

F.E.D. Applications --

The Seldonian

‘Psychohistorical-

Dialectical

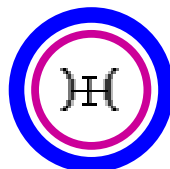
[Meta-]Equations’

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for

Foundation **Encyclopedia Dialectica**



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About the Author. Aoristos Dyosphainthos is a founding member of [Foundation Encyclopedia Dialectica](#) [[F.E.D.](#)], a Voting Member of the [F.E.D.](#) General Council, and also serves as the General Council's Chief Public Liaison Officer, leading the [F.E.D.](#) Office of Public Liaison.

Contents Map

Prefatories.


[Title Page.]
Omni-Copyright Notice.
About the Author.
Contents Map.
Author's Preface.

General Introduction.

- I.** The Meta-Equation of *Human Ideology\Knowledge* Meta-Evolution.
- II.** The Meta-Equation of *Human-Social Forces of Production* Meta-Evolution.
- III.** The Meta-Equation of *Human-Social Relations of Production* Meta-Evolution.
- IV.** The Meta-Equation of *Human-Social Formations* Meta-Evolution.
- V.** The Equation of the *Human Genome / Human 'Phenome' Systematic-Dialectic.*
- VI.** The Equation of the Meta-Evolution of *Planetary Human[oid]ities.*
- VII.** The Meta-Equation of *The Psychohistorical Dialectic of the Dialectic Itself.*

Key Challenges for “‘Simultaneous’” and ‘QUANTO-Qualitative’ Solution of these Seven [Meta-]Equations.

Author's Preface. The Seldonian '*Psychohistorical-Dialectical [Meta-]Equations*', are, in light of the central mission of *Foundation Encyclopedia Dialectica* [F.E.D.], the most important of the applications of the F.E.D. *unified theory of universal dialectic*, originated by our co-founder, Karl Seldon, and carried forward, since its foundation, by the F.E.D. research community, as continually catalyzed by Dr. Seldon.

This text provides a general introduction to this [super-]system of seven “‘simultaneous’” '*Psychohistorical-Dialectical [Meta-]Equations*', as formulated using the *first*, simplest of the explicitly *dialectical-mathematical* axioms-system in the Seldonian *meta-systematic-dialectical progression* of the axioms-systems of *dialectical mathematics* -- namely, the  *dialectical-mathematical* axioms-system.

This text, in its aperiodically-updated versions, will remain as our standard public reference regarding this [super-]system of seven '*Psychohistorical-Dialectical [Meta-]Equations*', until we carry out our plan to publish that [super-]system in treatise form, at a future optimal timing -- a timing to be determined via solving advanced, '*quanto-qualitative*' *dialectical-algebraic* formulations of these same seven '*Psychohistorical-Dialectical [Meta-]Equations*' themselves, advanced formulations which we have not, as yet, made public.

General Introduction. The **Foundation Encyclopedia Dialectica** [F.E.D.] '**Psychohistorical-Dialectical** [Meta-]Equations' were designed, building upon the foundational work of our co-founder, Karl Seldon, by the General Council of F.E.D., in collaboration with the F.E.D. Special Council of Psychohistorians, to create a 'Time-Vault of the Future', by means of a 'meta-planetarium projector' -- which we named the "'F.E.D. Prime Radiant'" -- to project **3-D** holographic representations of the solution-scenarios of this [super-]system of "'simultaneous"' **dialectical** [meta-]equations', and of their scenario-valued **ontological category variables**, for future values of their time-variables, i.e., to algorithmically 'pre-construct' **dialectical-mathematically-generated**, richly-determinate, i.e., **model-generated** "'data-visualization"' imagery for the future history expected per these '[meta-]equations'.

All but one of these '[meta-]equations' utilize the '**Dyadic Seldon Function**' formulation of **dialectical ontological-category progressions** [= of [revolutionary new] **kinds-of-being** -- or of **new ontology-category** -- progressions], a **Function** which we define as per the following two text-modules --

Definition: "'Seldon Functions'"

The term "'**Seldon Functions**'", in F.E.D. parlance, refers to a family of functions that provide "'**closed form, analytical solutions**" to certain classes of **nonlinear** '**meta-finite**' **difference equations**, and which, as such, provide the primary mathematical models of **dialectical processes** in the F.E.D. opus. If an arithmetical "multiplication" operation can be grasped as an addition operation "of **2nd degree**", i.e., as a '**meta-addition**' operation, made up out of a multiplicity of "addition" operations, & if an arithmetical "exponentiation" operation can be grasped as a "multiplication" operation "of **2nd degree**", i.e., as a '**meta-multiplication**' operation, made up out of a multiplicity of "multiplication" operations, then the operation central to the "'**Seldon Functions**" can be grasped as an "exponentiation" operation "of **2nd degree**", i.e., as an arithmetical operation of '**meta-exponentiation**', made up out of a multiplicity of "**1st degree exponentiation**" operations. Such functions were considered by, among others, George Boole*, in their "**purely-quantitative**" guise, and discovered by our co-founder, Karl Seldon, in their **dialectical**, "**purely-qualitative**" and '**qualo-quantitative**' forms, initially in the context of his finitary "'**Set Of All Sets**'", \mathcal{S}_τ , **immanent critique** of Modern Set Theory, where, if $\mathcal{S}_0 = 2^{\mathcal{U}}$, & $\mathcal{S}_\tau^2 = \mathcal{S}_\tau \cup 2^{\mathcal{S}_\tau}$, then $\mathcal{S}_\tau = \mathcal{S}_0^{2^\tau}$, as we have seen. These functions therefore, in the F.E.D. literature, bear his name.

A "'**Seldon Function**" has generic form -- $\mathbb{H}_\tau = \mathbb{H}_0^{v^\tau}$ -- where the parameter v is an integer, and where the symbol with the **0** subscript on the RHS of the equation above is a '**dialectical meta-number**' **unit[y]**. Two sub-families of "'**Seldon Functions**" have been extensively explored in F.E.D. research to-date: the $v = 2$ family '**Dyadic Seldon Functions**', and the $v = 3$ '**Triadic Seldon Functions**'. The "'**Seldon Functions**", as '**auto-iterator**' solutions, contrast with typical '**allo-iterator**' solutions, which are often "fixed-point" or "equilibrium" solutions as well, in that $\mathbf{F} \frac{1}{\tau} \mathbf{x}_\tau$ in $\mathbf{x}_\tau = \mathbf{F}^\tau(\mathbf{x}_0)$, versus $\hat{\mathbf{x}}_0 = \hat{\mathbf{x}}_0$ in $\mathbf{x}_\tau = \hat{\mathbf{x}}_0^{2^{\tau-1}} \langle \hat{\mathbf{x}}_0^{2^{\tau-1}} \rangle$. "'**Seldon Function**" '**self-iterators**' are "'**self-reflexive functions**".

*George Boole, **Calculus of Finite Differences**, Chelsea Publishing Company, [New York: 1970], pp. 166-167.

‘Dyadic Seldon Functions’:

‘Self-Iteration’ vs. ‘Other-Iteration’

The ‘Dyadic Seldon Function’ exemplifies what we term a ‘self-iteration’ *solution-function*, in contrast to more familiar discrete-time *solution-functions*, which we term ‘other-iterations’. The “‘Seldon Functions’”, as ‘self-iterator’ *solutions*, contrast with typical ‘other-iterator’ *solutions*, which are often “‘fixed-point” or “‘equilibrium” *solutions* as well, in that $F \nmid x_{\tau+1}$ in $x_{\tau+1} = F^{\tau+1}(x_0)$, i.e., F is other than $x_{\tau+1}$, whereas $\hat{x}_0 = \hat{x}_0$ in $\hat{x}_{\tau+1} = \hat{x}_0^{2^\tau} \langle \hat{x}_0^{2^\tau} \rangle$, i.e., the progression of the ‘self-iterator’ is driven by “‘self” as function, or operator, with the self-same value as argument or as operand. The ‘Dyadic Seldon Function’ thus iterates as a ‘function-argument-identical’, or as an ‘operator-operand-identical’. Another way to state this observation is to say that a “‘Seldon Function” ‘self-iterator’ is a “‘self-reflexive function”, or a “‘self-applied operation”, involving a ‘self-operating operator’, and modeling a ‘self-refluxive process. A ‘self-re-flex-ion’ is a bending [flex-] back [re-] upon source [self-]. A ‘self-re-flux-ion’ is a flowing [flux-] back [re-] to source [self-]. Such ‘self-applying’ symbolic functions, operations, and processes link closely to the sentences and propositions we considered in the initial chapter, which are, precisely, ‘self-reflexive’, ‘self-refluxive’ ‘subject-verb-object-identical’ sentences. The progression of a representative ‘other-iteration’ *solution-function* versus that of a ‘self-iteration’ *solution-function*, driven by that of a discrete independent variable, τ , contrast as below:

τ ‘ <u>Other-Iteration</u> ’, solving $x_{\tau+1} = F(x_\tau)$ —	‘ <u>Self-Iteration</u> ’, solving $\hat{x}_{\tau+1} = \hat{x}_\tau \langle \hat{x}_\tau \rangle = \hat{x}_\tau^2$ —
0 $x_0 = F^0 x_0 = 1 \cdot x_0 = x_0$	$\hat{x}_0 = \hat{x}_0^{2^0} = \hat{x}_0^1 = \hat{x}_0 = \dots = \hat{x}_0^1$
1 $x_1 = F^1 x_0 = F1 \cdot x_0 = Fx_0$	$\hat{x}_1 = \hat{x}_0^{2^1} \langle \hat{x}_0^{2^1} \rangle = \hat{x}_0^1 \langle \hat{x}_0^1 \rangle = \hat{x}_0^1 \otimes \hat{x}_0^1 = \hat{x}_0^2$
2 $x_2 = F^2 x_0 = FFx_0 = Fx_1$	$\hat{x}_2 = \hat{x}_0^{2^2} \langle \hat{x}_0^{2^2} \rangle = \hat{x}_0^2 \langle \hat{x}_0^2 \rangle = \hat{x}_0^2 \otimes \hat{x}_0^2 = \hat{x}_0^4$
3 $x_3 = F^3 x_0 = FFFx_0 = Fx_2 \dots$	$\hat{x}_3 = \hat{x}_0^{2^3} \langle \hat{x}_0^{2^3} \rangle = \hat{x}_0^4 \langle \hat{x}_0^4 \rangle = \hat{x}_0^4 \otimes \hat{x}_0^4 = \hat{x}_0^8 \dots$

The **F.E.D.** General Council is thereby enabled to anticipate – in timing, and in event-content – the approaching “Seldon Crises”, for more about which, in terms of their [science-]fictional instantiation, by Isaac Asimov, see –

http://en.wikipedia.org/wiki/Seldon_Crisis

I have listed, below, this [super-]system of **dialectical** ‘[meta-]equation [meta-]models’, which are to be solved “‘simultaneously’”, for the **new ontology** expected to be emergent during the **Time** period, **T_x** [denoting the **generic** “‘epoch’” of the **dialectical progression** whose **domain** is denoted by **X**], here intending the **future** value of that **Time**-period variable that is to be solved-for in “**predictive**” / “**pre-constructive**” mode.

The versions of the **F.E.D.** ‘**Psychohistorical-Dialectical** [Meta-]Equations’ rendered, and partially explicated, further below, are all rendered in the **second system** in the **dialectical progression** of the **F.E.D. dialectical ideographies**, namely, in the rule-based **ideographical** / **algebraical** language-system of the **F.E.D.** “**First explicitly Dialectical Arithmetic / Algebra**”, denoted by **N^Q**, and **not** [yet], herein, in any of the higher **systems** of **dialectical ideography** that inhere in that same **dialectical progression**.

Presentation of the nine core algorithms, rules, or “axioms” of this language, is also available via these links –

http://www.dialectics.org/dialectics/Correspondence_files/Letter17-06JUN2009.pdf

http://www.dialectics.org/dialectics/Dialectic_Ideography_files/6_Dialectics-Part1c-Briefing_OCR.pdf [pp. **I-144** through **I-146**].

They are summarized, via largely ideographical symbolization, in the following ‘*.jpg’ image/module --

Dialectical Arithmetic of Ontological Qualifiers/ Ontological Categories:

Collected Core Rules of the **N^Q Arithmetical ‘Rules-System’.**

Note: the symbol **N^Q** denotes the “space/”set” of ‘**meta-numbers**’ that is part of the ‘rules-system’ denoted by **N^Q**.

Specifically, **N^Q** $\equiv \{ \mathbb{Q}_1, \mathbb{Q}_2, \mathbb{Q}_3, \dots \}$. “**Successor function**” for **N^Q**: **S_{N^Q}** $\mathbb{Q}_n \equiv \mathbb{Q}_{s(n)} \equiv \mathbb{Q}_{n+1}$, wherein **s** denotes Peano’s **successor function** for **N**.

(§1) $\mathbb{Q}_1 \in \mathbf{N^Q}$

(§2) $[\forall \mathbb{Q}_n \in \mathbf{N^Q}] [\exists \mathbf{S_{N^Q}} \mathbb{Q}_n \equiv \mathbb{Q}_{n+1} \in \mathbf{N^Q}], \forall n \in \mathbf{N} \equiv \{ 1, 2, 3, \dots \}$

(§3) $\mathbb{Q}_j, \mathbb{Q}_k \in \mathbf{N^Q} \ \& \ \mathbb{Q}_j \neq \mathbb{Q}_k \Rightarrow \mathbf{S_{N^Q}} \mathbb{Q}_j \neq \mathbf{S_{N^Q}} \mathbb{Q}_k, \text{ for all } j, k \in \mathbf{N}$

(§4) $\neg \exists \mathbb{Q}_x \in \mathbf{N^Q} \mid \mathbf{S_{N^Q}} \mathbb{Q}_x = \mathbb{Q}_1, \text{ for all } x \in \mathbf{N}$

(§5) $[\forall n \in \mathbf{N}] [\mathbb{Q}_n \in \mathbf{N^Q}]$

(§6) $[\forall j, k \in \mathbf{N}] [[j > k] \Leftrightarrow [\mathbb{Q}_j \not\leq \mathbb{Q}_k]]$

(§7) $[\forall n \in \mathbf{N}] [\mathbb{Q}_n \boxplus \mathbb{Q}_n = \mathbb{Q}_n]$

(§8) $[\forall i, j, k \in \mathbf{N}] [[j > k] \Leftrightarrow [\mathbb{Q}_j \boxplus \mathbb{Q}_k \not\leq \mathbb{Q}_i]]$

(§9) $[\forall j, k \in \mathbf{N}] [\mathbb{Q}_j \boxtimes \mathbb{Q}_k \equiv \mathbb{Q}_k \boxplus \mathbb{Q}_{k+j}]$: ‘double-conservation **«aufheben»** evolve product rule’.

