Stem 3, Pattern 3 of the above root:

Degree 1	abvolt	Degree 5	volt	Degree 9	statvolt
----------	--------	----------	------	----------	----------

SSD₁ Derivatives for Formal Stem 1, Pattern 3 of the above root:

Degree 1	unit pole	Degree 5	weber	Degree 9	maxwell (or line)
----------	-----------	----------	-------	----------	-------------------

SSD₁ Derivatives for Formal Stem 2, Pattern 3 of the above root:

Degree 1	abfarad	Degree 5	farad	Degree 9	statfarad
----------	---------	----------	-------	----------	-----------

SSD₁ Derivatives for Formal Stem 3, Pattern 3 of the above root:

Degree 1	abhenry	Degree 5	henry	Degree 9	stathenry
----------	---------	----------	-------	----------	-----------

-MJ- shame, feeling of being ridiculed — The stems of this root are patterned after the root **-PK-**

-MSK- BODILY POSITIONS (OTHER THAN UPRIGHT OR SUPINE)			
1. crouched down (with legs bent)		1. fetal position, “curled up in a ball”	
2. (be) seated, (be) sitting; sit, sit down		2. specific affected bodily position involving legs or legs and arms [see SSD derivatives for this stem]	
3. tensed/ poised for movement or flight		3. specific affected bodily position involving arms [see SSD derivatives for this stem]	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above stems with focus on position itself	same as above stems with focus on reason/purpose/consequence of/for being in the position	same as above stems with focus on position itself	same as above stems with focus on reason/purpose/consequence of/for being in the position

SSD Derivatives for Informal Stem 1: seated on sitting platform (e.g., chair, ledge, stool, etc.); sitting with one leg underneath oneself, sitting with one leg resting on knee, sitting crosslegged, sitting on ground with legs extended, sitting lotus position, sitting “Indian” style, etc.

SSD Derivatives for Formal Stem 2: 1) kneeling on both knees, 2) kneeling on one knee, 3) sitting on one’s haunches, 4-6) same as 1-3 but with arms posed 7) same as 1-3 but with arms crossed

SSD Derivatives for Formal Stem 3: arms extended upward, 5) arms extended forward, arms extended laterally outward, arms behind back, arms behind head, arms akimbo, arms held across chest, arms held downward at sides, arms held in affected/unnatural position

-MVY- ‘peacock’ – the stems of this root are patterned after **-SK-**

-NTR- FREEDOM / INDEPENDENCE / AUTONOMY / NATURAL RIGHT			
1. be free (= not subject to control/oversight/restriction); act of making/keeping free		1. have autonomy, have free reign; act of maintaining autonomy	
2. to determine/decide own course of action; act of self-determination		2. not need permission, not be answerable to, have/exercise natural right (to); act of maintaining natural right	
3. be/make exempt; act of making/keeping exempt		3. be independent, be unaffiliated; act of making/keeping independent	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on state itself	same as above 3 stems with focus on consequences/effect, i.e., what one does with one's freedom or exemption	same as above 3 stems with focus on state itself	same as above 3 stems with focus on consequences/effect, i.e., what one does with one's autonomy or independence or right

MORPHOLOGICAL DERIVATIVES: set free, liberate, freedom, liberty, make autonomous

-NTW- 'AFFECTIVE BODILY SENSATIONS (INTERNAL/PROPRIOCEPTIVE)			
[Note: This root refers to physical sensation only, not subjective mental/psychological states. The stems of this root take the SUF, EXN, EXD suffixes, etc. to specify the degree of the particular quality]			
INFORMAL Stems		FORMAL Stems	
1. degree of one's general sense/feel of inner (i.e., proprioceptive) physical well-being (e.g., feeling well, feeling poorly, feeling so-so, feeling "blah", etc.)		1. degree of one's general sense/feeling of vigor, "vim and vigor," degree of one's physical liveliness	
2. degree of internal bodily ache/pain		2. degree of bodily involuntary movement	
3. degree of subjective feeling of abnormal internal bodily sensation		3. degree of feeling of hunger vs. satiety	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above three stems w/ focus on effect/sensation itself	same w/ focus on causal act or source	same as above three stems w/ focus on effect/sensation itself	same w/ focus on causal act or source

MORPHOLOGICAL DERIVATIVES: energized, famished, starving, "full", flail(ing), feeling "blah", feeling so-so, feeling poorly, feeling well, "never felt better"

SSD Derivatives for Informal Stem 2: 1) sensitive/tender 2) sore, inflammatory or swelling-type pain, 3) Bruised 4) Achy 5) sharp/stabbing pain, 6) radiating, "shooting" pain, 7) "burning" sensation, 8) buzzing, tingling (internally) 9) prickly, stinging (internally)

SSD Derivatives for Informal Stem 3: 1) feeling feverish, 2) feeling sweaty, "burning up", 3) "dead"/paralyzed feeling (= lack of expected internal sensation), 4) feel numb/"asleep"/"pins & needles" (e.g., as in one's leg, due to lack of circulation), 5) feeling of general malaise, 6) vertigo/dizziness, 7) nausea, queasiness, 8) feeling flushed, 9) feeling cold/chilled

SSD Derivatives for Formal Stem 2: 1) Throbbing, pounding, 2) twitchiness, 3) Fluttery, 4) spasm, 5) faint, light-headed, 6) breathless, out-of-breath, short-of-breath, 7) Trembly, 8) Shivery, 9) Shaky

-ŃK*- KEEP CLEAR / MAKE WAY / ESCAPE			
1. move/get out of the path/way of, step aside, make way		1. scape, flee from	
2. shun, steer/keep clear of, shrink from, shy away from		2. eschew, abstain from, refrain from, spare one from	
3. evade (= avoid/elude via stealth or misrepresentation)		3. shirk, desert from	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on the physical act itself	same as above 3 stems with focus on the reason/purpose for or consequence of the act	same as above 3 stems with focus on the physical act itself	same as above 3 stems with focus on the reason/purpose for or consequence of the act

MORPHOLOGICAL DERIVATIVES: bolt, take flight, truant/act of truancy, duck, dodge, go renegade, refugee = one who has escaped, abscond, abandon, draw back/away from, recoil from

-ŃSK- ASPECTS OF BODILY PHYSICAL CAPACITY OR PHYSICAL BODILY PERFORMANCE [Note: the stems below take the EXN, SUF, EXD(, etc.) suffixes to specify the degree of the particular quality]			
INFORMAL Stems		FORMAL Stems	
1. degree of brute bodily strength (= physical capacity to apply/utilize brute muscular strength); to show (a specific degree of) physical strength		1. degree of stamina/endurance; to display stamina or endurance, to rely on stamina	
2. degree of resistance to pain, endure/withstand pain		2. degree of one's immunological response; to undergo an immune response	
3. degree of resiliency (= capacity to resist or recover from harmful environmental factors or withstand harmful bodily conditions)		3. degree of one's recuperative power, healing response; recover, recuperate	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on specific faculty/capacity itself	same as above 3 stems with focus on effect or consequences thereof	same as above 3 stems with focus on specific faculty/capacity itself	same as above 3 stems with focus on effect or consequences thereof

