

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| -BBR- FALSE (or SUPERSEDED) FUNDAMENTAL CONCEPTS OF SCIENCE | | | |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 false/superseded fundamental concept from physics | | 1. false/superseded fundamental concept from astronomy and cosmology | |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 false/superseded fundamental concept from chemistry | | 2. false/superseded fundamental concept from geology | |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 false/superseded fundamental concept from biology | | 3. false/superseded fundamental concept from medicine and psychology | |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 DERIVATIONS: 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 |

| -KP ^h - 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/apperiodic 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 |
|----------|-----------------------------|----------|---------------------------|----------|-------------------|

| -KR- 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) biscuit, 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/experienter. 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