We define two of our ‘neological terms’ [“neologia”], ‘**meta-equation**’ & ‘**meta-model**’, as follows --

Definitions: “Equations” vs. ‘Meta-Equations’

“**Mathematical Equation**” ≡ A written expression, asserted via a relation-sign, e.g., ‘=’, placed between “**Right-Hand Side**” [RHS] and “**Left-Hand Side**” [LHS] “sub-expressions”, which asserts that those RHS and LHS “sub-expressions” are “purely”-**quantitatively equivalent**, “purely” **qualitatively equivalent**, or ‘**qualo-quantitatively equivalent**’.

In F.E.D. usage, a “mere equation” usually formulates a “mere model” of the state(s) of a “population”, [dynamical] system, or “eventivity”, for just a **single systematic** step, **s**, or for just a **single** historical epoch, **τ**, during which the ontology thereof is constant, at least for the taxonomy level explicitly addressed by that “mere model”. Thus, only “purely”-**quantitative** changes take place in the values of, e.g., “state-variables”, and/or of “control parameters”, of that “dynamical system”, i.e., *mere*, “dynamical evolutions”, without any ‘meta-dynamical meta-evolutions’, are modeled by such a “mere equation”, one whose meaning and/or validity “breaks down” at the **systematic**, taxonomic boundaries of its domain, or at the historical boundaries of its epoch.

Mathematical ‘Meta-Equation’ ≡ A written expression that is “made up out of”, or that «*aufheben*» “contains”, a **heterogeneous multiplicity** of “mere equations”. In the F.E.D. context of ‘**Seldon-Function dialectical meta-models**’, whether of **synchronic**, “[**meta**]-**systematic-dialectical**” types, or of **diachronic**, “[**psycho**]**historical-dialectical**” types, the “**Seldon-Function**” forms an ‘**equation-valued meta-equation**’, that generates a different “mere equation” for each value of its **step**, **s**, or epoch, **τ**, independent variable.

Definitions: “Models” vs. ‘Meta-Models’

“**Mathematical Model**” ≡ An ideographically-expressed, algorithmic symbolization which may **present** the **present** state, and/or reconstruct **past** states, and/or predict **future** states, of a given “population”, [dynamical] system, or “eventivity”, in a “purely”-**quantitative** or in a ‘**qualo-quantitative**’ way, **synchronically**, **diachronically**, or ‘**diachronico-synchronically**’.

In F.E.D. usage, for the [**psycho**]**historical**, **diachronic** context, “**model**” refers to such a **representation** that covers **only one** epoch, of evolution, in the overall “meta-evolution”, of a domain – **just one** “dynamic”, or “law of motion”, within the overall “meta-dynamic” or “meta-law” of that domain -- and within which, at least for the taxonomy level explicitly addressed by the “**model**”, the “ontology” of that domain remains constant, so that only **quantitative**, evolutionary changes, but **not qualitative**, ontological changes, manifest within that single epoch. Such an epoch is typically bounded, on both of its ‘time-sides’ – on its past / birth side, and on its future / ‘*self-aufheben*’ side – by ‘**metafinite self-bifurcation singularities**’ of either the ‘**resonant singularity**’ or the ‘**depletion singularity**’, «**species**», i.e., by ‘**ontological revolutions**’. The “mere model”, as such, is [psycho]historically valid within the limits of its single ontological epoch alone.

Mathematical ‘Meta-Model’ ≡ An ideographically-expressed, algorithmic symbolization which is “made up out of” a **heterogeneous multiplicity** of mere “models”. In the F.E.D. context of ‘**Seldon-Function dialectical meta-model meta-equations**’ – of the **synchronic**, “[**meta**]-**systematic-dialectical**” types, or of **diachronic**, “[**psycho**]**historical-dialectical**” types -- the “**Seldon-Function**” forms an ‘**equation-valued meta-equation**’, such that the “**Seldon-Function**” generates a different “mere equation” for each value of its **step**, **s**, or epoch, **τ**, independent variable. In that context, each “mere equation” is a “mere model”.

As we already noted, in passing, above, those advanced versions of the **F.E.D.** ‘**Psychohistorical-Dialectical** [**Meta**]-**Equations**’ are formulated in a language that arises later in the **dialectical**, ‘ideo-ontological’ **progression-presentation** of the **F.E.D.** systems of **dialectical ideography**. Needless to say, that advanced **dialectical language** is one of the ‘**quanto-qual**itative’ **dialectical languages**, **not** one of the “purely”-**qual**itative **dialectical languages**, both of which kinds are derived continually, alternately, in that **dialectical progression-presentation**, after the «**arché**» language, **N**, the only “purely”-**quant**itative language therein.

We do not [yet] publicly disclose the rules-system of that more advanced [dialectical language](#). The optimal historical timing of its disclosure is itself a matter for the most delicate ‘[psychohistorical-dialectical calculation](#)’. However, later in this introductory section, below, I provide a summary description of the early [dialectical language-systems](#) in the order that they are covered in that [dialectical meta-systematic presentation](#), a [presentation](#) which we regularly model by a ‘[Dyadic Seldon Function](#)’-based [dialectical](#) ‘[meta-equation](#)’, one also formulated, for starters, in the [NQ dialectical language](#).

The axiomatic system that governs the ‘algorithmics’ of these $\mathbf{N}^{\mathbf{Q}}$ ‘*meta-numbers*’ is denoted by $\mathbf{N}^{\mathbf{Q}}$.

Encyclopedia Dialectica **Notational Conventions,**
'Ideo-gram-ic'

(5) an ‘*arithmos*’ of dyadic relational signs -- ‘ \approx ’ [‘bi-truncated inequality sign’] denoting ‘is analogous to’; ‘ ∇ ’ [‘mutual-negation inequality sign’] denoting the relation of *propositional contradiction*, and ‘ $\#$ ’ [‘doubly-negated equality sign’] denoting the relation of *dialectical “contradiction”*;

Encyclopedia Dialectica Notational Conventions,

'Ideo-gram-ic' and 'Phono-gram-ic'

(6) a new inequality sign, $\frac{1}{2}$, as the ideogramic symbol for the relation of *non-quantitative inequality*, i.e., for the relation of *qualitative inequality*, as part of the «*arithmos*» of basic relations -- $\{>, =, <, \frac{1}{2}\}$ -- that convey the **F.E.D.** 'tetrachotomy principle' which resides at the root of *dialectical arithmetic*;

(7) the symbol H , arising from the 'life-script dream' of our co-founding member, Karl Seldon, which signifies, at any given historical moment of human time, the then-ultimate horizon of the 'diachronic metasytem' of mathematical axiomatic systems, & of their 'cumulum' [per our 'psychohistorical' interpretation of 'The Gödelian Dialectic' of the self-incompleteness-generated self-progression of the «*aufheben*» "'conservative extensions'" of such systems]. The symbol X denotes the "'ontology'", or 'cumulum of ontological categories', for the *n*th taxonomic level of sub-universe[of

discourse] *u*, in its *t*th epoch, for an *historical-dialectical* [self-]progression of 'physio-ontology'. The symbol uH_s signifies the same for *step s* of a *systematic-dialectical* presentation of the 'ideo-ontology' of a given totality. The symbol H_h signifies the generic version of the same, for its *whorl h*, encompassing/generalizing both of the preceding two. We color text in *spectral* order [red, orange, yellow,...] to mark relative 'ordinalities' among terms.

We denote text herein, *generically*, by ellipsis dots, '...'. We delimit *major, formal hypotheses* as follows: $\text{H} \dots \text{H}$ [though the majority of the material, so enclosed or not, remains conjectural], vs. [proven] *theorems*, derived deductively from explicit *axioms*, via $\text{H} \dots \text{H}$, & $\text{H} \dots \text{H}$, to assert the *axioms* themselves.

- Single quote-marks enclose 'self-quotes' of our own 'neological' / 'neologicalist' coinages.
- Double quote-marks enclose *exact quotes* of others.
- Triple quote-marks enclose *approximate, paraphrased, or re-interpreted word-coinages / full-phrase quotes*, of others.
- Double 'angle marks', «...», enclose *non-English* words, whether transliterated into English characters, or rendered in their own, original alphabets.

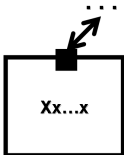
Sign-formations of the form $\text{a} \sqsubset \text{B}$ sign generalized *inclusion* of *a* in *B*, and can be read-off as "*a* is explicitly contained in *B*", an inclusion relation *more general* than that denoted by the set-theoretical sub-set relation, denoted by \subset .

We will occasionally embed, in the context of English 'phonogramic text', the ideograms ∂ , ∂ , or ∂ , juxtaposed as an ideogramic prefix-symbol to a phonogramic word-symbol, signifying a [finite] *quantitative* part, a [finite] *qualitative* part, or a [finite] 'quanto-qualitative' part, or 'qualo-quantitative' part, respectively, of the meaning of the word so modified, e.g., ' ∂ population-count', ' ∂ monad', ' ∂ meta-space', and wherein, as contextualized by their operands, the "'operator"' symbols ∂ , ∂ , or ∂ , may be read-off as "'partial'", and thought of as installing a *boundary* within the [sub-]whole signified by the word /-other symbol that they modify/operate upon, by which they separate off a part of that [sub-]whole from the rest of that [sub-]whole.

Encyclopedia Dialectica Notational Conventions, 'Picto-gram-ic', Generic

By the word 'dia-gram-mar', we mean a 'gram-mar' of *diagrams*.

'Dialectical diagrammar' is a 'picto-grammar' of *dialectical phono-picto-ideo-gramy*.

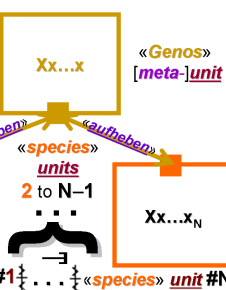


The "box" immediately to the left denotes, generically, a "'unit'", or «*monad*» -- e.g., a "'unit-y'", an [ideo-]ontological "category", or "system", itself grasped as a *unit*, though it implicitly also already "contains" its own *units*, i.e., as in its own right a [sub-][w]hol[e] [no]te, or *hol-note*, at some level of some *dialectical*, «*aufheben*» *Meta-Monadology* -- using this *dialectical*-pictographic 'holistic note-ation'. The 'genericized' 3+phonogram character-string 'Xx...x' denotes the name assigned to that [sub-]hol, generically.

→; →; →; Denote «*autokinesis*», respectively, (1) *generic* [either *systematic* or *historical*] *dialectical* (2) [meta-]systematic *dialectical* «*species*», and (3) [meta-systematic &/or *psycho*]historical-dialectical «*species*», of [self-[induced]]*progress[ion]*.

'Dialectogram' Depiction of the Core of *Dialectic*.

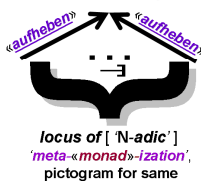
An idea-«*genos*» box/unit is the unifying idea 'meta-unit', or 'ideo-meta-«*monad*»', for a potentially large number / «*arithmos*», of idea-«*species*» idea-units boxes.



The diagram marks a *synchronic* relation, of *more generic* [above] to *more specific* [below], 'monadizations', or 'unit-ifications', of «*εἶδος*» / «*ἰδέα*». It thus depicts the 'static-ized' results of a process of *abstraction*, or of '«*gene*»-ralization', or of the '«*gene*»-ration' of a relatively more '«*gene*»-ral', or relative «*genos*», or '«*gene*»-us', 'idea-unit', or 'idea-«*monad*», from a given «*arithmos*», or multiplicity, of idea-«*species*» *units* / «*monads*».

That is, the image / 'dia-gram' to the left is a pictorial model / depiction of the results of a process of inductive '«*gene*»-ralization'; of '«*gene*»-ration', of a new idea-«*gene*» *unit*, via reflected mental experience of an «*arithmos*» made up of *many* idea-«*species*» *units*.

That diagram is the '«*gene*»-ric' 'dialectical diagram' -- the [relative] idea-«*genos*»/idea-«*species*» *systematics* «*aufheben*» diagram -- of 'Synchronic Systematic Dialectics'; of *synchronic* 'Ideo-Meta-Monadology'. It is, in its *upward* direction, a *depiction of abstraction*; of the results of the process of inductive *generalization* and, at the same time, in its *downward* direction, it depicts *concretion*/«*speci*»-fication/rising 'determinateness'.



The depiction-element immediately to the left depicts, in its *upward* sense, the *vanishing* of two+ more-specific *units* in/into the "vanishing point" at its apex, the threshold of a *more general unit*. That apex is the point at which the 'ideative' "'«*differentia specifica*»"' of the multiple [relative] 'idea-«*species*»' *vanish* into implicitude in the greater [relative] '«*gene*»-rality' of their [relative] 'idea-«*genos*»', "above" them. The relatively '«*speci*»-al', «*species*» categories, with all of their '1/2'-relations, their *qualitative differences*, disappear into *inexplicitude* at the [higher 'ideo-meta-fractal' scale /-]level of the 'idea-«*genos*»' category-unit, which is there seen as that of the idea-unit/idea-«*monad*»/idea-«*a-tom*». This image thus depicts the 'meta-«*monad*»-ic' process of the '«*aufheben*» self-subsumption'/self-internalization', of more '«*speci*»-fic' into more '«*gene*»-ral' idea-units.

In the sequel, we use the symbol ' \equiv ' to stand in place of the phrase "is equal to, *by definition*".

The underscored mnemonic symbols stand for 'dialectical meta-numbers', i.e., for "purely"-qualitative values. Those values operate, arithmetically and algebraically, according to the F.E.D. 'Fundamental Rule of Dialectical Logic', simulating ontological category 'onto-dynamasis', self-induced by the actual content represented by such categories. This 'Fundamental Rule' can be proven, deductively, as a theorem, from the NQ axioms given above, as follows --

Demonstration. An 'Ultra-Simple' Deductive Proof of the F.E.D. 'Fundamental Law of Dialectical Thought' from the Axioms of the NQ Axioms-System of Dialectical Arithmetic.

Given: n is an element of the "set", or "space", $\mathbf{N} \equiv \{1, 2, 3, \dots\}$ of "Natural" Numbers, and the axioms of \mathbf{N} and of the NQ dialectical arithmetic.

Prove: \boxtimes "times" \boxtimes is qualitatively unequal to \boxtimes , for every \boxtimes in NQ $\equiv \{\boxtimes_1, \boxtimes_2, \boxtimes_3, \dots\}$, the set of the F.E.D. 'First Dialectical Meta-Numbers'.