Morphological derivatives: heal, immune system, stamina, recovery, recuperation, (physical) weakness,

-ŃCⁿ- MEASUREMENT OF SECONDARY ELECTRO-MAGNETIC PHENOMENA			
1. measure/measurement of electrical resistance of circuits, as measured by mass times distance ² divided by the quantity of time ³ times current ²		1. measure/measurement of magnetic flux density or B-magnetic field strength, as measured by force per electric current per distance	
2. measure/measurement of electrical conductance, as measured by time ³ times current ² divided by the quantity of mass times distance ²		2. measure/measurement of relative difference, i.e., ratio between two values of a physical quantity, e.g. power, intensity, current, voltage, loss or gain of an electronic signal, etc.	
3. measure/measurement of magnetomotive force, as measured by a unit of current flowing in a single-turn loop in a vacuum		3. measure/measurement of the rate of other electro-magnetic phenomena utilizing units of electro-magnetic measurement along with units of distance, time, or mass	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement	Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement

SSD₁ Derivatives for Informal Stem 1, Pattern 3 of the above root:

Degree 1	abohm	Degree 5	ohm	Degree 9	statohm
----------	-------	----------	-----	----------	---------

SSD₁ Derivatives for Informal Stem 2, Pattern 3 of the above root:

Degree 1	abmho	Degree 5	siemens (or mho)	Degree 9	statmho
----------	-------	----------	------------------	----------	---------

SSD₁ Derivatives for Informal Stem 3, Pattern 3 of the above root:

Degree 1	abampere turn	Degree 5	ampere-turn	Degree 9	gilbert
----------	---------------	----------	-------------	----------	---------

SSD₁ Derivatives for Formal Stem 1, Pattern 3 of the above root:

Degree 1	gauss (or abtesla)	Degree 5	tesla	Degree 9	stattesla
----------	--------------------	----------	-------	----------	-----------

SSD_{1/5} derivative for Formal Stem 2, Pattern 3 of the above root: neper

SSD₁ Derivatives for Formal Stem 3, Pattern 1 of the above root:

Degree 1	reciprocal inductance, reluctance, as measured by the reciprocal of mass times distance ² divided by time ² times current ² (e.g., siemens or ohm ⁻¹)
Degree 2	electric field, as measured by force per unit charge or electrical potential difference per distance (e.g., volts per mtr or newtons per coulomb)
Degree 3	electric displacement field, polarization vector, as measured by charge per distance squared (e.g., coulomb per sq. meter)
Degree 4	electric charge density, as measured by charge per distance cubed (e.g., coulomb per cu. meter)
Degree 5	electric current density, as measured by current per distance squared (e.g., amperes per sq. meter)
Degree 6	electrical resistivity, as measured by electrical resistance times distance (e.g., ohm meter)
Degree 7	electrical conductivity, as measured by electrical conductance per distance (e.g., siemens per meter)
Degree 8	electromagnetic emittivity, as measured by electrical capacitance per distance (e.g., farads per meter)
Degree 9	electromagnetic permeability, as measured by electrical inductance per distance (e.g., henrys per meter)

SSD₂ Derivatives for Formal Stem 3, Pattern 1 of the above root:

Degree 1	electric elastance, as measured by the reciprocal of electrical capacitance (e.g., daraf = reciprocal of farad)
Degree 5	H-magnetic field strength, as measured by current per distance (e.g., oersteds or amperes per meter)
Degree 9	exposure to ionizing radiation, as measured by charge per mass (e.g., coulombs per kilogram)

-NSP- APOSTASY / HERESY / HETERODOXY / ICONOCLASM			
INFORMAL		FORMAL	
1. state of being apostatic; practice apostasy, hold apostatic beliefs		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being heretical; practice heresy/heterodoxy; to hold heretical beliefs			
3. state of being iconoclastic; practice iconoclasm, act iconoclastically			
complementary stems			
Same as above 3 stems with focus on the state or feeling itself		Same as above 3 stems with focus on the consequences of being in such a state	

-PCK- 'FACULTY / ENDOWMENT / PROPERTY / QUALITY'			
INFORMAL Stems		FORMAL Stems	
1. faculty / capacity for / ability to		1. talent / aptitude for / "gift" for / adept	
2. attribute / quality / virtue / naturally endowed behavioral or qualitative aspect of		2. skill / learned or practiced ability or attribute	
3. property / inherent characteristic		3. virtue / personal characteristic or quality	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on the faculty/quality/property as an abstract entity irrespective of whether it is being manifested in or by an entity	same as above 3 stems with focus on the faculty/quality/property as it exists in, or is being manifested by, an entity	same as above 3 stems with focus on the talent/skill/virtue as an abstract entity irrespective of whether it is being manifested in or by an entity	same as above 3 stems with focus on the talent/skill/virtue as it exists in, or is being manifested by, an entity

MORPHOLOGICAL DERIVATIVES: expert, expertness, proficiency

-PKL- MEASUREMENT OF MISCELLANEOUS PHENOMENA			
1. measure/measurement of statistical probability		1. measure/measurement of sound intensity, loudness	
2. measure/measurement of content of information of an event based on the probability of the event		2. measure/measurement of acoustic absorption	
3. measure/measurement of data transmission speed		3. measure/measurement of other miscellaneous phenomena	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement	Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement

SSD_{1/5} derivative of Informal P3/S1 of the above root = probit

SSD₁ Derivatives for Informal Stem 2, Pattern 3 of the above root:

Degree 1	dit
Degree 2	
Degree 3	hartley (ban)

Degree 4	
Degree 5	nat (nit, nepit)
Degree 6	

Degree 7	shannon
Degree 8	
Degree 9	bit

SSD_{1/5} derivative of Informal P3/S3 = baud

SSD₁ Derivatives for Formal Stem 1, Pattern 3:

Degree 1	son
----------	-----

Degree 4	decibel
----------	---------

Degree 7	phon
----------	------

SSD_{1/5} derivative of Formal P3/S2 = sabin

SSD₁ Derivatives for Formal Stem 3, Pattern 1 of the above root:

Degree 1	osmotic pressure (e.g., osmol)
Degree 3	quantized magnetic moment of a particle (e.g., nuclear magnetons, Bohr magnetons)
Degree 5	fineness (purity) of precious metal based on ratio of the primary metal to any additives or impurities (e.g., karat)
Degree 9	permeability of a porous material, as measured in distance squared (e.g., darcys)

-PKW- tense (= feeling physically and emotionally heightened or “on edge” in response to an objective or subjective threat, feeling instinctively prepared for “fight-or-flight” response) — The stems of this root are patterned after the root -PK-

-PKY- CEREAL GRAINS & GRAIN-DERIVED FOODS			
1. (cereal) grain / grain [processable/consumable as food]		1. flour	
2. refined/processed grain		2. bread	
3. parent plant of cereal grain		3. other derived food from a particular cereal grain	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above stems as object in and of itself	same as above stems as resource/staple	same as above stems as object in and of itself	same as above stems as resource/staple

SSD Derivatives for Formal Stem 2: 1) unleavened bread, 2) fried crisp or chip, 3) buscuit, 4) baked crisp or chip, 5) leavened bread cracker

SSD Derivatives for Formal Stem 3: 1) fermented beverage, 3) meal, 3) porridge, 5) noodle, 7) animal feed

-PSQ- CHARACTER TRAITS: SELF-RIGHTEOUSNESS/SANCTIMONY/HYPOCRISY			
INFORMAL		FORMAL	
1. state of being self-righteous/sanctimonious		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being unctuous/holier-than-thou			
3. state of being hypocritical; practice hypocrisy			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state		

-PSY- ‘MAGENTA’ patterned after the root -XT’- SSD derivatives: 1) extra light 2) pale (= mixed with gray) 3) clear, transparent 4) fluorescent 5) vibrant / bright 6) –ish 7) translucent 8) opaque 9) extra dark

-QJ- CHARATER TRAITS: HYSTERIA/IRRATIONALITY/PARANOIA			
INFORMAL		FORMAL	
1. state of being irrational in one's outlook on life		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being hysterical and impervious to serenity in one's outlook on life			
3. state of being paranoid in one's outlook on life			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself		Same as above 3 stems with focus on the consequences of being in such a state	

-QP- AWARE/ALERT/CONSCIENTIOUS/SUSPICIOUS			
INFORMAL		FORMAL	
1. state of being aware of one's surroundings; be aware, be alert		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being mindful/conscientious; be aware of and concerned with perspectives and points of view other than one's own			
3. state of being suspicious/wary/cautious			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself		Same as above 3 stems with focus on the consequences of being in such a state	

MORPHOLOGICAL DERIVATIONS: awareness; mindfulness; conscientiousness; suspicion, wariness, caution

-QT'- SECURITY / SAFETY / PROTECTION / GUARDIANSHIP			
1. state of being safe/free from harm, protected; be/keep safe, be/keep free from harm, to protect, to safeguard		1. state of being impregnable/invulnerable; be/keep impregnable/invulnerable	
2. state of safekeeping; to keep/hold for safekeeping		2. state of being secure(d), under guard; to guard, to secure	
3. act of shielding/deflection against, act as barrier against; to shield/deflect, use as barrier against		3. act of defense; to defend	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on psychological/existential feeling/state of being (kept) safe/protected	same as above 3 stems with focus on means/act(ion) utilized, or in effect, for the purpose of ensuring safety or protection	same as above 3 stems with focus on psychological/existential feeling/state of being (kept) defended/secured	same as above 3 stems with focus on means/act(ion) utilized, or in effect, for the purpose of ensuring defense/security

MORPHOLOGICAL DERIVATIVES: guardianship, wardship, custodianship; to be/act as guardian/ward/custodian

-QT^h- 'teacher-student / guru-disciple' Stems modelled after the root -Kh-

-RC'- TRICK / DECEPTION / DISGUISE			
INFORMAL Stems		FORMAL Stems	
1. bluff, feint; mislead		1. act of deception or duplicity; deceive	
2. a trick / act or entity designed to delude another; trick, delude		2. act of, or entity designed to achieve a fraudulent outcome; cheat, commit fraud, defraud, swindle	
3. a disguise; disguise		3. act of counterfeiting or forgery; forge, make something counterfeit	
COMPLEMENTARY Stems		COMPLEMENTARY Stems	
Same as above with focus on the act of deception itself	Same as above with focus on the effect/result of the act of deception	Same as above with focus on the act of deception itself	Same as above with focus on the effect/result of the act of deception

Morphological derivatives: ruse, sham

-RC^h- CHARACTER TRAITS: CIVILITY/PEACEABLENESS			
INFORMAL		FORMAL	
1. state of being civil; follow cultural norms and societal expectations		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being conciliatory/collaborative			
3. state of being peaceable, peace-inspiring, non-violent			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself		Same as above 3 stems with focus on the consequences of being in such a state	

MORPHOLOGICAL DERIVATIONS: civilization; society, peace, war, anarchy

-RK'- 'SOURCE / ORIGIN'			
INFORMAL Stems		FORMAL Stems	
1. origin / source		1. basic element / fundamental starting point or principle	
2. beginning / start / point of initiation; begin, start, commence, initiate		2. fundamental reason for something; fundamental reason why	
3. (primary or direct) cause		3. first principle / foundational principle / axiom / underlying cause	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems w/ focus on physical point/location of origin	same as above 3 stems with focus on beginning or initial manifestation of	same as above with focus on element being basic, i.e., focus on simplicity	same as above with focus on element being axiomatic and/or irreducible

MORPHOLOGICAL DERIVATIVES: basis, basic

-RK^h- AREA AND VOLUMETRIC MEASUREMENT / MEASUREMENT OF VELOCITY & ACCELERATION			
1. measurement of (quasi-)planar area or surface; measure a (quasi-)planar area or surface		1. measurement of the rate of speed/velocity; measure the speed/velocity of an object (= distance divided by time)	
2. measurement of 3-dimensional volume; measure a 3-dimensional volume		2. measurement of the rate of acceleration; measure the acceleration of an object (= distance per unit of time squared)	
3. measurement of hyperdimensional volume; measure a hyperdimensional volume		3. measure/measurement of the rate of other phenomena utilizing units of distance per units of time	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement	Same as above stems with focus on act/process of measurement	Unit of measurement of said property; measure said property via a unit of measurement

SSD₁ Derivatives for Informal Stem 1, Pattern 3 of the above root:

Degree 1	barn / in barns
Degree 2	Sq. millimeter / in sq. mm
Degree 3	Sq. centimeter / in sq. cm

Degree 4	sq. meter / in sq. meters
Degree 5	hectare / in hectares
Degree 6	sq. kilometer / in sq. km

Degree 7	tetrad / in tetrads
Degree 8	hectad / in hectads
Degree 9	myriad / in myriads

SSD₂ Derivatives for Informal Stem 1, Pattern 3 of the above root:

Degree 1	sq. inch / in sq. inches
Degree 2	sq. foot / in sq. feet
Degree 3	sq. yard / in sq. yards

Degree 4	square / in squares
Degree 5	sq. mile / in sq. miles
Degree 6	sq. perch or sq. rod / in sq/perches or rods

Degree 7	acre / in acres
Degree 8	virgate / in virgates
Degree 9	township / in townships

SSD₁ Derivatives for Informal Stem 2, Pattern 3 of the above root:

Degree 1	minim / in minims
Degree 2	fluid dram / in fl. dr.
Degree 3	teaspoon / in tsp.