Proved:

■

Assertion

#	Assertion Content	Assertion Justification
1	n is an element of \mathbf{N}	<u>Given.</u>
2	\boxtimes_n is an element of <u>NQ</u> , for every n in \mathbf{N}	Axiom 5
3	\boxtimes_n squared $= \boxtimes_n \boxplus \boxtimes_{2n}$, for every \boxtimes_n in <u>NQ</u> , for every n in \mathbf{N}	Axiom 9
4	n does not equal $2n$, for every n in \mathbf{N}	*
5	\boxtimes_n is <u>qualitatively unequal</u> to \boxtimes_{2n} , for every n in \mathbf{N}	Axiom 6
6	$\boxtimes_n \boxplus \boxtimes_{2n}$ is <u>qualitatively unequal</u> to \boxtimes_n for every n in \mathbf{N}	Axiom 8
7	\boxtimes_n may be represented by \boxtimes , for any \boxtimes_n in <u>NQ</u> , for any n in \mathbf{N}	Substitution of Equivalent for Equivalent.
8	\boxtimes squared is <u>qualitatively unequal</u> to \boxtimes	Assertions # 3 and # 6 and # 7, above -- Q.E.D. ■

*The proposition " n does not equal $2n$, for every n in \mathbf{N} ." is justifiable, for example, from a corollary of a theorem of the "Natural Numbers" axiomatic system of arithmetic that derives from the "multiplicative identity element" axiom for that system. This theorem asserts that for any element of the set of "Natural Numbers", call it m , that is not the "multiplicative identity element" of that set, and for any element of the set of "Natural Numbers", call it x , it is true that $x < mx$.

This contra-Boolean 'Fundamental Rule of Dialectical Logic' holds that the 'self-interaction' of the «arithmos» of «monads» that a category represents -- i.e., its self-critique, or immanent critique, in the case of an 'ideo-ontological' category, in the person of the human person who's mind is "'holding'" it, and 'mentally embodying' it, or the quantitatively expanded self-reproduction of the local populations of its «monads» to its critical density, i.e., to a critical physical-spatial concentration, in such localities, in the case of a 'physio-ontological' category -- results, potentially, in qualitative change [i.e., in ontology change; irruption of new ontology, perhaps extinction of some old ontology], e.g., potentially, in both the [aufheben]-conserved], or "'Boolean'", self-reproduction of the ontology-content of that very 'self-interacting' «arithmos» itself, together with the [aufheben]-negated/elevated] irruption of a qualitatively new «arithmos» of «monads», represented by a new category. The following images present the generic version of the E.D. standard 'dialectogram' formats which we will apply herein to support our readers in visualizing the dialectical processes encoded by various of the 'psychohistorical-dialectical [meta]-equations' presented in this text, with emphasis on the first triad encoded in, predicted [preconstructed] by, or "'reconstructed'" by, each such 'dialectical [meta]-equation' --

**Generic Dialectical Interpretations of the $\mathbf{N_Q}$ 'Meta-Numbers',
Synchronic & Diachronic, Dyadic & Triadic, for the **1st 18**.**

Ordinal #	'Dyadic pathway' to generic 'qualifier meta-numeral'	'Dyadic Seldon Function' Name/Interpretation	'Triadic Seldon Function' Name/Interpretation	'Triadic pathway' to generic 'qualifier meta-numeral'
1	\mathbb{T}_1	first/« <u>arché</u> » thesis; first/« <u>arché-physis</u> »	first/« <u>arché</u> » thesis; first/« <u>arché-physis</u> »	\mathbb{T}_1
2	$\mathbb{T}_{1+1} = \mathbb{T}_2$	first <u>anti</u> -thesis; first <u>meta</u> -« <u>physis</u> »	first <u>anti</u> -thesis; first <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{1+1} = \mathbb{T}_2$
3	$\mathbb{T}_{2+1} = \mathbb{T}_3$	first <u>syn</u> -thesis; first <u>uni</u> -« <u>physis</u> »	first <u>syn</u> -thesis; first <u>uni</u> -« <u>physis</u> »	$\mathbb{T}_{2+1} = \mathbb{T}_3$
4	$\mathbb{T}_{2+2} = \mathbb{T}_4$	second full <u>anti</u> thesis; 2nd full <u>meta</u> -« <u>physis</u> »	1st partial <u>anti</u> thesis; 1st par. <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{3+1} = \mathbb{T}_4$
5	$\mathbb{T}_{4+1} = \mathbb{T}_5$	first partial <u>syn</u> thesis; 1st partial <u>uni</u> -« <u>physis</u> »	2nd partial <u>anti</u> thesis; 2nd par. <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{3+2} = \mathbb{T}_5$
6	$\mathbb{T}_{4+2} = \mathbb{T}_6$	2nd partial <u>syn</u> thesis; 2nd partial <u>uni</u> -« <u>physis</u> »	second full <u>anti</u> thesis; 2nd full <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{3+3} = \mathbb{T}_6$
7	$\mathbb{T}_{4+3} = \mathbb{T}_7$	second full <u>syn</u> thesis; 2nd full <u>uni</u> -« <u>physis</u> »	first partial <u>syn</u> thesis; 1st partial <u>uni</u> -« <u>physis</u> »	$\mathbb{T}_{6+1} = \mathbb{T}_7$
8	$\mathbb{T}_{4+4} = \mathbb{T}_8$	third full <u>anti</u> thesis; 3rd full <u>meta</u> -« <u>physis</u> »	2nd partial <u>syn</u> thesis; 2nd partial <u>uni</u> -« <u>physis</u> »	$\mathbb{T}_{6+2} = \mathbb{T}_8$
9	$\mathbb{T}_{8+1} = \mathbb{T}_9$	3rd partial <u>syn</u> thesis; 3rd partial <u>uni</u> -« <u>physis</u> »	second full <u>syn</u> thesis; second full <u>uni</u> -« <u>physis</u> »	$\mathbb{T}_{6+3} = \mathbb{T}_9$
10	$\mathbb{T}_{8+2} = \mathbb{T}_{10}$	4th partial <u>syn</u> thesis; 4th partial <u>uni</u> -« <u>physis</u> »	3rd partial <u>anti</u> thesis; 3rd par. <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{9+1} = \mathbb{T}_{10}$
11	$\mathbb{T}_{8+3} = \mathbb{T}_{11}$	5th partial <u>syn</u> thesis; 5th partial <u>uni</u> -« <u>physis</u> »	4th partial <u>anti</u> thesis; 4th par. <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{9+2} = \mathbb{T}_{11}$
12	$\mathbb{T}_{8+4} = \mathbb{T}_{12}$	6th partial <u>syn</u> thesis; 6th partial <u>uni</u> -« <u>physis</u> »	5th partial <u>anti</u> thesis; 5th par. <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{9+3} = \mathbb{T}_{12}$
13	$\mathbb{T}_{8+5} = \mathbb{T}_{13}$	7th partial <u>syn</u> thesis; 7th partial <u>uni</u> -« <u>physis</u> »	6th partial <u>anti</u> thesis; 6th par. <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{9+4} = \mathbb{T}_{13}$
14	$\mathbb{T}_{8+6} = \mathbb{T}_{14}$	8th partial <u>syn</u> thesis; 8th partial <u>uni</u> -« <u>physis</u> »	7th partial <u>anti</u> thesis; 7th par. <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{9+5} = \mathbb{T}_{14}$
15	$\mathbb{T}_{8+7} = \mathbb{T}_{15}$	third full <u>syn</u> thesis; 3rd full <u>uni</u> -« <u>physis</u> »	8th partial <u>anti</u> thesis; 8th par. <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{9+6} = \mathbb{T}_{15}$
16	$\mathbb{T}_{8+8} = \mathbb{T}_{16}$	fourth full <u>anti</u> thesis; 4th full <u>meta</u> -« <u>physis</u> »	9th partial <u>anti</u> thesis; 9th par. <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{9+7} = \mathbb{T}_{16}$
17	$\mathbb{T}_{16+1} = \mathbb{T}_{17}$	9th partial <u>syn</u> thesis; 9th partial <u>uni</u> -« <u>physis</u> »	10th partial <u>anti</u> thesis; 10th par. <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{9+8} = \mathbb{T}_{17}$
18	$\mathbb{T}_{16+2} = \mathbb{T}_{18}$	10th partial <u>syn</u> thesis; 10th partial <u>uni</u> -« <u>physis</u> »	third full <u>anti</u> thesis; third full <u>meta</u> -« <u>physis</u> »	$\mathbb{T}_{9+9} = \mathbb{T}_{18}$

“**Thesis**” axioms-system; **standard** “**Naturals**” in **1st** order **specification**; “pure” “**quantifier**”/ “pure” “**ordinality**” arithmetic/algebra $\mathbb{E} \rightarrow \mathbb{N} \rightarrow \mathbb{Q}_1$

“**Antithesis**” axioms-system; **1st** order, **non-standard**, **dialectical** ‘**meta-natural meta-numbers**’; “pure” **ordinal** “**qualifier**” arithmetic/algebra $\mathbb{E} \rightarrow \mathbb{N}^Q \rightarrow \mathbb{Q}_2$

Our definitions for our key terms ‘**arithmetical quantifier**’ and ‘**arithmetical qualifier**’ are as follows --

Definition: “**Arithmetical Quantifiers**”

“**Arithmetical Quantifiers**”. ‘**Arithmetical Quantifiers**’ are distinct from “**Logical Quantifiers**”, for the latter are abstracted, and restricted, to three broad categories of “logical **quantity**” – None, Some, or All. ‘**Arithmetical Quantifiers**’ are “full multiplicity” **quantifiers**, i.e., can take on the full **quantitative specificity** of the “Standard” ‘Number-Space’ from which they emanate -- e.g., of the “**Natural**” Numbers, **N**, of the “**Whole**” Numbers, **W**, of the Integers, **Z**, of the “**Rational**” Numbers, **Q**, or of the “**Real**” Numbers, **R**. ‘**Arithmetical Quantifiers**’ are the “**modifier**” operator-ideograms that express, ideographically, the **specific quantity-names** which “**quantify**” -- which assert the “multiplicity” of -- the **qualitative units** being described, sometimes including fractional or irrational parts of those **qualitative units**, i.e., of the ‘**qualifier**’ **categories** that they **modify**, precisely by **quantifying** them. For example if the given **qualifier** is a “**metrical qualifier**”, say that **specific qualitative unit** “of measure” known as the “pound”, **lb**, then the expression ‘**3lb**’ exhibits “3” as its ‘**arithmetical quantifier**’, and describes a multiplicity of three of that “pound” unit. The expression ‘**πlb**’ exhibits “π” as ‘**arithmetical quantifier**’, and describes a multiplicity of three whole “pound” units, plus a further “irrational”, “incommensurable” fragment of a whole pound unit, that fragment being less than two tenths of a single pound unit. If the given **qualifier** is a physical-space “unit-vector”, say ‘**x**’, which denotes a “compound” unit, combining an x-axis / ‘frame-of-reference’ **3-D** grid ‘**directional-qualifier** unit’ w/ a ‘**metrical qualifier** unit’, say centimeters, or ‘**cm**’, then the expression ‘**3x**’ describes a three **centimeter length**, extended in the positive **x-axis direction**. In the phrase “3 apples”, we term “3” the ‘**arithmetical** [“pure”-]**quantifier**’, and “apples” the “**ontological**” -- or **kind** of thing -- “**qualifier**”. In the phrase “3 pounds of apples”, we term “pounds” the ‘**metrical**[-unit] **qualifier**’ -- or “unit of measure **qualifier**” -- **quantified** by the 3, which, together, ‘**quanto-qualify**’ the ‘**ontological qualifier**’, “apples”. ‘**Arithmetical Quantifiers**’ and ‘**Arithmetical Qualifiers**’ **mutually modify** one another. An ‘**Arithmetical Quantifier**’ “**quantifies**” its ‘**Arithmetical Qualifier**’. But that ‘**Arithmetical Qualifier**’ also “**qualifies**” that/its ‘**Arithmetical Quantifier**’. Although usual usage is to place the ‘**Arithmetical Quantifier**’ first, on the left-hand-side of an expression, and the ‘**Arithmetical Qualifier**’ second, on the right-hand side of that expression, and to emphasize the operation/action of **modification** by the “**quantifier**” upon the “**qualifier**”, **conceptually**, one could equally well write, e.g., ‘**lb** 3’, or ‘**cms** 3’, or ‘**x** 3’.

Definition: ‘**Arithmetical Qualifiers**’

‘**Arithmetical Qualifiers**’. In a “natural language” phrase such as “three apples”, we term “three” the “arithmetical [“pure”-]**quantifier**”, and “apples” the “**ontological**” -- or **kind** of thing -- “**qualifier**”. In a “natural language” phrase such as “three pounds of apples”, we term “pounds” the ‘**metrical**[-unit] **qualifier**’ -- or “unit of measure **qualifier**” -- **quantified** by the three, so that, together, the “metrical **quantifier**”, “three”, and the thus “quantified” ‘metrical **qualifier**’, pounds, jointly ‘**quanto-qualify**’, or, if you prefer, ‘**qualo-qualify**’, the ‘**ontological qualifier**’ -- the **ontological category name** -- “apples”. The ‘**ontological category**’ is, itself, a kind of “unit”, but it is also “made up out of” units -- e.g., out of the **apple units** which constitute the contents to which the collective, **qualifier-name** / **category-name** “apples” refers: [all] **individual** apples.

In the presentational unfolding of the Seldonian ‘**Dialectic of the Dialectical Arithmetics**’, the **first** system of arithmetic is that of the “Standard **Natural Numbers**”, **N**, which is an arithmetic of “pure”, **unqualified** ‘arithmetical **quantifiers**’. The **second** system of arithmetic is the **dialectical antithesis** of that **first** system, a “**Non-Standard**” Model of “**Natural Numbers**”, **N**, which is interpretable as an arithmetic of “pure”, unquantifiable ‘arithmetical **qualifiers**’ -- ‘ordinal **qualifiers**’, which are also interpretable as ideographically-expressed ‘ontological **qualifiers**’, representing ‘ontological categories’.

Many of the subsequent systems of arithmetic in that **dialectical progression of systems of dialectical arithmetic** are **dialectical synthesis systems** -- either partial or full **synthesis systems** with respect to the stage in which they arise.

The further kinds of ‘**quantifiable** arithmetical **qualifiers**’ that arise in this progression include -- (1) **quantifiable** **qualifiers** standing for the generic/representative **individual** unit “within” / constituting a given ontological category, (2) **quantifiable dynamical variable qualifiers** [state-variable **qualifiers** and control-parameter **qualifiers**], (3) **quantifiable dynamical-system qualifiers**, and (4) **superⁿ-system qualifiers**, potentially for any value of **n** in **N**, allowing explicit co-representation of **dynamical systems**, and, within those **systems**, their **dynamical sub¹-systems**, and, within any / each of those **dynamical sub¹-systems**, their **dynamical sub²-systems**, and so on . . .