Degree 4	cubic micron / in μ^3
Degree 5	milliliter / in milliliters
Degree 6	liter / in liters

Degree 7	fluid ounce / in fl. oz.
Degree 8	gallon / in gallons
Degree 9	barrel

SSD₁ Derivatives for Formal Stem 1, Pattern 3 of the above root:

Degree 1	bubnoff unit
Degree 2	inch per second
Degree 3	foot per second

Degree 4	radians per second
Degree 5	meters per second
Degree 6	kilometers per second

Degree 7	kilometers per hour
Degree 8	knot
Degree 9	miles per hour

SSD₁ Derivatives for Formal Stem 2, Pattern 3 of the above root:

Degree 1	bubnoff unit ²
Degree 2	inch per second ²
Degree 3	foot per second ²

Degree 4	radians per second ²
Degree 5	meters per second ²
Degree 6	kilometers per second ²

Degree 7	kilometers per hour ²
Degree 8	knot per hour
Degree 9	miles per hour ²

SSD₁ Derivatives for Formal Stem 3, Pattern 1 of the above root:

Degree 1	angular velocity or angular frequency, as measured in units of planar angle measurement per unit of time
Degree 2	Kinematic viscosity or diffusivity coefficient, as measured in distance squared per unit of time
Degree 3	Snap or jounce, as measured in distance per unit of time to the fourth power
Degree 5	Jerk, jolt, surge or lurch, as measured in distance per unit of time cubed
Degree 7	Volumetric flow, as measured in distance cubed per unit of time
Degree 9	Spread rate by volume, as measured in distance cubed per distance squared

-RQW- nervous/anxious/anxiety (= feeling that one is currently or imminently subject to an unknown or undesired physical/psychological/social threat) — The stems of this root are patterned after the root -PK-

-RTh- CONSIDERATION OF AN IDEA OR PROPOSAL			
NOTE: All of the meanings listed below refer to stems with CPT version; the default PRC version counterparts of these meanings would refer to the process or act of consideration leading up to the COMPLETIVE state of affairs			
INFORMAL		FORMAL	
1. be OK with, accept (the idea of); the “OK”, acceptance (of an idea)		1. permit, grant permission; permission	
2. assent to, go with, consent to; assent, consent		2. affirm, confirm, formally recognize; affirmation, confirmation, formal recognition	
3. concur, agree to, be in agreement or accordance with; agreement, accord, accordance, concurrence		3. approve, endorse; approval, endorsement	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems referring to the process/act thereof	same as above 3 stems referring to the entity agreed upon, accepted, OK'd, assented to, etc.	same as above 3 stems referring to the process/act thereof	same as above 3 stems referring to the entity permitted, affirmed, approved, endorsed, etc.

-RS- DIMNESS / PALENESS / SHADOW / DULLNESS / FADEDNESS			
INFORMAL Stems		FORMAL Stems	
1. be/make dim, bedim (= difficult to see, not very visible; does NOT necessarily imply insufficient lighting by which to see)		1. be/make dull, be/make lackluster in appearance (= decreased reflectivity or brightness), something dull, something of lackluster appearance	
2. be/make pale/blanched (= no longer possess vibrancy of original color); something faded, something pale, something blanched		2. be/make faded, fade, be/make pale/blanched (= no longer possess original degree of brightness/visibility); something faded, something pale, something blanched	
3. be/place in shade, be shaded, be/place in shadow (= [outlined] area of lessened visibility due to blockage/decrease/absence of ambient lighting); a shadow, an area of shade/shadow		3. be/make murky/gloomy/dusky, “get dark” (= dark/dim environment potentially unsafe or subject to unknown occurrences due to poor visibility and/or loss of ambient light); a dark/gloomy/dusky environment	
COMPLEMENTARY Stems		COMPLEMENTARY Stems	
same as above 3 stems with focus on state or process itself	same as above 3 stems with focus on resulting effect/cosequences/impact	same as above 3 stems with focus on state or process itself	same as above 3 stems with focus on resulting effect/cosequences/impact

-SC- ecstatic/euphoric feeling derived from contemplation of one's interconnection with Nature and/or the universe (see the root -Q^h-); this root is patterned after the root -PK-.

-RW- EXPRESSION OF MATHEMATICAL VALUE			
1. number; express numerically		1. mathematical term; state as a mathematical term	
2. variable; express as a mathematical variable		2. function; express as a function	
3. coefficient; express as a mathematical coefficient		3. mathematical constant; express as/utilize a mathematical constant	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above with focus on stem as an abstract concept	Same as above with focus on stem in an applied context or equation	Same as above with focus on stem as an abstract concept	Same as above with focus on stem in an applied context or equation

SSD₁ Derivatives for Informal Stem 1 of the above root:

Degree 1	integer	Degree 4	Infinity ∞	Degree 7	rational number
Degree 2	negative integer	Degree 5	counting/natural number	Degree 8	real number
Degree 3	positive integer	Degree 6	irrational number	Degree 9	imaginary/complex number

SSD₁ Derivatives for Informal Stem 2 refer to the specific hierarchy of variables in a formal mathematical expression or equation, equivalent to Western mathematical notion x, y, z, . . . for variables in an algebraic equation:

Degree 1	2 nd -order variable (i.e., "y")	Degree 4	8 th -order variable	Degree 7	5 th -order variable
Degree 2	6 th -order variable	Degree 5	1 st -order variable (i.e., "x")	Degree 8	7 th -order variable
Degree 3	4 th -order variable	Degree 6	9 th -order variable	Degree 9	3 rd -order variable (i.e., "z")

SSD₁ Derivatives for Informal Stem 3 refer to the specific hierarchy of coefficients in a formal mathematical expression or equation, equivalent to Western mathematical notion a, b, c, . . . for coefficients in an algebraic expression/equation:

Degree 1	2 nd -order coefficient (i.e., "b")	Degree 4	8 th -order coefficient	Degree 7	5 th -order coefficient
Degree 2	6 th -order coefficient	Degree 5	1 st -order coefficient (i.e., "a")	Degree 8	7 th -order coefficient
Degree 3	4 th -order coefficient	Degree 6	9 th -order coefficient	Degree 9	3 rd -order coefficient (i.e., "c")

SSD₁ Derivatives for Formal Stem 3:

Degree 1	e (i.e., the base of natural logarithms)	Degree 4	α (i.e., the first Feigenbaum constant)	Degree 7	γ (i.e., the Euler-Mascheroni constant)
Degree 2	λ (i.e., Conway's constant)	Degree 5	τ (i.e., tau = 2π)	Degree 8	K (i.e., Khinchin's constant)
Degree 3	ϕ (i.e., the "golden ratio")	Degree 6	δ (i.e., the second Feigenbaum constant)	Degree 9	i/j (i.e., the square-root of -1)

SSD_{1/5} derivative for Formal Stem 1: inverse of mathematical term or expression [the Ithkuil translation of "mathematical expression" of course derives from applying an appropriate Configuration to this stem].