The **beginning** – or «*arché*» -- **category** and **system** of ‘ideas-ontology’ in the **F.E.D. systematic-dialectical, synchronic-dialectical, presentational-dialectical progression** for the **F.E.D. axioms-systems of dialectical arithmetic**, is **the system of the arithmetic of the “Natural” Numbers, $\mathbf{N} \equiv \{1, 2, 3, \dots\}$** , as formulated by only the four Peano postulates, the ones that are expressible in “first order” **formal symbolic logic** [“first order” logic here means **a language of formal logic** that makes assertions about individual “Natural Numbers” only, but not about **qualities** shared by sub-groups of the “Natural Numbers”, e.g., those **qualities** named “Even-ness”, “Odd-ness”, “Prime-ness”, “Composite-ness”, etc.]. We denote this “first-order” axioms-system of **N** arithmetic by **N**. The **N** arithmetic is a **dialectical arithmetic** only in a ‘pre-vestigial’, **implicit, quantitative-only** sense, in that its core, Peano **S**uccessor function, **S**, is a degenerate, “purely”-**quantitative**, or “purely”-**ordinal, dialectical** or «*aufheben*» **operation** --

$$s(n) = n + 1$$

-- given an[y] **n** in **N**, by which **n** is concurrently determinately **changed** [“determinately **negated**”], in that **n + 1** is a determinate or **specific** form of ‘not n’, and is also “**conserved**” in **n + 1**, in which **n** is still visible / embedded /- “**contained**” in **n + 1**, but, also in **n + 1**, is “**elevated**” in value, i.e., in ordinality/cardinality, by exactly **1** unit.

The **algorithm** that **generates** the ‘connotograms’, or the ‘categorograms’, that symbolically connote the successive **axioms-systems** of **dialectical arithmetic** that inhere in the **axioms-systems-progression** of the Seldonian **dialectical arithmetics** is termed, by us, a ‘**meta-model**’. A mere “**model**” would represent only a **single axioms-system**, whereas this **progression** contains a **potentially** infinite [i.e., not an “**actually infinite**”] multitude of **successor axioms-systems**, each one a **supplementary “conservative extension”** of its **predecessor axioms-system**. We use the term “**evolution**” to describe the [self-]developmental **dynamics within a single system** [e.g., the process of discovering and adding new theorems to a mathematical **axioms-system**] whether it be a natural, physical **system** [‘physio-system’], a human ideas-**system** [‘ideo-system’], such as a mathematical **axioms-system**, or even a human “**psychohistorical**” **system** – i.e., an ‘ideo-physio-system’ – such as a human socio-economic system. “**Evolutions**” in **general** are **transitions between** [micro-]**historically successive states within a single dynamical system**. We use the term ‘**meta-evolution**’ to describe the [**revolutionary**] **transitions BETWEEN systems** – from **predecessor system** to **successor system** -- which characteristically involve **irruptions of new ontology**, and, in some cases, local **extinctions of old ontology**, whether ‘physio-’, or ‘ideo-’, or ‘ideo-physio-’. The following image details the definitions just sketched above --

Definitions: “**Evolution**” vs. “**Meta-Evolution**”

“**Evolution**” \equiv The diachronic, or temporal/historical, sequence of changes observed in a given “**eventity**”- «*monad*», «*arithmos*», or «*cumulum*», during an “*epoch*”/time-period in which the **ontology** of the ‘sub-universe’ in which the given “**eventity**” inheres remains **fixed**. A progressive/chronological sequence of changes that are **only quantitative** at the level of that sub-universe’s **ontological category** inventory; that do not involve the extinction of any old **ontological categories** or the irruption of any new **ontological categories**. Suppose that we envision, in our minds, a ‘space of meta-states’ -- a ‘meta-space’ -- framed by mutually-perpendicular, “continuous” axes, one measuring each “state-variable”, or “vital-sign”, and one measuring each “control-parameter”, or “conditioning variable” -- all of such that are necessary to describe the given evolving “**eventity**” in question for our purposes. Thus, each distinct “point” in this ‘state/control meta-space’ will represent a distinct possible ‘control-state’ of the “**eventity**” whose life-history is to be described/modeled. In this context, “**evolution**” means “motion” of the “point” representing the ‘control-state’ of this “**eventity**” as the time parameter value, **t**, changes, representing the “flow” of time. As **t** advances, this “point”, whose coordinates, for any **t**, are the axial **quantities** that measure its momentaneous status as of that **t**, thus traces out a combined “state-space trajectory” and “control-space path” which models the historical “course of development” -- the generic “life-history” -- of this **kind** of “**eventity**”, thus representing **quantitative changes only** in vital signs and conditions, all of which are confined to a ‘meta-space’ of **fixed** dimensionality, with no state axes or control axes changing definition, and with no “old” state or control axes disappearing, and with no new such axes appearing. “**Evolution**” herein, much as in **dynamical systems theory**, means **purely-quantitative change**. The ‘meta-space’ framework described above may be considered as the kind of ‘**dynamical analytical geometry**’ that corresponds to ‘**dynamical-algebraic**’ model equations, e.g., in the form of (a) [systems of] [typically **nonlinear**] **differential equation(s)**, just as high-school “Cartesian Geometry” serves as the ‘**statical analytical geometry**’ corresponding to (a) [systems of] ‘**statical-algebraic**’ equation(s). “**Evolution**” means “time-driven” **change of position** of the “representative point” of the “**eventity**” modeled within the state/control ‘meta-space’ that measures its status, where that space is taken to be a **fixed and statical manifold**.

“**Meta-Evolution**” \equiv **Ontological revolution. Qualitative, ontological change**. Describable via ‘metrically &/or ontologically **re-qualified**’ **differential equation models** -- ‘**meta-dynamical meta-models**’ -- that model ‘**change of space**’, change in **dimensionality**-, &/or change in **axial, variables-content**, of a thereby-modeled “**eventity**’s” ‘meta-space’, whereby, in correspondence with critical moments of ‘**metafinite singularity**’ of several kinds in the “**eventity**’s” **differential equation “evolution-model”**, new ‘state-axes’ &/or new ‘control-axes’, in effect, irrupt inside the “**eventity**’s” ‘meta-space’, &/or old ‘state-axes’ &/or old ‘control-axes’, in effect, disappear, at & after the critical moments of such ‘**metafinite singularity**’, representing **irruption of new / extinction of old, ontology**.

It should also be noted that these ‘**psychohistorical-dialectical** [meta-]equations’, when formulated within the descriptive limitations of the “purely” **qualitative change**-expressing -- “purely” **ontological change**-expressing -- **dialectical-mathematical language** of the **N_Q** ‘**First Dialectical Arithmetic**’, elide all description of the “**quantitative change**” that leads up to “**qualitative change**”, i.e., leave out all accounting of the **evolutionary change** that leads up to **ontological** -- **revolutionary** -- **change**, and thus describe, not “**dynamical evolution**”, but only **epochal**, ‘**meta-dynamical meta-evolution**’; not “**dynamics**”, but only **epoch-changing**, **new epoch-forming** ‘**meta-dynamics**’: not behavior in accord with pre-existing so-called “**laws**”, but only ‘**change of laws**’ -- the **irruption of new kinds of behavior**, hence of **new** “**dynamical laws**”, **new** “**laws of motion**” [in the most **universal** sense of the word “**motion**”], as induced and called-for by **the irruption of new ontology**.

In short, these ‘**psychohistorical-dialectical** [meta-]equations’ describe new ‘**metafinite singularities**’ with every change of epoch, with every **successor-function** advance, **S(τ)**, from **τ** to **τ + 1** -- ‘**metafinite resonance singularities**’ [or ‘**self-conversion singularities**’] in cases of new ‘self-hybrid’ terms of the form **xx**, and ‘**metafinite** [locally-]complete **depletion singularities**’ [or ‘**by-other-ontology-locally-complete-conversion**’ singularities] in cases of new terms of the form **yx** --

Definitions: “**Dynamics**” vs. “**Meta-Dynamics**”

“**Dynamics**” ≡ The **science** of the patterns/“**laws**”/“habits” [cf. Peirce] of the **quantitative change**, or **evolutionary change**, of **dynamical systems**, i.e., of ‘**change of position**’ within a **dynamical-system**-modeling ‘state/control meta-space’ -- a space confined to a **constant**, **fixed**, **unchanging**, **statical** dimensionality and state/control variable(s) content -- reflecting an apparently **constant**, **fixed**, **unchanging**, or **statical system-ontology**.

“**Meta-Dynamics**” ≡ The **higher science** of the patterns / “**meta-laws**” of **qualitative change**, of ‘**meta-evolutionary change**’, or of **revolutionary change** -- i.e., of **ontology-change**; of **ontological revolution**. This means ‘**meta-models**’ that involve a ‘**change of space**’, in the mathematical-description context of ‘state/control meta-space’ -- a kind of **change** associated with the **finitary** ‘**semantification**’, by ‘**metrical and/or** by **ontological re-qualification**’, of the **model equations**’ “**singularities**”, resolving the apparently “**actually-infinite**”, **division-by-zero singularities** of those “**purely**” **quantitative**’ **dynamical** differential **equations**, by transforming those **singularities** thereby into ‘**qualo-quantitative**’, ‘**metafinite singularities**’, resolving to the **finite** value of ‘full zero’, ●.

Definitions [commenced]:

'metafinite resonance singularity' vs. 'metafinite depletion singularity'

'**metafinite resonance singularity**' \equiv The kind of '**ontodynamical singularity**' that arises, in the course of the "purely" **quantitative expanded reproduction** of a local "**population**", or local «**arithmos**», of «**monads**», i.e., of '**ontological units**', or '**units of ontology**', represented by that local «**arithmos**» local instantiation of a given '**ontological category**', when the local environment of that local "**population**", matches, mirrors, or "reflects" that **population** itself*, so that this condition of the '**self-environment**', '**self-surroundment**', or '**self-envelopment**' of those **units** crosses a **critical density threshold**, a **physical-spatial concentration threshold**, after which interactions of "like kind with like kind", or of 'kind with itself', begin to predominate, locally, over interactions of 'likes with **unlikes**' / 'kind with **predecessor kind**', which predominated **previously**, at a lower stage of the **quantitative self-reproduction / accumulation** of «**monads**» of the **kind** in question, in a state of '**earlier-other environment**', '**earlier-other surroundment**', or '**earlier-other envelopment**' of those «**monads**» in the subject locus. The predominance of such local '**kind self-interaction**' gives rise to locally **unprecedented**, **new kinds** of phenomena, **new kinds** of behavior, **new** dynamics, **new** "laws[-of-motion]" – to yet (a) **new kind(s)** of «**monads**» – to yet **new ontology**. The **new** «**monads**» often arise via an «**aufheben**» process of the '**self-meta-«monad»-ization**' of the **old** «**monads**», i.e., by their '**self-hybridization self-conversion**'. The original connotations of the term "resonance" involve situations in which an **external driving frequency**, $f_e(t)$, operating upon an oscillator, evolves, as of a certain **finite** value of the time "independent" variable, $t = t_*$, to **equal** an **also evolving** **internal**, **immanent**, "**natural**" frequency of that oscillator, $f_i(t)$, involving a factor of the form $1/(f_i(t) - f_e(t))$, resulting, at $t = t_*$, in a value, for that factor, of $1/(f_i(t_*) - f_e(t_*)) = 1/(f_i(t_*) - f_i(t_*)) = 1/0$, and in a suddenly escalating, critically crescendoing, supposedly "**infinite**", but actually always **finite**, surge in the amplitude of the oscillation, a '**metafinite**' change given the local **new**, also **finite** [in terms of the empirically-valid values of its **quantifiers** or **quantitative** descriptors] **ontology irruption**, and/or a local **old ontology** '**de-manifestation**', that manifest(s) at and after $t = t_*$. "**Infinite**" **quantitative change** may be the only proxy for **qualitative, ontological, 'metafinite' change** that a "purely" **quantitative** language of mathematics can express. Denominator-resident differences of dynamical functions, which admit of a moment at which the values of those two, "differenced" dynamical functions equalize, are also typical for this more **general** concept of '**metafinite resonance singularity**', and, in '**re-qualified**' versions of such dynamical equations, yield the state \bullet , signifying interrupting **new** &/or vanishing **old ontology**. **Example**: '**self-conversion**' of the **atoms** of the original interstellar '**atomic clouds**' into the first "**molecular clouds**", right at / after the crossing of a critical threshold of **free atoms**' stellar **self-reproduction / population growth / density growth / physical-spatial concentration growth / cooling**. [* Thus precipitating a '**subject/verb/object identical**' state of '**ontological criticality**', generically described, in **first dialectical ideography**, by $x \rightarrow \Delta x = x + \Delta x$].

Definitions:

'metafinite resonance singularity' vs. 'metafinite depletion singularity'

[concluded]

'**metafinite depletion singularity**' \equiv The kind of '**ontodynamical singularity**' that arises, in the course of the "purely" **quantitative expanded reproduction** of a local "**population**", or local «**arithmos**», of «**monads**», i.e., of the '**ontological units**', or '**units of ontology**', represented by that local «**arithmos**» / local instantiation of a given '**ontological category**', where that local "**population**" is in '**earlier-other environment**', '**earlier-other surroundment**', or '**earlier-other envelopment**' in the subject locus, and in which the «**monads**» in question are in the process of "catalyzing" and "conducting" the **conversion** of their **predecessor «monads» 'onto-mass'** into **their own 'onto-mass'** – into **themselves** – at the moment in time when that **ontological conversion** becomes locally "complete", i.e., in which the locally-accessible "**population**", or «**arithmos**», of their **predecessor «monads»** has become "completely converted", i.e., '**completely DEPLETED**'. Such '**moment of complete depletion**' singularities are associated, in the '**quantifiers**' of dynamical models describing this 'allo-conversion/-depletion' dynamic – often formulated as '**quantifier-only**' dynamical equations – with factors of the form $1/(M_0 - r(t))$, wherein $M_0 = M(0)$ represents the **quantifier** of a **store** of '**onto-mass**', existing intact at $t = 0$, that is cumulatively drawn down by the '**ontology conversion**' process, as **quantified** by $r(t)$. Such factors result, at some **finite** value, $t = t_*$, in a value, for that factor, of $1/(M_0 - r(t_*)) = 1/(M_0 - M_0) = 1/0$, resulting in an "**infinite singularity**", an "**infinite**" state-value, for "purely" **quantitative** such equations, and associated with a relatively sudden, "explosive", but always actually [**meta**]**finite** irruption of **new ontology**, perhaps accompanied by a local 'de-manifestation' of some or all elements of the pre-existing, **old ontology**, in the actual phenomenologies that are being modeled by such equations. In '**re-qualified**' versions of such dynamical equations, the "**singularity**" state is represented by the value \bullet , signifying the local irruption of **new**, and/or the local vanishing of **old, ontology**. **Example**: The moment of **complete depletion** / 'hetero-conversion' of the «**arithmos**» of **ionic Hydrogen atom «monads**», or of **proton** ["sub-atomic particle"] «**monads**», local to the stellar plasma cores of the **original generation** of stars, by nuclear fusion as "**stellar nucleosynthesis**", leaving essentially only an «**arithmos**» of **Helium ion «monads**» in those stellar cores, resulting in a sudden resumption of the "self-gravitational" 'self-implosion' of such a star, until the resulting self-compression and 'self-densification' of the star achieves a stellar core **Helium density** sufficient to induce a 'counter-self-explosion' self-expansion of the star due to an explosion-into-local-existence of stellar core fusion of **Helium nuclei**. This is the process associated with, e.g., the q_{asn} term of the N_Q language-formulated version of the Seldonian '**dialectic of Nature**' '**meta-equation meta-model**' – the term connoting **not** the "**original accumulation**" of "**atomic species**" – i.e., "**cosmological nucleosynthesis**" [associated with the term $q_{ss} = q_a = a$] – but connoting the '**reproductive accumulation**' of "**atomic species**", i.e., "**stellar nucleosynthesis**".

The ‘**Dyadic Seldon Function Meta-Equation Meta-Model**’ for the **F.E.D.** standard **Method of Presentation** [‘**Meta-Systematic Dialectic**’] of this **dialectical progression** of **dialectical-mathematical axioms-system_s**, is --

$$\underline{\underline{\#}}\underline{\underline{H}}(\underline{\underline{s}}_{\#}) = (\underline{\underline{N}}_{\#})^{2^{\underline{\underline{s}}_{\#}}}$$

-- wherein ‘**#**’ denotes the **domain** of the **axiomatic mathematics of dialectics**, or, more generally, of the cognitive rules[-system] for **dialectics**, and wherein **s_#** denotes a **Whole Number** variable, from within the space defined as **W** \equiv {**0**, **1**, **2**, **3**, ... }, representing/counting the cumulative “‘depth’” in terms number of **s**steps *into* this **dialectical presentation** of the **dialectical progression** of the Seldonian **system_s** of the **mathematics of dialectics**.

Four **s**steps in, i.e., for **s**step **s_# = 3**, we have chosen to solve this ‘**meta-model**’ as follows:

$$\underline{\underline{\#}}\underline{\underline{H}}(\underline{\underline{s}}_3) = (\underline{\underline{N}}_{\#})^{2^3} = (\underline{\underline{N}}_{\#})^8 = \text{a non-amalgamative sum of } \mathbf{8} \text{ ‘idea-ontological’ -- or ‘ideo-ontological’ -- categories, each connoting a qualitatively different, ‘ideo-ontologically’ different dialectical-mathematical axioms-system --}$$

$$\underline{\underline{N}}_{\#}^8 = \underline{\underline{N}}_{\#} \oplus \underline{\underline{Q}}_{\#} \oplus \underline{\underline{U}}_{\#} \oplus \underline{\underline{M}}_{\#} \oplus \underline{\underline{N}}_{\#}^{\text{MN}} \oplus \underline{\underline{N}}_{\#}^{\text{MQ}} \oplus \underline{\underline{N}}_{\#}^{\text{MQN}} \oplus \underline{\underline{A}}_{\#} \mapsto$$

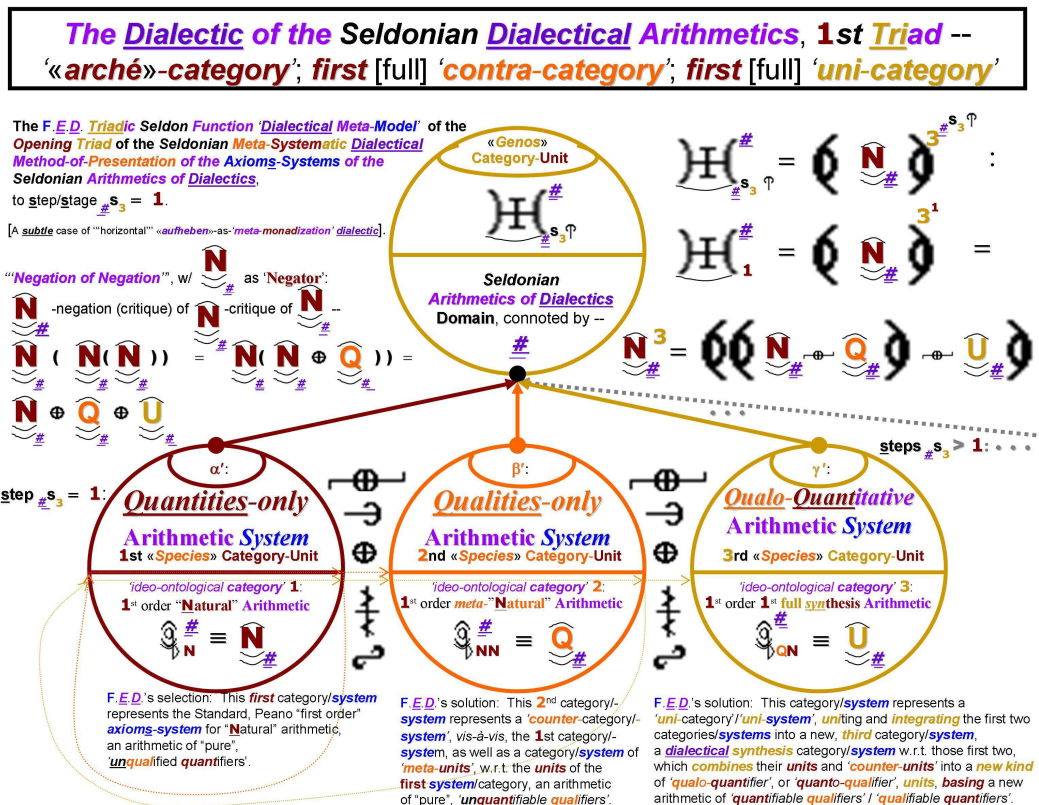
$$\boxed{1} \oplus \boxed{2} \oplus \boxed{3} \oplus \boxed{4} \oplus \boxed{5} \oplus \boxed{6} \oplus \boxed{7} \oplus \boxed{8}$$

What is “‘**dialectical**’” about all of the latter seven “‘**explicitly dialectical**’” categories / **axioms-systems** of arithmetic / algebra symbolized -- and, via those symbols, ‘superposed **qualitatively**’ -- in the **s**step **s_# = 3** **equation** above, is that they are all capable of **explicitly** describing the «**aufheben**»-operation-induced **qualitative change**, i.e., the **ontological self-change**, the **net self-expansion of ontology**, that **irrupts** when the **quantitative change** -- that is, when the **quantitative** ‘self-growth’; the “‘expanded [self-]reproduction’” of a given **ontology**, e.g., *its* expansion of the **local** populations, i.e., of *its* **local** «**arithmoi**», of *its* **units**, or «**monads**», or “‘**individuals**’” -- crosses to beyond a **critical quantitative density threshold**, e.g., to beyond a **local, critical physical-spatial concentration threshold**, thence leading, as a result of that crossing, to the **dialectical**, or «**aufheben**», ‘**meta-genealogical**’, typically ‘**meta-monadological**’ **irruption** of one or more **new kinds** of being; of **new kinds** of «**monads**»; of **new, previously unprecedented ontology** [unprecedented at least **locally**], & with all of this **new** being being born from out of the most concentrated heart of the **older ontology**.

These first eight axioms-systems of dialectical arithmetic can be summarily connoted as follows, using the '[meta-]systematic dialectical method of presentation' assignment symbol, '↔' —

- N** ↔ *Thesis axioms-system* -- the standard "natural" numbers arithmetic in 1st order specification, as a "pure" quantifier, or a "purely" ordinal, arithmetic/algebra.
- N^Q** ↔ 1st "Anti-thesis" 1st order system; non-standard model of **N** -- 1st explicitly dialectical 'meta-numbers'; "pure" ordinal qualifier arithmetic/algebra'.
- N^U** ↔ 1st [full] "Synthesis" system of 1st order -- 2nd explicitly dialectical 'meta-numbers' system, 'quantifiable' «monad»-qualifiers arithmetic/algebra.
- N^M** ↔ 2nd "Anti-thesis" system of 1st order -- 3rd explicitly dialectical 'metrical qualifier meta-numbers' system; "purely" qualitative arithmetic/algebra.
- N_{MN}** ↔ Partial "synthesis" system of 1st order -- 4th explicitly dialectical 'meta-numbers' system; 'quantifiable' metrical qualifiers arithmetic/algebra.
- N_{MQ}** ↔ Partial "synthesis" system of 1st order -- 5th explicitly dialectical 'meta-numbers' system; 'compoundable' but unquantifiable metrical qualifiers.
- N_{MQN}** ↔ 2nd full "Synthesis" system of 1st order -- 6th explicitly dialectical 'meta-numbers' system; fully-algorithmic "dimensional analysis"; quantifiable metrical & ontological qualifiers arithmetic/algebra.
- N^A** ↔ 3rd "Anti-thesis" system of 1st order -- 7th explicitly dialectical system; 'dynamical system-qualifiers'; "purely" qualitative arithmetic/algebra [implicitly, but not yet explicitly, an ideography for dynamical [& for "meta-dynamical"], [super^{^0}][meta-]systems].

The first triad of this systems-progression Method of Presentation [= 'Meta-Systematic Dialectic'] for this dialectical progression of dialectical-mathematical axioms-systems/categories, can be depicted as follows --

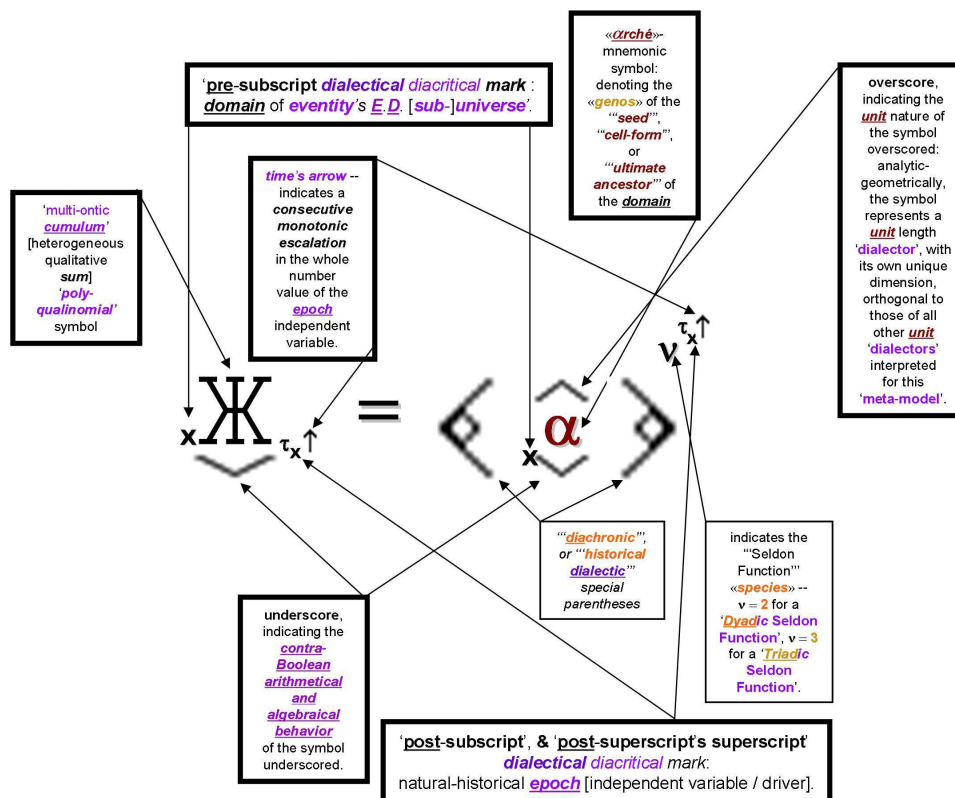


The [*super-*]system of seven '*dialectical* [*meta-*]equations', which constitute 'the **F.E.D. Psychohistorical-Dialectical** [*Meta-*]Equations' [*super-*]system, are named, individually, as follows --

1. The Meta-Equation of **Human-Social Ideology\Knowledge** Meta-Evolution.
2. The Meta-Equation of **Human-Social Forces of Production** Meta-Evolution.
3. The Meta-Equation of **Human-Social Relations of Production** Meta-Evolution.
4. The Meta-Equation of **Human-Social Formation(s)** Meta-Evolution(s).
5. The Equation of the **Human Genome\Human 'Phenome' Systematic-Dialectic**.
6. The Equation of the Meta-Evolution of **Planetary Human**[oid]ities.
7. The Meta-Equation of **The Psychohistorical Dialectic of the Dialectic Itself**.

In terms of *Encyclopedia Dialectica* abbreviated-standard notation, the six '[*psycho*]historical-dialectical [*meta-*]equations' among these seven [*meta-*]equations share the following common form[at] --

Form[at]: **Seldon Function** '[*Psycho*]**HISTORICAL-Dialectical** **Meta-Equation Meta-Models**' in **General** [Abbreviated Syntax]



Of course, all of these seven ‘*dialectical* [meta-]equations’ cohere in the context of the F.E.D. “‘*Dialectical Theory of Everything Meta-Equation*’”, or ‘*Dialectic of Nature meta-equation*’, for the *total cosmos*, for the *totality* of *Nature*-[al] *History*, as presently *known* to *Terran* *humanity* [and ∴ not yet encompassing the presently mostly still *unknown* *categories* of “Dark” “‘Matter/Energy’”].

They all describe, *categorially*, a ‘*sub-universe*’ of that, our *total*, *universe*. They describe aspects of what *has* gone on, of what *is* going on, and of what -- ‘predictedly’ -- *will* go on, “‘inside’” what is represented by the *presently*, to our knowledge, most-advanced term [at least *locally*] of that “‘*Everything meta-equation*’”, i.e., in the term representing the *ontological category* of ‘*planetary human*[oid] *societies*’, such as our own.

The overarching, singular “‘*Dialectic of Nature*’” ‘*meta-equation*’ is *not* defined, in our terminology, as a ‘*PSYCHO**historical-dialectical meta-equation*’ in the same, strict, *direct*, immediate sense, that all of the ‘*meta-equations*’ named above are termed, by us, ‘*PSYCHEO*-[*historical*-]*dialectical meta-equations*’.

That is because this overarching, singular “‘*Dialectic of Nature*’” ‘*meta-equation*’ does *not directly* address [*human*[oid]-]*Phenomic*, “‘*meme*-etic’”, ‘*PSYCH*ic’ matters -- *collective-PSYCHO*logical, ‘socio-*psycheic*’ ‘intersubjectively-objective’, ‘*PSYCHO**historical* material’, *until* its $\tau_V = 8$ th epoch, until *cosmological epoch 8*, and beyond, and thus until its 256th category-term, ${}^1_h^V$ [which connotes the ‘*cosmo-ontological category*’ of [*planetary*] *human*[oid] *societies*], and beyond [or, arguably, *incipiently*, until its $\tau_V = 7$ th epoch, until *cosmological epoch 7*, and thus until its ‘*proto-psycheic*’ 128th category-term, ${}^1_l^V$, which connotes the ‘*cosmo-ontological category*’ of *proto-l*anguage-based animal societies, and of “‘*p*lant societies’” [biochemical signal*ing* *proto-l*anguage in the case of “‘social *l*plants’”], and beyond].

However -- but *indirectly* -- this “‘*Dialectic of Nature*’” *as Historical Totality* ‘*meta-equation*’ is also at least a ‘*HALF-psychohistorical*’ ‘*meta-equation*’.