SSD_{1/5} derivative for Formal Stem 2: inverse of a mathematical function

Informal Stem 2 can also take the new **DPD_{1/1}** suffix or the **DPD_{1/5}** suffix (see below) to distinguish between the concepts of "dependent variable" versus "independent variable":

-ñṭ-	DPD - Degree of Dependency
Degree 1	Objective value/identity/nature utterly dependent upon or determined by another entity
Degree 2	Objective value/identity/nature mostly dependent upon or determined by another entity
Degree 3	Objective value/identity/nature partially dependent upon or determined by another entity
Degree 4	Objective value/identity/nature barely dependent upon or determined by another entity
Degree 5	Utterly independent; value/identity/nature/efficacy completely self-determined; sui generis
Degree 6	Efficacy/effectiveness/subjective value of X somewhat/barely determined/dependent upon another entity

Degree 7	Efficacy/effectiveness/subjective value of X somewhat/partially determined/dependent upon another entity
Degree 8	Efficacy/effectiveness/subjective value of X mostly determined/dependent upon another entity
Degree 9	Efficacy/effectiveness/subjective value of X completely determined/dependent upon another entity

-ŘŘ- ZERO			
1. zero as the empty-set / a set having no members; to mathematically have no quantity or measurable amount		1. zero as placeholder for purposes of place-value notation/enumeration; to express zero as a placeholder for the purposes of place value notation/enumeration	
2. zero as the additive identity; to add (the) zero(-set) to an existing set or number		2. zero as the cardinality of the empty set / the number of members of an empty set; to have no (i.e., zero) members in a set	
3. the zero-dimension, i.e., a Euclidean point; to have geometrically no length, area or volume, i.e., to be a Euclidean point		3. a null value / a value for a parameter that is undefined and/or for which the expected/standard value(s) is/are inapplicable	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above with focus on stem as an abstract concept	Same as above with focus on stem in an applied context or equation	Same as above with focus on stem as an abstract concept	Same as above with focus on stem in an applied context or equation

-SČ- CHARACTER TRAITS: HONORABLE/RESPECTABLE/ESTEEMED			
INFORMAL		FORMAL	
1. state of being honorable; have honor		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being respectable; have respectability; be respected			
3. state of being esteemed/well-thought-of			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state		

Formal stems imply a state of pride at one's being honorable

-SKL- “bubbly” or “effervescent” emotional state or personality (= light-hearted, socially amenable, socially placating) — The stems of this root are patterned after the root **-PK-**

-SKR- LAXITY/LENIENCY/TOLERANCE			
INFORMAL		FORMAL	
1. state/act of being lax about something; be lax about something		1. state/act of leniency; be lenient toward something	
2. state/act of putting up with/tolerating something; to put up with something; to tolerate something or a situation		2. state/act of socio-cultural tolerance; to practice socio-cultural tolerance, have live-and-let-live attitude toward	
3. state/act of bearing/enduring something; to bear something; to endure something		3. to altruistically sustain/support materially	
complementary stems		complementary stems	
Same as above 3 stems with focus on the state/act itself	Same as above 3 stems with focus on entity being tolerated/endured	Same as above 3 stems with focus on the state/act itself	Same as above 3 stems with focus on entity being tolerated/supported

-SKY- emotionally stifled, mentally blocked — The stems of this root are patterned after the root **-PK-**

-SK²- GATHERING/ACCUMULATION/COLLECTION			
INFORMAL		FORMAL	
1. a gathering in one location; to gather to, bring together in a location, come together at one location		1. queue, line-up, line (of objects); to queue, to line up	
2. to pick up, gather selectively, gather up		2. collect/ gather things together for formal purpose	
3. a (growing) pile of, a growing assortment of; to pile up, to add up/ to increase or grow in number, size or volume via adding of material or members		3. an accumulation, an accretion; to accumulate	
complementary stems		complementary stems	
Same as above 3 stems with focus on the entities that are being gathered together	Same as above 3 stems with focus on the state/fact of growth or accumulation itself	Same as above 3 stems with focus on the entities that are being gathered together	Same as above 3 stems with focus on the state/fact of growth or accumulation itself

-SPL- FACE / VISAGE		
1. face (as gestalt entity) [both physical body part and function]		FORMAL stems are the same as INFORMAL stems but applied to “face” of a non-animal entity, e.g., a mechanical device, vehicle, object, etc.
2. face (as a living being’s primary interface area for vocalization and display of emotion) [both physical body part and function]		
3. face (as one’s primary source/trait for recognition/identification) [both physical body part and function]		
COMPLEMENTARY STEMS		
Same as above 3 stems referring to physical body part	Same as above 3 stems referring to function	

-SQh- a feeling of being deeply and 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 *duende*, but applied to contexts beyond merely art. This root is patterned after the root **-PK-**.

-STL- OPPORTUNITY/ADVANTAGE/CONVENIENCE/SUITABILITY/EXPEDIENCE			
INFORMAL		FORMAL	
1. something potentially worthwhile, something worth pursuing / to be something potentially worthwhile; to pursue something potentially worthwhile		1. advantage / favorable circumstance or situation; to be advantageous / be in a favor situation / have favorable or advantageous circumstances	
2. something expedient or opportune; to be/do something expedient or opportune		2. an opportunity / a chance to experience or do something normally unavailable	
3. something fitting, apropos or suitable; to be/do something fitting, apropos or suitable		3. a convenience / something convenient; to be convenient / do something convenient	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems referring to the experiential state itself	same as above 3 stems referring to the (anticipated) resulting state or outcome	same as above 3 stems referring to the experiential state itself	same as above 3 stems referring to the (anticipated) resulting state or outcome

-STV- ‘CYAN’ patterned after the root **-XT’-** SSD derivatives: 1) extra light 2) pale (= mixed with gray) 3) clear, transparent 4) fluorescent 5) vibrant / bright 6) –ish 7) translucent 8) opaque 9) extra dark

-ŠK'- DEGREE OF OPEN-MINDEDNESS VS. NARROW-MINDEDNESS			
INFORMAL STEMS		FORMAL STEMS	
1. degree of open-mindedness, willingness to consider new ideas		1. degree of zealotry (or lack thereof)	
2. degree of ability to analyze/see/understand things from another's perspective		2. degree of prejudice or bigotry (or lack thereof)	
3. degree of one's capacity to see/consider the world from a relative perspective vs. from an absolute perspective		3. degree of flexibility vs. dogma in one's principles or (quasi-) legally-binding procedures/laws/rules/dictates/tenets	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the state or feeling itself in the abstract	Same as above 3 stems with focus on the experience/consequences of being in such a state	Same as above 3 stems with focus on the quality in itself as an abstract	Same as above 3 stems with focus on the personal or social manifestation or display of the quality