It is so because the analogies, the metaphors, the terms-of-reference, the names, the *categories*, the *concepts* in which any *human* theory, including in which any *human* “*Theory of Everything*”, are framed, grasped, and transmitted, even if that *human*-mind(s)-made theory addresses only *exo-human Nature* alone, can only belong to the *human* language, to the *human* «*mentalité*» [inescapably also including to the *human ideology*], to the *human* “‘*memes*-pool’”, to the *human*, collective mind, and hence, to the terms of the collective *human*, cognitive and affective ‘*psyche-ology*’ -- in short, to the terms of the total ‘*human Phenome*’ -- that is extant, and that is ambient, in the time, and in the place, in which that theory arises by way of *human* knowledge-production action / “universal labor” [cf. Marx].

For this “‘*Dialectic of Nature*’” as a whole -- as *THE whole* -- as the *Totality* of our «*Kosmos*» to the degree that we presently know it, and for its “highest”, most *general ontological categories* [i.e., for the E.D.

‘*Everything* [known] *domain*’, denoted by $\mathbf{x} = \mathbf{V}$], with ‘ τ_V ’ denoting a “*Natural*” number, i.e., a ‘pure-quantifier’ number from the set --

{1, 2, 3, ...}

-- and with τ_V also counting, and *labeling* [numerically, cardinally “‘*naming*’”], the *epochs* of *cosmological-ontological revolution*, we then have --

$$\begin{array}{c} \diagup \text{---} \text{---} \diagdown \\ | \\ \diagdown \text{---} \text{---} \diagup \end{array} \tau_v \uparrow = \langle \text{---} \text{---} \text{---} \rangle^{\tau_v \uparrow}.$$

In the ‘*meta-equation*’ above, ‘ $\text{---} \text{---} \text{---}$ ’ connotes the ‘physi[c]o-ontological category’ of the “‘pre-/sub-**n**uclear’” “particles”, that is, of the “‘**non**-composite bosons’” [e.g., excluding the mesons], and of the “‘**non**-composite fermions’” [e.g., the “elementary” quarks and leptons, i.e., excluding, e.g., the proton, the neutron, and the hyperon *composite* “particles”], and such that $\mathbf{v} = \mathbf{2}$ or $\mathbf{3}$, and such that ‘ $\tau_v \uparrow$ ’, with its ‘ \uparrow ’, “time’s arrow” “‘suffix’” ideogram, indicates that the “independent” variable, τ_v , is a *monotonically increasing*, ‘directed variable’, and takes on, *successively*, the value **1**, then the value **2**, then the value **3**, then **4**, then, ..., *consecutively*. The *lack of* underscoring under the ‘ τ ’ component of the symbol ‘ τ_v ’, and under the symbol ‘ \mathbf{v} ’, signifies that those two variables are “purely”-*quant*itative, “pure”-*quant*ifier variables, whereas the symbol ‘ $\text{---} \text{---} \text{---}$ ’, also not underscored, is understood to represent a kind of “pure”-‘*qual*ifier’ ideogram -- a kind of ‘*dialectical diacritical mark*’ -- representing the *domain* that the ‘*meta-equation*’ covers/addresses/theorizes/-explains/orders/comprehends, in this case, the ‘*Everything* [known] *domain*’.

For $\tau_v = \mathbf{8}$, i.e., for *cosmological epoch 8*, per its “‘*equation-model*’”, the RHS [Right-Hand Side] of this *equation*, when the indicated **8**-fold “‘self-involution’” [“‘self-multiplication’”] of $\text{---} \text{---} \text{---}$ is carried out, generates a ‘*cumulum*’ of $\mathbf{2}^8 = \mathbf{256}$ *qual*itatively heterogeneous, “**non**-amalgamative” [“‘**un**addable’” -- cf. Plato, «*asumbletoi*»; cf. Musès] category-symbols for the $\mathbf{v} = \mathbf{2}$ version of this “‘*equation-model*’” --

$$\begin{array}{c} \diagup \text{---} \text{---} \diagdown \\ | \\ \diagdown \text{---} \text{---} \diagup \end{array} \mathbf{8} = \langle \text{---} \text{---} \text{---} \rangle^{\mathbf{8}} = \text{---} \text{---} \text{---}^{\mathbf{256}} = \text{---} \text{---} \text{---} \diamond \dots \diamond \text{---} \text{---} \text{---}^{\mathbf{h}}$$

-- wherein the **256**th category-symbol, $\text{---} \text{---} \text{---}^{\mathbf{h}}$, connotes the ‘*cosmo-ontological category*’ of [*planetary*] *human*[oid] *societies*.

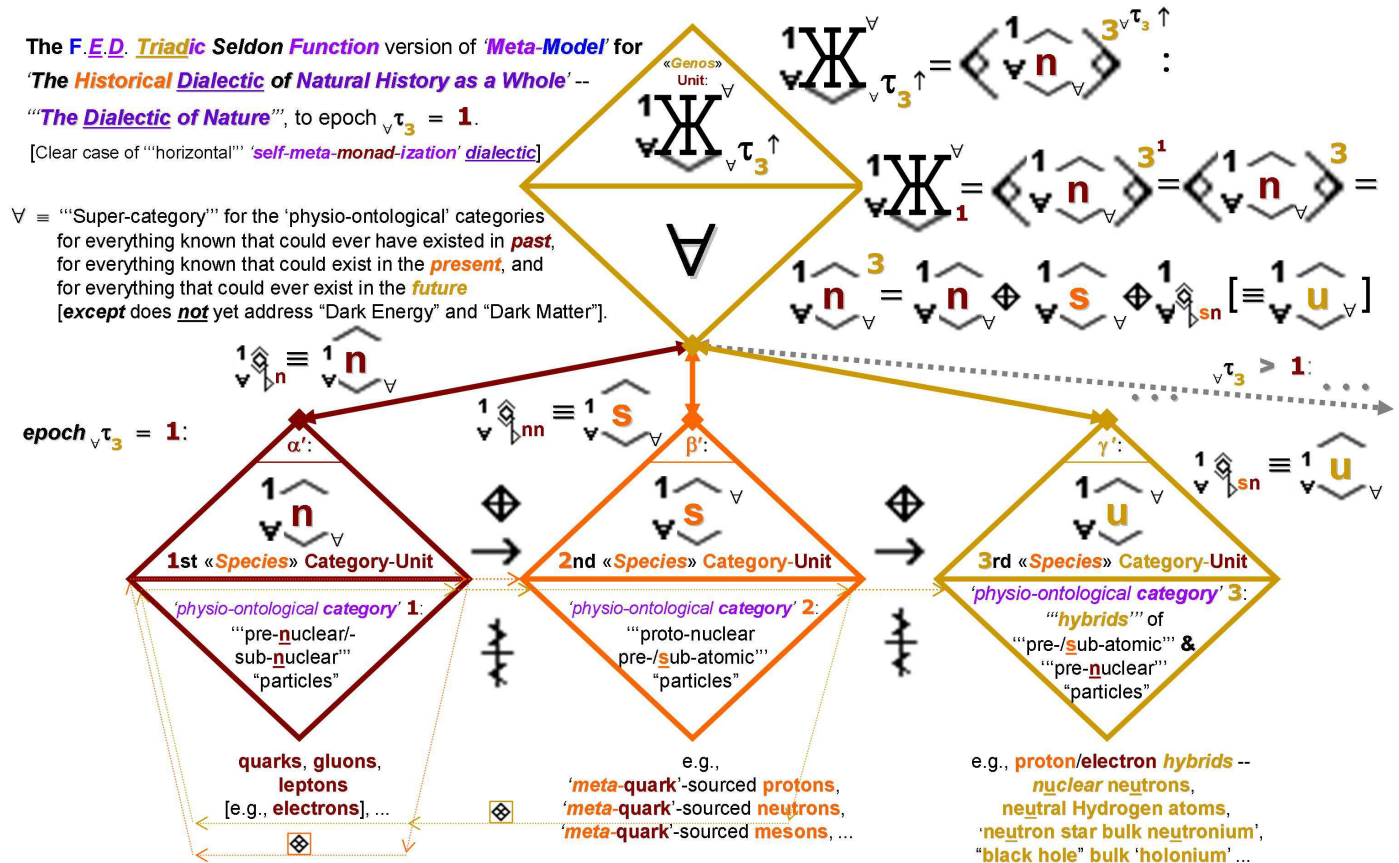
This ‘*meta-model*’ still falls far short of being ‘*a dialectical meta-model of everything now known to us*’, in particular, because it does not yet explicitly address so-called “*Dark Energy*” and “*Dark Matter*”, which are, it must be said, at present, just barely entering into the ‘*now known*’ for Terran *human*[oid]*s*.

Nonetheless, **Foundation** researchers are well underway in the work of bringing these new “‘matters’” -- and these new “‘energies’” -- into the very heart of this ‘*meta-model*’, via the discovery and designation of a new, deeper, “*Dark Energy*” «*arché-physis*», and of a new, deeper, “*Dark Matter*” ‘*first contra-/meta-«physis»*’ --

<http://feddialectics-miguel.blogspot.com/2014/05/part-2-of-2-hypernumbers-and-dark.html>

To afford you a feeling for this ‘ \forall super-domain’ ‘dialectical Totality meta-model’, the image below expands upon our “‘Dialectic of Nature’”-as-a-whole meta-model, or ‘Dialectical Theory of Everything [known]’ meta-model’, for just the first triad of its $\forall = 3$ version, for just its $\forall \tau_3 = 1$ ‘dialectical equation’ --

1st Triad, Historical Dialectic of Natural History – The Dialectic of Nature;
 ‘«arché»-category’; first [full] ‘meta-category’; first [full] ‘uni-category’



The version of the “‘Dialectical Theory of Everything Meta-Equation’”, i.e., of the ‘Dialectic of the Cosmos as Totality meta-equation’, which is specified, and illustrated, in the next two images, below, is an abbreviated, “lumped «arché»” version of the Encyclopedia Dialectica ‘Dialectic of Nature meta-model’ for the ontological-categorial content of the totality of the adequately known universe just described above.

The version described below “lumps together” the ontological categories of the ‘pre-/sub-nuclear’ “particles” versus of the ‘nuclear pre-/sub-atomic’ “particles”, or of the “‘non-composite bosons and fermions”” versus of the “‘composite bosons and fermions””, into a single starting category, or «arché-physis» cosmo-ontological category, namely, into that of the ‘pre-atomic’ “particles” [bosons & fermions, non-composite & composite alike].

The ‘meta-equation meta-model’ for this “‘abbreviated’” version of our ‘Everything Meta-Equation’ is --

$$\begin{array}{c} \diagup \text{---} \text{---} \diagdown \\ | \\ \text{---} \end{array} \uparrow = \langle \text{---} \text{---} \rangle^{\tau_2 \uparrow}$$

For $\tau_v = 7$, i.e., for *cosmological epoch 7*, per its “‘*equation-model*’”, the RHS [Right-Hand Side] of its *equation*, when the 7-fold “‘self-involution’” [“‘self-multiplication’”] of --- is carried out, *generates* a ‘*cumulum*’ of $2^7 = 128$ category-symbols for this $v = 2, \tau_v = 7$ version of this “‘*equation-model*’” --

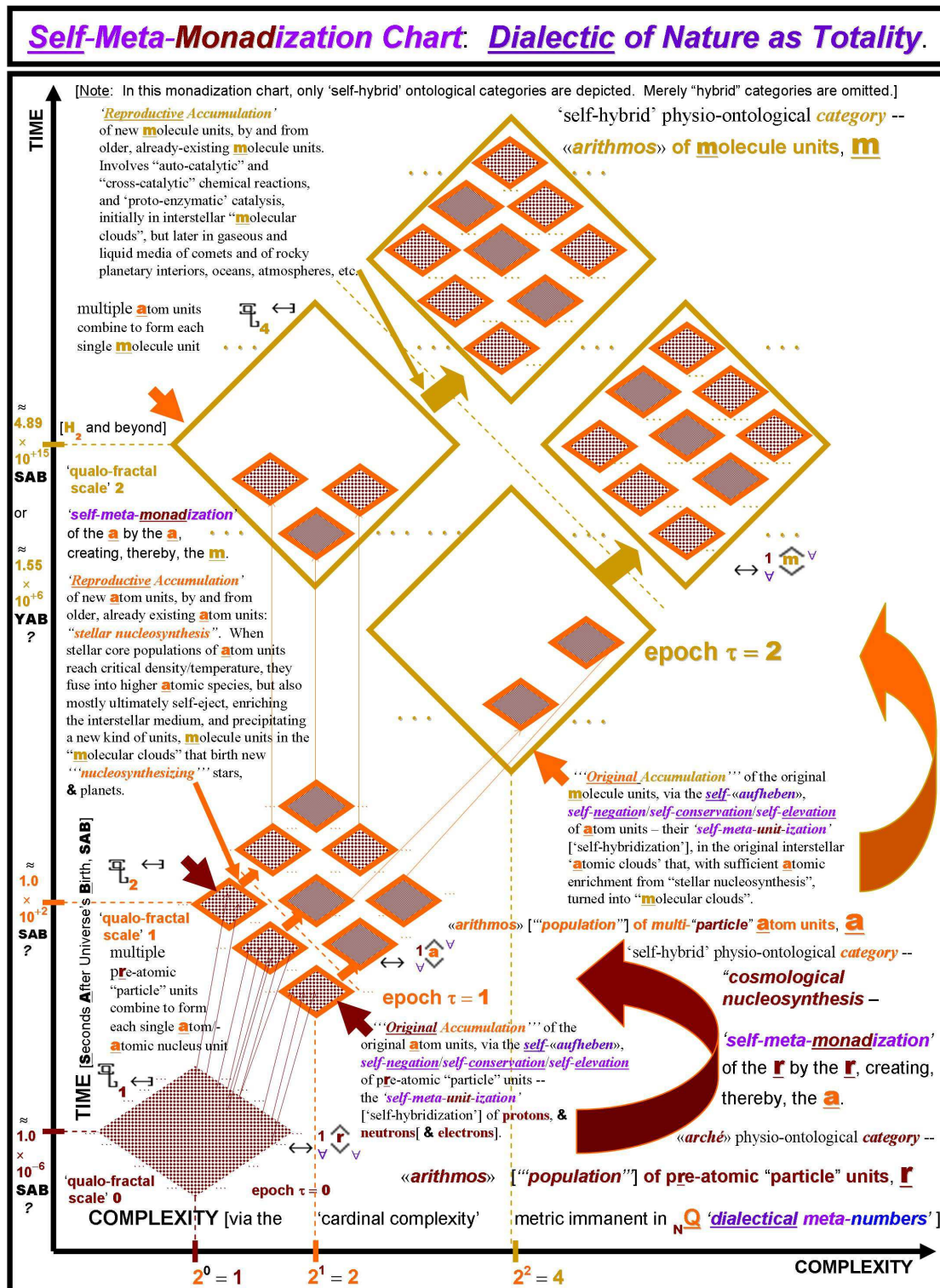
$$\begin{array}{c} \diagup \text{---} \text{---} \diagdown \\ | \\ \text{---} \end{array} \uparrow_8 = \langle \text{---} \text{---} \rangle^{2^7} = \text{---}^{128} = \text{---} \oplus \dots \oplus \text{---}$$

Therein, in this case, the 128th category-symbol, --- , connotes the ‘*cosmo-ontological category*’ of [planetary] *human*[oid] *societies*.

The following image provides a “‘*models specification*’” for the various “‘*single-epoch mere models*’” contained in that ‘*lumped «arché»*’, *abbreviated* version of this ‘*Everything* [known to us] *meta-model*’ --

<i>Dialectical Models Specification: ‘Meta-Equation of the Dialectic of Nature as Totality’</i>	
Level, n, in <i>Encyclopedia Dialectica Universal Taxonomy</i>	Level n = 1, “‘ <i>universal level</i> ’”.
universe[-of-discourse], u, in <i>Encyclopedia Dialectica Universal Taxonomy</i>	universe u = \forall , the <i>totality</i> universe[-of-discourse].
Domain, D, within u, per the <i>Encyclopedia Dialectica Universal Taxonomy</i>	D = \forall , the <i>totality</i> Domain.
species of <i>dialectic</i> modeled	[psycho]Historical <i>Dialectic</i> .
independent variable	[psycho]Historical cardinal/ordinal <i>epoch</i> of total [known] cosmos, $\tau_2 \in \mathbf{N}$.
dialectical language applied	‘meta-number space’ of the Seldonian ‘ <i>First Dialectical Arithmetic</i> ’, $\mathbf{N.Q.}$
‘meta-model’ functional form	$v = 2$, <i>Dyadic Seldon Function</i> .
«arché» category selected	pre-atomic ‘particles’ [composite & non-composite bosons & fermions], --- .
‘Meta-Model Meta-Equation’	<div> $\begin{array}{c} \diagup \text{---} \text{---} \diagdown \\ \\ \text{---} \end{array} \uparrow_2 = \langle \text{---} \text{---} \rangle^{2^2}$ </div> <div> $\text{---} = \text{‘categorograms’ sum, non-amalgamative; multi-ontology cumulum.}$ $\text{---} = \text{‘contra-Boolean’ term in algebraic behavior.}$ $\text{---} = \text{categorical single unit term.}$ $\text{---} = \text{special parentheses for ‘histories-models’}.$ </div>
‘self-hybrid categories’ solutions	$\text{---} = \text{atoms} = \text{---}; \text{---} = \text{multi-a molecules} = \text{---}; \text{---} = \text{multi-m prokaryotes} = \text{---};$ $\text{---} = \text{multi-p eukaryotes} = \text{---}; \text{---} = \text{multi-e meta-biota} = \text{---}; \dots$
‘hybrid categories’ solutions – some examples	$\text{---} = \text{prokaryotic cells “‘eating”/converting molecules into their own cellular bodies;}$ $\text{---} = \text{eukaryotic cells eating, e.g., bacteria, converting prokaryotic cellular bodies into their own eukaryotic cellular bodies.}$
‘Dialectical Equation-Model’ specific categorial progression / cumulum for epoch $\tau_2 = 5$, for domain / universe \forall , E.D. Universal Taxonomy Level 1.	$\begin{array}{c} \diagup \text{---} \text{---} \diagdown \\ \\ \text{---} \end{array} \uparrow_5 = \langle \text{---} \text{---} \rangle^{2^5} = \text{---}^{32}$
‘generic’ categorial progression / cumulum for stage h = 5, common to all Dyadic Seldon Function dialectical model categorial progressions/cumula.	$\text{---} = \text{---}^{2^5} = \text{---}^{32}$

The next image depicts this abbreviated, ‘lumped *«arché»* *meta-model*’s **1**st **2** stages of dialectical, *«aufheben»* ‘*self-meta-monad-ization*’ --



The **N_Q** and “‘*Seldon Function*’” formulation of the Seldonian [*super-*]*system* of ‘[*psychohistorical-*]*dialectical* [*meta-*]*equations*’ are rendered individually, and briefly described, in the sections below.

I. The Meta-Equation of *Human-Social* Ideology \ Knowledge Meta-Evolution.

a. «*Arché*»: Mythologies, M $\rightarrow \tau_1$.

b. '*Dyadic Seldon Function*' '*Meta-Equation*' Formula:
$$\tau_{I \setminus K} \begin{array}{c} \diagup \quad \diagdown \\ | \quad | \\ \diagdown \quad \diagup \end{array} \tau_{I \setminus K} = \langle \underline{M} \rangle^{2^{\tau_{I \setminus K}}}$$

c. Solution to epoch $\tau_{I \setminus K} = 4$:

$$\tau_{I \setminus K} \begin{array}{c} \diagup \quad \diagdown \\ | \quad | \\ \diagdown \quad \diagup \end{array} \tau_{I \setminus K} = \langle \underline{M} \rangle^{2^4} = \langle \underline{M} \rangle^{16} =$$

M \diamond R \diamond τ_{RM} \diamond P \diamond τ_{PM} \diamond τ_{PR} \diamond τ_{PRM} \diamond K \diamond

τ_{KM} \diamond τ_{KR} \diamond τ_{KRM} \diamond τ_{KP} \diamond τ_{KPM} \diamond τ_{KPR} \diamond τ_{KPRM} \diamond Ψ \rightarrow

$\tau_1 \boxplus \tau_2 \boxplus \tau_3 \boxplus \tau_4 \boxplus \tau_5 \boxplus \tau_6 \boxplus \tau_7 \boxplus \tau_8 \boxplus \tau_9 \boxplus \tau_{10} \boxplus \tau_{11} \boxplus \tau_{12} \boxplus \tau_{13} \boxplus \tau_{14} \boxplus \tau_{15} \boxplus \tau_{16}$.

d. Key categories from out of the first sixteen categories of the fields/forms of *human Ideology \ Knowledge* can be summarily described using the 'diachronic-systems' assignment symbols, ' \leftrightarrow ' and ' \rightarrow ' --

M \leftrightarrow Mythopoeias, "Myths-Makings"; "Mythologies" $\rightarrow \tau_1$.

R \leftrightarrow Religions, codified / standardized / dogmatized, i.e., 'Meta-Mythologies' $\rightarrow \tau_2$, each Religion unit a memetic 'meta-Mythology', made, memetically, out of a heterogeneous multiplicity of Mythology units.

$\tau_{RM} \leftrightarrow$ Reconciliations of R & M / conversions from M into R, e.g., Ancient Rome's Pantheon $\rightarrow \tau_3$.

P \leftrightarrow Philosophies, i.e., 'Meta-Religions' $\rightarrow \tau_4$, each Philosophy unit a memetic 'meta-Religion', made up, memetically, out of a heterogeneous multiplicity of Religion units.

$\tau_{PR} \leftrightarrow$ R|P reconciliations, even τ_{RP} retrograde P to R conversions, e.g., Aquinas' *Summa Theologica* $\rightarrow \tau_6$.

K \leftrightarrow Scientific Knowledges, i.e., 'Meta-Philosophies' $\rightarrow \tau_8$, each Science unit a memetic 'meta-Philosophy', made, memetically, of a multiplicity of Philosophical Schools units, culled by experiments.

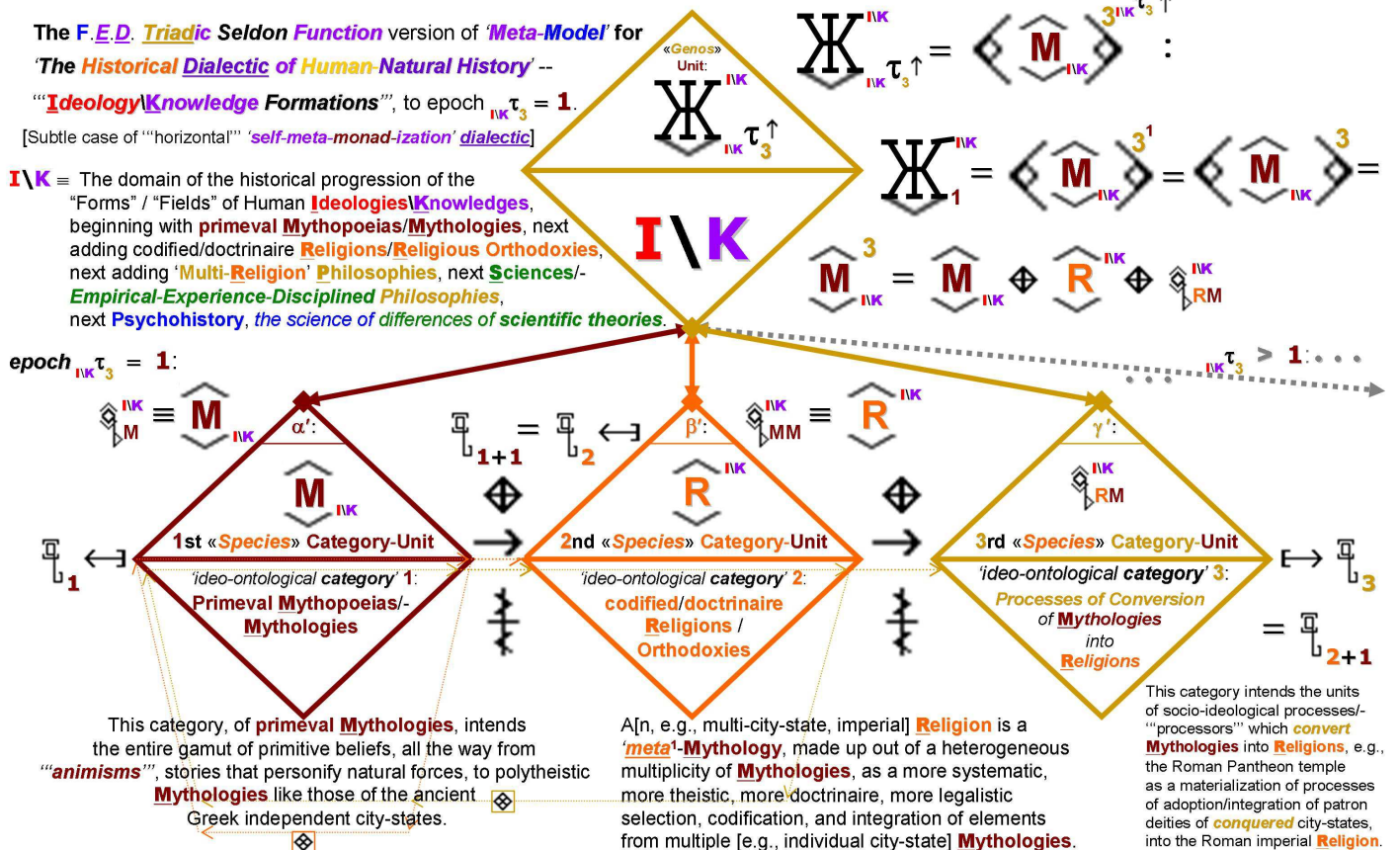
$\tau_{KPR} \leftrightarrow$ Includes τ_{PRK} retrograde K|R to P conversions, e.g., Hegel's *Encyclopedia of the Philosophical Sciences* $\rightarrow \tau_{14}$.

$\tau_{KPRM} \leftrightarrow$ Advanced science, K, subsuming/explaining P Philosophy, R Religion, & M ythology [not yet fully actual on Earth] $\rightarrow \tau_{15}$.

Ψ \leftrightarrow "'PsΨchohistories'", i.e., 'Meta-Sciences', e.g., Marx's theory $\rightarrow \tau_{16}$, each Psychohistorical Theory unit a memetic 'meta-Scientific Theory', made up, memetically, out of a multiplicity of different-epoch/different-culture scientific theory units, all addressing the same aspect of Nature, with each such unit accounting for its sub-units' mutual discrepancies psychohistorically.

The **first triad** of this **reconstructed, historical** ‘«speci»-ation’ of the **historical progression** of the fundamental ‘**ideo-ontological categories**’ / **kinds** of human **I**deologies\K**nowledges**, in this ‘**psychohistorical dialectic**’ of human **I**deologies\K**nowledges** Form[ation]s [using the Marxian definition of “ideology”], can be depicted thusly --

[Psycho]Historical Dialectic of Human-Nature-al History, Ideologies\Knowledges,
1st Triad,
 ‘«arché»-category’; first [full] ‘**meta-category**’; first [full] ‘**uni-category**’



Dialectical Models Specification --

<u>Dialectical Models Specification: 'Psychohistorical-Dialectical Meta-Model' of Ideology \ Knowledge Meta-Evolution</u>	
<u>Level</u> , n , in <u>Encyclopedia Dialectica Universal Taxonomy</u>	n = 3 , mainly “ <i>memetic</i> ”/ <i>ideic</i> ”/ “ <i>psychohistorical</i> materialities”.
<u>universe</u> [-of-discourse], u , in <u>Encyclopedia Dialectica Universal Taxonomy</u>	[sub-] <u>universe</u> u = h , the [sub-] <u>universe</u> [-of-discourse] of [the] h uman[oid] species.
<u>Domain</u> , D , within u , per the <u>Encyclopedia Dialectica Universal Taxonomy</u>	D = I \ K , <u>Domain</u> of ' <i>Ideology-to-Knowledge</i> historical transition'.
<u>species</u> of <u>dialectic</u> modeled	<i>Psychohistorical Dialectic</i> .
<u>independent variable</u>	cardinal/ordinal historical epoch, $I \setminus K \tau_2 \in \mathbf{N}$.
<u>dialectical language</u> applied	that of the 'meta-number space' of F.E.D. 's ' <i>1st Dialectical Arithmetic</i> ', NQ .
' <u>meta-model</u> ' functional form	v = 2 , <i>Dyadic</i> Seldon Function.
« <u>arché</u> » category selected	The primordial human 'ideative' category of ' <i>Mythologies</i> '.
' <u>Meta-Model Meta-Equation</u> '	<div style="display: flex; align-items: center;"> <div style="flex: 1;"> </div> <div style="flex: 1;"> <p>X = 'categorograms' sum, <i>non</i>-amalgamative'; <i>multi</i>-ontology cumulum.</p> <p>\vee = 'contra-Boolean' term in algebraic behavior.</p> <p>\wedge = categorial <i>single unit</i> term.</p> <p>\uparrow = 'the arrow of history'; "time's arrow"; sign for consecutive monotonic escalation of "pure quantity" variable to its left.</p> <p>$\langle \rangle$ = special parentheses for '<i>history-models</i>'.</p> </div> </div>
' <u>self-hybrid categories</u> ' solutions <i>*predicted</i> , but only emergent and tendentially actualized as of yet.	<p>M = <i>Mythologies</i> = $\langle \rangle_M$; R = <i>Religions</i> = $\langle \rangle_{MM}$; P = <i>Philosophies</i> = $\langle \rangle_{RR}$;</p> <p>K = <i>Scientific Knowledges</i> = $\langle \rangle_{PP}$; Ψ = <i>Psychohistories</i> = $\langle \rangle_{KK}$.</p>
' <u>hybrid categories</u> ' solutions -- for some cases for this model.	<p>$\langle \rangle_{RM}$ = [1st full] “‘dialectical syntheses’” of <i>Religions</i> & <i>Mythologies</i>; conversions /- subsumptions of <i>Mythologies</i> by <i>Religions</i>, e.g., the <i>Pantheon</i> of Ancient Rome;</p> <p>$\langle \rangle_{PM}$ = Possible [1st partial] “‘dialectical syntheses’” of <i>Philosophies</i> & <i>Mythologies</i>; subsumption of the M by the P; 'P-ized Ms', e.g., original <i>Pythagoreanism</i>.</p> <p>$\langle \rangle_{PR}$ = [2nd partial] “‘dialectical syntheses’” of <i>Philosophies</i> & /with <i>Religions</i>; conversions /- subsumptions of Rs by Ps, or of Ps by Rs, e.g., Aquinas's <i>Summa Theologica</i>;</p> <p>$\langle \rangle_{KM}$ = [3rd partial] “‘dialectical syntheses’” of <i>Scientific Knowledges</i> & <i>Mythologies</i>, e.g., what Joseph Campbell's 'tetralogy' <i>The Masks of God</i> claimed to attempt.</p>
' <u>Dialectical Equation-Model</u> ' <u>specific categorial progression</u> / <i>cumulum</i> for epoch $I \setminus K \tau_2 = 4$.	
' <u>generic</u> ' categorial progression / <i>cumulum</i> for stage h = 4 , common to all <i>Dyadic</i> Seldon Function <i>dialectical</i> 'meta-model' categorial progressions/cumula.	