MORPHOLOGICAL DERIVATIONS: dogma, doctrine, zealot, zealotry, prejudice, narrow-minded/closed-minded/insular

-ŠŠ- HIDE/CONCEAL/AVOID/SNEAK			
INFORMAL		FORMAL	
1. something hidden/concealed/"shrouded"/"veiled"; to hide/conceal [by covering up, cloaking, enclosing so as to be in immediate vicinity but unobservable]		1. something masked, hidden by camouflage or disguise; to disguise, to mask	
2. something hidden/concealed; to hide/conceal [by being or placement somewhere so as to be unavailable, inaccessible, not in the vicinity]		2. something obscure/ambiguous, difficult to discern or interpret; to obscure/obfuscate, render ambiguous	
3. something evasive/elusive; to avoid/evade/elude		3. something sneaky/furtive/stealthy/sly/surreptitious; to sneak, be sneaky.furtive/sly/surreptitious, practice stealth	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the state/act of concealment/evasion	Same as above 3 stems with focus on thing hidden	Same as above 3 stems with focus on the state/act itself	Same as above 3 stems with focus on thing being disguised, rendered obscure, or being sneaky

-ŠW- BEAUTY			
NOTE: the stems of this root all refer to the emotional/spiritual inspiration one experiences via the observation/contemplation of a subjectively pleasing entity aesthetically-speaking. The specific stems are distinguished solely by the degree/nature of the aesthetic experience. The holistic roots refer to the total experiential relationship between the aesthetically-pleasing entity and the observer/experiencer. The complementary stems distinguish between the source entity from the observer's emotional/spiritual reaction.			
INFORMAL		FORMAL	
1. something pretty/lovely/fair		1. something beautiful	
2. something delicate/dainty		2. something graceful/elegant	
3. something enchanting/charming/appealing		3. something sublime	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the aesthetically-appealing entity	Same as above 3 stems with focus on the observer's subjective experience/reaction	Same as above 3 stems with focus on the aesthetically-appealing entity	Same as above 3 stems with focus on the observer's subjective experience/reaction

MORPHOLOGICAL DERIVATIONS: beauty, loveliness, sublimity, grace, elegance, enchantment; magnificence

-TÇ- SPACETIME / SPACE / PASSAGE OF TIME			
1. a “location/period/instance” of spacetime; to exist/ occur/ at a specific place and time (= reference locality in spacetime)		1. a volume or period of linear spacetime as per Newtonian/classical physics	
2. to be situated/last/endure/occur in a particular place for a particular portion of spacetime (= volume/extension in spacetime, i.e., the relative portion space taken up by something and the amount of time it does so)		2. a “point” in space and time specifically as per Newtonian/classical physics	
3. the course/flow of spacetime; to flow/course (spoken of space and time together in a universal sense)		3. the linear course/flow of space and time as per Newtonian/classical physics	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
1. place/location where something occurs; to be situated/located (temporarily/circumstantially)	1. the time at which some occurs (relative to some other temporal frame); to occur at a particular time	1. a volume of linear space as per Newtonian/classical physics for purposes of mathematical formulation	1. a volume of linear time as per Newtonian/classical physics
2. place/location where something occurs; to be situated/located (quasi-permanently) / setting/locale/environment; abide, endure (in a spatial sense)	2. a period of time, the amount of time something takes up; to last (= to endure through a period of time)	2. a “point” in space specifically as per Newtonian/classical physics	2. a “point” in time specifically as per Newtonian/classical physics for purposes
3. (interstellar/celestial) space, the 3-dimensional expanse of space	3. the flow of time; to flow (temporally), to run one’s course through time / the past-present-and-future / what has passed and what is yet to be	3. the linear expanse of space as per Newtonian/classical physics	3. the linear course/flow of time as per Newtonian/classical physics

Morphological derivatives: time (as abstract concept), the past, the future, the present, to last (= the endure/occur/continue for a particular period of time), to be situated

-TK’- CHARACTER TRAITS: SINCERITY/FRANKNESS/TRUSTWORTHINESS			
INFORMAL		FORMAL	
1. state of being sincere/honest		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being frank/candid/straightforward			
3. state of being trustworthy/loyal/faithful			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state		

MORPHOLOGICAL DERIVATIONS: blunt, bluntness

-TP- READ / RECITE / ERUDITION			
INFORMAL Stems		FORMAL Stems	
1. read (= acquire/attain information from written-language source via one's knowledge of written language); act of reading		1. recite (= [quasi-]verbally convey information to audience from written-language source)	
2. read/interpret [signs/clues/evidence] (= acquire or attain information via personal interpretation/analysis of distinguishing marks/clues/evidence at a scene or as attendee/participant to a particular situation) [NOTE: see the root -KÇT- for an alternative meaning of "interpret"]		2. read/interpret [signs/clues/evidence] (= acquire or attain information via personal interpretation/analysis of specific markers/signs within a specific or arcane field of knowledge or practice, e.g., reading palms, reading the stars, reading the I-Ching or other arcane symbology, etc.) [NOTE: see the root -KÇT- for an alternative meaning of "interpret"]	
3. state of erudition/scholarship acquired via reading; be scholarly/erudite, function/act as scholar; display or manifest one's erudition acquired via reading		3. to expound/elucidate based on one's erudition or scholarly/arcane knowledge, to "read" [as in British usage for a professor who "reads" a particular subject at a university]; act of [scholarly/expert] exposition or elucidation	
COMPLEMENTARY Stems		COMPLEMENTARY Stems	
same as above 3 stems with focus on the mental acquisition or comprehension of information on the part of the reader	same as above 3 stems with focus on physical act of reading	same as above 3 stems with focus on the communicative conveying of information to the mind(s) of the audience	same as above 3 stems with focus on the physical process or act of reciting, interpretation, exposition

-TQ- 'feeling of "inner balance" / feeling that one's mind, psyche, values, and body are in a state of homeostatic complementarity / feeling "alive" based on subjective sense of inner balance between all parts of one's mind and body' – the stems of this root are modelled after the root -PK-

-TV- SELF / IDENTITY / CHARACTER / SUBJECTIVITY			
1. self (= one's own person as an object of reflection or reference), oneself; to be/act (as) oneself		1. a piece of content from one's ego (= a value, belief, or point of view that are part of one's psyche or contribute to making up one's ego)**	
2. object or person as a separately delineated/identified entity; to delineate, to define/distinguish as a (separate) entity*		2. a character trait; to be/have (as) a character trait ***	
3. identity [externally defined]**		3. subjective (= one's own as defined by one's own psychology) belief or point of view or interpretation; have a subjective belief or point of view or interpretation	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
1. (one)self as placeholder/referent for other person or entity (w/o regard to one's personal identity); put oneself in another's place/situation for reference' sake only	1. (one)self as object of reflection/comparison in terms of personal experience; put oneself in another's place/situation for purposes of experiencing that situation from the other's perspective	same as above 3 stems with focus on the fact of having the trait, belief, or point of view itself	same as above 3 stems with focus on the nature or effect of the specific belief, trait, or point of view
2. delineated entity for purposes of reference only; delineate for circumstantial/reference purposes only	2. delineated entity for purpose of identification and/or distinguishing entity from background or fundament		
3. identity [externally defined] for circumstantial/reference purposes only	3. identity [externally defined], where the specific characteristics/traits that establish the identity are relevant/meaningful		

*not for purposes of comparison – see the root -ST-

**for "sense of self, self-identity, sense of one's own identity" or "ego" as an overall faculty (as opposed to the individual contents thereof) see the root -ŽM-

***this stem refers to psychological/mental traits, not physical traits or tangibly visible traits (see the root -TM-)

MORPHOLOGICAL DERIVATIVES: subjectivity, (one's) character, (one's) ego [the nature thereof, not its mere existence]

-TX- MEDIUM OF EXCHANGE			
1. medium of exchange (i.e., intermediary method of trade in avoidance of the inconveniences of a pure barter system); utilize a medium of exchange		1. act of financial accounting; to financially account	
2. unit of money or currency		2. item of financial capital, financial instrument	
3. quasi-contractual document equivalent to currency		3. commodity	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Medium of exchange as a concept in itself	Act of exchange utilizing a medium of exchange; engage in act of exchange utilizing a medium of exchange / trade using a medium of exchange	Act of financial accounting with focus on the means/process thereof	Act of financial accounting with focus on accurate economic evaluation of (one's) material/financial assets
coin	banknote	Bond, promissory note or equivalent	stock certificate or equivalent
cheque	scrip	Soft commodity (e.g., agricultural product)	Hard commodity (e.g., gold, oil)

SSD derivatives for Informal Stem 2 of the above root are shown below for the 18 currencies associated with the most powerful world economies. Other units of currency can be referenced using Informal Stem 2 of the above root along with the name of the nation or region in the CORRELATIVE or ORIGINATIVE case (as indicated by the carrier-root)

SSD₁ Derivatives for Informal Stem 2 (in Patterns 1, 2 or 3) of the above root:

Degree 1	Chinese yuan	Degree 4	Canadian dollar	Degree 7	Japanese yen
Degree 2	Russian ruble	Degree 5	euro	Degree 8	Brazilian real
Degree 3	British pound	Degree 6	Indian rupee	Degree 9	U.S. dollar

SSD₂ Derivatives for Informal Stem 2 of the above root:

Degree 1	Mexican peso	Degree 4	Argentine peso	Degree 7	Indonesian rupiah
Degree 2	Swiss pound	Degree 5	Australian dollar	Degree 8	Saudi riyal
Degree 3	Turkish lira	Degree 6	Swedish krona	Degree 9	South Korean won

-TC'- 'SYMPATHY / PITY / EMPATHY / COMPASSION'			
INFORMAL Stems		FORMAL Stems	
1. feeling of being able to relate to or identify with an entity (e.g., out of shared or similar experience); be able to relate to, identify with		1. feel/have compassion for; feeling/act of compassion (= desire to ease the suffering of another)	
2. feeling of sympathy for (= ability to understand reasons for another's feelings or actions); have sympathy for		2. feel/have empathy for; feeling/act of empathy (= sharing another's feelings)	
3. feeling of pity; feel pity for, feel sorry for		3. feeling of condolence/consolation; offer condolence/consolation	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the state/act itself	Same as above 3 stems with focus on target entity	Same as above 3 stems with focus on the state/act itself	Same as above 3 stems with focus on target entity

-ṬG- MOTIVE/INCENTIVE/ENTICEMENT/PURSUASION/INDUCEMENT			
INFORMAL		FORMAL	
1. motive / reason why / basis for intention; be/have a motive		1. principle (moral or ontological) / grounds / basis; be/have a principle / be/have grounds / be/have basis	
2. purpose / intention / desired outcome / “goal” / “aim”; intend / “aim to/for”		2. aspiration / “dream” ; to aspire, to dream of	
3. incentive / stimulus; be/have incentive		3. one’s (free) will; to follow one’s will	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the psychological/epistemological state of having a motive/purpose/incentive	Same as above 3 stems with focus on the content of the actual motive/purpose/incentive	Same as above 3 stems with focus on the psychological/epistemological state of having a principle/basis/dream	Same as above 3 stems with focus on the content of the actual principle, basis, dream, will

MORPHOLOGICAL DERIVATIONS: induce, entice, enticement, allure, cajole, seduce, tempt, charm, destiny

-ṬP- DEGREE OF CLEANLINESS OR PURITY / DEGREE OF TIDINESS / HYGIENE (NOTE: The stems below normally utilize the SUF, EXD, EXN, etc. suffixes to specify the particular degree of the qualitative spectrum indicated by the stem)			
INFORMAL Stems		FORMAL Stems	
1. degree of being clean (= free from dirt/soil/grime/dust)		1. degree of being tidy/groomed (= free from slovenliness, untidiness, messiness)	
2. degree of being clean/pure (= free from pollution/contamination by microbes, potentially adverse chemicals, foreign/undesired/unexpected particles, etc.)		2. degree of being sanitary/hygienic/sterile (= free from squalor/fetidness/unsanitary/unhygienic conditions or practices)	
3. degree of being pristine (= in original condition, free from decay from use, wear-and-tear, tarnishing, etc.)		3. degree of being in “normal”/ “active” / “working” condition or mode (= free from mustiness/moribundness/fetidness from neglect/disuse, etc.)	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on the state itself	same as above 3 stems with focus on the effects or consequences thereof	same as above 3 stems with focus on the state itself	same as above 3 stems with focus on the effects or consequences thereof

MORPHOLOGICAL DERIVATIVES: clean, cleanliness, pure, purify, purity, pollute, pollution, contaminate, contamination, sterile, sterilize, pristineness, worn, decay (from use), musty, mustiness

-ṬXh- CHARACTER TRAITS: SMUGNESS/CONCEIT/FOPPISHNESS			
INFORMAL		FORMAL	
1. state of being conceited, full of oneself		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being smug/pedantic = feeling superior to another based on one’s advantageous knowledge or circumstances			
3. state of being prim, foppish, priggish			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state		

MORPHOLOGICAL DERIVATIONS: conceit, smugness, pedantry; arrogant, arrogance

-VŘ- CHARACTER TRAITS: MODESTY/HUMILITY	
INFORMAL	FORMAL
1. state of being modest/humble	FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.
2. state of being demure/reserved	
3. state of being unassuming/unobtrusive	
COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state

MORPHOLOGICAL DERIVATIONS: modesty, humility

-VTR- calm, emotionally tranquil — The stems of this root are patterned after the root **-PK-**

-VV- ‘feeling of appreciation / understanding and acknowledging to oneself the benefits of a situation’ – the stems of this root are modelled after the root **-PK-**.

-VZM- dark, consumed by morose/morbid/(self-)destructive thoughts— The stems of this root are patterned after the root **-PK-**

-XhČ’- CHARACTER TRAITS: STUPIDITY / INTELLECTUAL FAILURE	
INFORMAL	FORMAL
1. state of being stupid, “dumb”, simple-minded	FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.
2. state of being non-intellectual, non-conceptual or non-analytical in one’s cognitive functioning	
3. state of being “shallow”, anti-intellectual, unconcerned with intellectual prowess or analytical thinking	
COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state

-XhF- INTENTION / DECISION / DETERMINATION / PURPOSE			
1. intention; intend	1. purpose		
2. process of decision-making; weigh decision	2. judgement, verdict; judge upon, render verdict		
3. process of determining; determination of course of action	3. resolution; resolve		
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on mental process thereof	same as above 3 stems with focus on the specific thought(s) being pondered or considered	same as above 3 stems with focus on process thereof	same as above 3 stems with focus on the specific conclusion(s) reached

-XhN- EXISTENTIAL IRONY ASSOCIATED WITH UNFAVORABLE BEHAVIOR OR CHARACTER			
NOTE: The stems of this root all refer to the existential irony/frustration/unfairness arising from observing how persons (or situations) characterized by unfavorable, non-virtuous, negative, or morally “flawed” behavior, character traits, or characteristics/attributes are nevertheless often contented or happy or fulfilled or successful/thriving despite their nature. The individual stems specify the particular set of behaviors/characteristics/traits giving rise to such existential irony/frustration.			
INFORMAL		FORMAL	
1. irony/frustration/unfairness arising from being successful/happy/fulfilled/thriving despite being stupid, poorly educated or ignorant		1. irony/frustration/unfairness arising from being successful/happy/fulfilled/thriving despite being anti-intellectual, philosophically vacant, hedonistic, or otherwise a practitioner of a morally shallow, range-of-the-moment, whim-based, non-intellectual, instant-gratification-oriented lifestyle	
2. irony/frustration/unfairness arising from being successful/happy/fulfilled/thriving despite being mean, violent, a liar, a cheat, a criminal, bullying, and/or sadistic		2. irony/frustration/unfairness arising from being successful/happy/fulfilled/thriving despite being a narrow-minded, morally self-righteous, “holier-than-thou”, bigoted, prejudiced, elitist, exclusionary thinker	
3. irony/frustration/unfairness arising from being successful/happy/fulfilled/thriving despite being old-fashioned, un-“hip,” or lacking in contemporary cultural awareness		3. irony/frustration/unfairness arising from being successful/happy/fulfilled/thriving despite being culturally backward, “savage”, simple, non-technological	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the irony sensed by the observer	Same as above 3 stems with focus on the state of the one observed which gives rise to the observer’s sense of irony	Same as above 3 stems with focus on the irony sensed by the observer	Same as above 3 stems with focus on the state of the one observed which gives rise to the observer’s sense of irony

-XhP- FUNCTIONAL WELL-FORMEDNESS/PERFECTION/SENSUAL OR AESTHETIC SATISFACTION			
NOTE: the stems of this root operate under the same principles as the root -ŠW- “BEAUTY” except that the latter root focuses on purely aesthetic appreciation of an entity, whereas this root focuses on the subjective impression of physical and/or functional well-formedness/use in a mechanistic way.			
INFORMAL		FORMAL	
1. something well-formed, shapely, well-proportioned, fine		1. something perfect	
2. something aesthetically/sensually satisfying (e.g., a fine meal, a glass of wine, a thrill ride, a sexual experience,)		2. something exquisite/superb	
3. something stylish/decorative/ornamental		3. something ornate/embellished/splendid	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
Same as above 3 stems with focus on the aesthetically-appealing entity	Same as above 3 stems with focus on the observer’s subjective experience/reaction	Same as above 3 stems with focus on the aesthetically-appealing entity	Same as above 3 stems with focus on the observer’s subjective experience/reaction

-XhP’- closed, inward-facing, “closed off,” “disconnected,” emotionally unavailable — The stems of this root are patterned after the root -PK-

-ZBR- emotionally saturated or drained — The stems of this root are patterned after the root -PK-

-ZJ- CHARACTER TRAITS: NERVOUSNESS/TIMIDITY/SHYNESS/ANXIETY			
INFORMAL		FORMAL	
1. state of being nervous/apprehensive		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being timid/shy/bashful			
3. state of being anxiety-ridden, neurotic due to fears			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state		

-ZK- GUESS / SUPPOSITION / ASSUMPTION			
1. guess / speculation (= conclusion reached in the absence of evidence to support said conclusion or any other); guess / speculate / venture to say		1. conjecture, postulate	
2. supposition; suppose (= consider as a possibility or possible interpretation of evidence)		2. theorem; theorize	
3. assumption / presumption; assume / presume (= reach conclusion suggested by evidence, but other/different conclusions are possible)		3. hypothesis; hypothesize	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on mental process itself	same as above 3 stems with focus on the conclusion reached or being considered	same as above 3 stems with focus on mental process itself	same as above 3 stems with focus on the conclusion reached or being considered

MORPHOLOGICAL DERIVATIVES: guesswork, theorem

-ŽL- surprise, unexpectedness — The stems of this root are patterned after the root -PK-

-ŽR- CHARACTER TRAITS: INTELLIGENT/ASTUTE/PERSPICACIOUS			
INFORMAL		FORMAL	
1. state of being intelligent / smart / “bright” / “sharp”		FORMAL stems are the same as INFORMAL stems except that for FORMAL stems, the party whom the stem describes is seemingly or apparently (self-) aware of their state, whereas when using INFORMAL stems, the party is seemingly or apparently unaware or ignorant of their own state.	
2. state of being astute/quick-witted/cunning			
3. state of being thoughtful/farsighted/perspicacious; to have foresight about something, be thoughtful about			
COMPLEMENTARY STEMS			
Same as above 3 stems with focus on the state or feeling itself	Same as above 3 stems with focus on the consequences of being in such a state		

-ŽV- BALANCE / EQUILIBRIUM / SYMMETRY / HOMEOSTASIS			
1. state of being in balance / act of balancing; to balance / to be/make balanced		1. state of being symmetrical or having/displaying/maintaining symmetry; be/make symmetrical	
2. state of equilibrium; to be/make in state of equilibrium		2. state of parity; be/place in state of parity	
3. state of homeostasis; to be/make in state of homeostasis		3. state of being numerically even (= divisible by 2); an even number (as opposed to odd)	
COMPLEMENTARY STEMS		COMPLEMENTARY STEMS	
same as above 3 stems with focus on state/act itself	same as above 3 stems with focus on effect/consequence thereof	same as above 3 stems with focus on state/act itself	same as above 3 stems with focus on effect/consequence thereof

MORPHOLOGICAL DERIVATIVES: unbalanced, out-of-balance, disequilibrium, asymmetrical, asymmetry, (numerically) odd, odd number