The next image depicts this *meta-model*'s 1st 2 stages of *dialectical*, «*aufheben*» '*self-meta-monad-ization*' --

Monadization Chart: Human Ideologies \ Knowledges.

[Note: In this monadization chart, only 'self-hybrid' ontological categories are depicted. *Mere* "hybrid" categories are included only implicitly.]

TIME (Y-axis):

- 2.7×10^2 ybp
- 1.2×10^4 ybp
- 3.8×10^4 ybp

COMPLEXITY (X-axis):

- $2^0 = 1$
- $2^1 = 2$
- $2^2 = 4$

Epochs and Complexity:

- epoch $\tau = 0$** : within the human 'Phenome', as a 'psychohistorical materiality', **M**.
COMPLEXITY [via the 'cardinal complexity' **metric immanent** in **N_Q** 'dialectical meta-numbers']
- epoch $\tau = 1$** :
 - 'qualo-fractal scale' 1
 - 'self-meta-monadization' of the **M**, by the **M**, creating, thereby, the **R**, by action of the human "meme-carriers" / personifications of the **M**.
 - 'Reproductive Accumulation' of new **Religion units** by "consumption" of earlier-emerged **R units & M units** [e.g., by "conversion" of 'Religion[er]s', by "persuasion", or "by the sword"], contributing to the further growth of the **Religions «arithmos»**. When resulting local populations of **Religions units** reach critical social density, they also irrupt, within the domain of human **Ideologies / Knowledges**, a new kind: **Philosophies**.
- epoch $\tau = 2$** :
 - 'qualo-fractal scale' 2
 - 'self-meta-monadization' of the **R** by the **R**, creating, thereby, the **P**, by action of the human **agents / subjects / personifications** of the **R**.
 - 'Reproductive Accumulation' of new **Philosophies units / "schools"**, by **Philosophical "consumption"** of earlier **P units** and **R units**, e.g., by "conversion" of multiple 'Religion[er]s' to a single "school" of **Philosophy**, as catalyzed by already-existing **Philosophy(y)ies**, thus contributing to the further growth of the **Philosophies «arithmos»**. When resulting local populations of conflicting **Philosophies units** -- of mutually contradictory "schools" of **Philosophy** -- reach critical social density, they also irrupt, in[to] the human **Ideologies / Knowledges** domain, a new kind: **Scientific Knowledges units**.

Second 'self-hybrid' I/K psychohistorical category:

«arithmos» of **Philosophies units**, **P**.

Hypothesis --

not physically, but 'psyche-ically', in the minds, and in the "memes", of the human **agents, enactors, and personifications** of **Philosophical ideo-praxis**, a **Philosophy unit** is a 'meta-Religions' unit, in effect «aufheben» "containing" & unifying a heterogeneous multiplicity of **Religions units** -- whether consciously so or not.

First 'self-hybrid' I/K psychohistorical category:

«arithmos» ["population"] of **Religions "memes"/units**, **R**.

'self-meta-monadization' of the **M**, by the **M**, creating, thereby, the **R**, by action of the human "meme-carriers" / personifications of the **M**.

«Arché» I/K psychohistorical category:

«arithmos» ["population"] of **ideo-units** / "memes" of **Mythologies**

Some **Mythologies** intensify to form more systematic, more theistic, more dogmatic, more legalistic, more codified **Religions**.

Some of the **units** of **Religions** become "psycho-artefact raw materials" for the making of a new kind of 'memetic' units, the [meta-]units called **Philosophies**.



«Original Accumulation» of the original, 'meta-Religion' pre-Scientific **Ideologies / Knowledges units**, i.e. **Philosophies units**, via the 'self-reflexion' -- via the comparison, critique, and [self-]conversion of some of the **Religions units** -- the 'self-hybridization' and integration -- in the thoughts/ "memes" / minds, in the discourses, in the cultures, and in the acts/practices, of their human "memes-carriers" / subjects/agents -- of distinct, mutually-contradictory **Religions**.

«Original Accumulation» of the original 'meta-Mythology' **Religions units**, via the «aufheben» negation/conservation/elevation of earlier-emerged **Mythologies units** -- «aufheben» "containment" and systematic, thematic unification / organization / "coherization" and codification of some of the older **Mythologies "memes" / units**, thereby forming the first dogmatic, doctrinaire **Religions units**.

http://www.dialectics.org/dialectics/Primer_files/4_F.E.D.%20Intro.%20Letter.%20Supplement%20B-1,%20v.2_OCR.pdf
[pp. **B-09** through **B-17**]

II. The Meta-Equation of *Human-Social Forces of Production* Meta-Evolution.

a. «*Arché*»: Whole [proto-]**h**uman communities [e.g., hunting **b**ands] as *Prime* Energy Resources for *their own* **h**uman-*societal* self-[re-]production, **R**_h $\xrightarrow{\mathbb{E}}$ **1**. The deeper/earlier reaches of the *ontology* of the *cosmos* become accessible, for **h**uman[oid] **A**ppropriation, as energy **R**esources, in the *reverse order* of their natural-historical origination. Such **R**esources constitute the *core* of the “*social Forces of human-society self-re-production*”. [cf. Marx]. Note: We use the term “energy **R**esources” here in a more concretely determinate, more *specific*, less *ahistorically abstract*, less *reductionist* sense of the term “energy” than is usual in contemporary discourse.

b. *Dyadic Seldon Function* *Meta-Model Meta-Equation* Formula:  = .

c. Solution to epoch $\tau_F = 4$:

$$\text{Diagram} = \langle \underline{R}_h \rangle^{2^4} = \langle \underline{R}_h \rangle^{16} =$$

R_h ⊕ R_ℓ ⊕ R_{ℓh} ⊕ R_b ⊕ R_{bh} ⊕ R_{bℓ} ⊕ R_{bℓh} ⊕ R_e ⊕

$$\underline{R}_{eh} \diamond \underline{R}_{e\textcolor{brown}{h}} \diamond \underline{R}_{e\textcolor{brown}{h}} \diamond \underline{R}_{e\textcolor{green}{b}} \diamond \underline{R}_{e\textcolor{green}{b}h} \diamond \underline{R}_{e\textcolor{green}{b}\textcolor{brown}{h}} \diamond \underline{R}_{e\textcolor{green}{b}\textcolor{brown}{h}} \diamond \underline{R}_p \vdash \rightarrow$$

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

d. Key categories from the first sixteen categories of ‘*the existential self-force of human society*’ -- of ‘*human-societal self-reproductive self-force*’ -- can be summarily described as follows, using the ‘historical-systems’ assignment symbols, ‘ \longleftrightarrow ’ and ‘ $\overleftrightarrow{\text{E}}$ ’, --

R_h ↔ Entire [*proto*-]**human communities** [e.g., **h**unting/foraging/scavenging **b**ands] as prime **R**esource for predation-based social **R**e-production \Rightarrow **1.**

R_l ↔ **human-social incorporations** of **other proto-*l***-language-based “‘**animal/plant societies**’”, as **human** energy **R**esources → **2**.
e.g., herding & horticulture.

R_{ph} ↔ Reconciliations of **R_e** & **R_n**/conversions of **R_n** into **R_e** [→] **3.** e.g., incorporating other, e.g., conquered human-societies via serfdom & slavery.

Rb ↔ **a**social animals & multicellular/‘meta-**b**iotan’ animal **b**odies, & social animals’ **b**odies, including war-captured human slaves’ **b**odies, separated from their social communities, as exploited energy **R**esources for **h**uman-societal self-**R**eproduction, e.g., **d**raft animals; **s**lave rowers, etc. **E** → **4**.

R_e ↔ eukaryotic cells as energy **R**esources for **human-societal** self-[**R_e**]-production $\xrightarrow{\text{Fig. 8}}$ **Fig. 8**, e.g., *bread*s, *beer*s, *wine*s, *vinegar*s, *cheese*s, *jerky*s, *yogurt*s, *kefir*s, *pickle*s, *chutney*s, & other “spoiled food”/fermented products, representing an early food preservation technology.

$$\mathbf{R}_p \longleftrightarrow \mathbf{p}_{\text{prokaryotic, e.g., anaerobic, cells as energies for human-societal self-[R-e]-production [e.g., methane-generating "digesters"]}} \xrightarrow{\mathbf{E}} \mathbf{I}_{16}.$$

e. *Categories* of interest irrupting into possibility in later epochs, $\tau_F > 4$ --

R_{mb} comprises much ancient Roman technology, up to, e.g., U.S. Civil War technology, $E \rightarrow \mathbb{Q}_{36}$:

- Ancient Roman *temples* -- using stone [m]; “drum cranes” using wood [meta-**b**iota, **b**], rope [b], & sinew [b].
- Ancient Roman waterworks *flour mills* -- using stone [m]; water [m], grain [b], wood [b], rope [b], etc.
- Ancient Roman *aqueducts* -- using stone [m]; “drum cranes” using wood [meta-**b**iota, **b**], rope [b], & sinew [b].
- Ancient Roman *glassworks* -- using stone [m]; fire [m], metal [m] tools, wood [b] tools & fuels, glass-sand [m], diamond [m] cutting tools, etc., including to produce still unsurpassed “Portland vases” and “caged glass”.
- circa 200 B.C.E.+ Chinese / Japanese “*Magic Mirrors*” -- using metals [m], fire [m], intensive hand polishing [b].
- 17th Century Japanese «*karakuri*» doll automatons [mechanical robots] -- using wood [b], metal [m] springs, etc.
- Ancient Roman «*ballista*» *catapults* -- using stone missiles [m]; wood [b], plant fiber/hair rope [b], & sinew [b].
- Bushnell’s “*Turtle*” single-occupant proto-submarine, U. S. First Revolutionary War vintage -- tar [b], wood [b], cork [b], flint [m], glass [m], lead [m], steel [m] bands, trapped water [m], trapped air [m], black powder [m], human-muscle-powered [hand-cranked] propeller [b].
- Ancient Roman «*hypocaust*» *public baths* -- using stone [m]; “drum cranes” [b], wood [b] parts & fuels, & fire [m], water [m], air [m], clay [m] pipes, socializing human beings [h], etc.: $\leftrightarrow R_{mbh} E \rightarrow \mathbb{Q}_{37}$.
- Confederate *H. L. Hunley* eight-person crew “fish boat” “torpedo boat”, or “torpedo fish” proto-submarine, vintage U. S. Second Revolutionary [“Civil”] War -- wood [b], rope [b], rubber [b], glass [m], iron [m], copper [m] wire, “blue light” pyrotechnic signal flare [m], trapped water [m], trapped air [m], black powder [m], eight-persons “*social*” crew, with a seven-persons-hand-cranked propeller [h]: $\leftrightarrow R_{mbh} E \rightarrow \mathbb{Q}_{37}$; both steam-powered [m] and electrical motored [s] propulsion was tried, but failed; there are possible recently-discovered archaeological indications of chemical/molecular battery-powered electrical [n] torpedo detonation: $\leftrightarrow R_{nmbh} E \rightarrow \mathbb{Q}_{164}$.

R_{nmh} encompasses much recent “*android robotics*” technology $E \rightarrow \mathbb{Q}_{160}$:

- Tokyo University of Science, Dr. Hiroshi Kobayashi’s «*Saya*» *android proto-robot*, using electronics [n], metals [m], human behaviors [h], etc.

R_{nmeb} encompasses much recent “*Genetically-Modified Organisms*” [GMO] technology $E \rightarrow \mathbb{Q}_{171}$:

- Japanese interferon-producing GMO silk worms, created using electronics [n], metals [m], silk worm ekaryotic cell nucleus [e] DNA [m], silkworms [b], etc.

R_{nam} encompasses many recent designs for subluminal interstellar drive engines $E \rightarrow \mathbb{Q}_{223}$:

- Ion engines, using electronics [n], [ionized] atoms [a], metals parts [m], etc.

R_{nam} also encompasses much now-emergent or speculative technology $E \rightarrow \mathbb{Q}_{478}$:

- Dr. Robert Bussard’s “polywell” fusion power reactor, involving photons [n], atomic [sub-]orbitals’ electrons [n], ionized [plasma] atoms/atomic nuclei [a], and metal parts [m], etc.
- “Stellar Wind Sail” starship designs, using solar/stellar photon [n] winds, &/or “sub-atomic particle” winds [n], “atom” [ion / bare atomic nucleus] plasma winds [a], metal parts [m], etc.
- **F.E.D.** ‘tachyonic meta-phase’ superluminal interstellar-drive design-hypothesis, described in detail in the following blog entries --

<http://feddialectics-miguel.blogspot.com/2011/09/intimations-of-interstellar-drive-part.html>

<http://feddialectics-miguel.blogspot.com/2011/09/part-ii-intimations-of-interstellar.html>

<http://feddialectics-miguel.blogspot.com/2011/09/part-iii-intimations-of-interstellar.html>

The *first triad* of this *reconstructed*, *historical* ‘«*speci*»-ation’ of the *historical progression* of “*historically-«speci»-fic*” [cf. Marx] ‘*historical-«species»*’ of the *human* “*social forces of production*” [cf. Marx] ‘*psychohistorical dialectic*’ can be depicted as follows --

'Psychohistorical-Dialectical Meta-Model of Human-Social Forces of Production Meta-Evolution' --

[Psycho]Historical Dialectic of 'Human-Nature-al' History, Social Forces, 1st Triad.

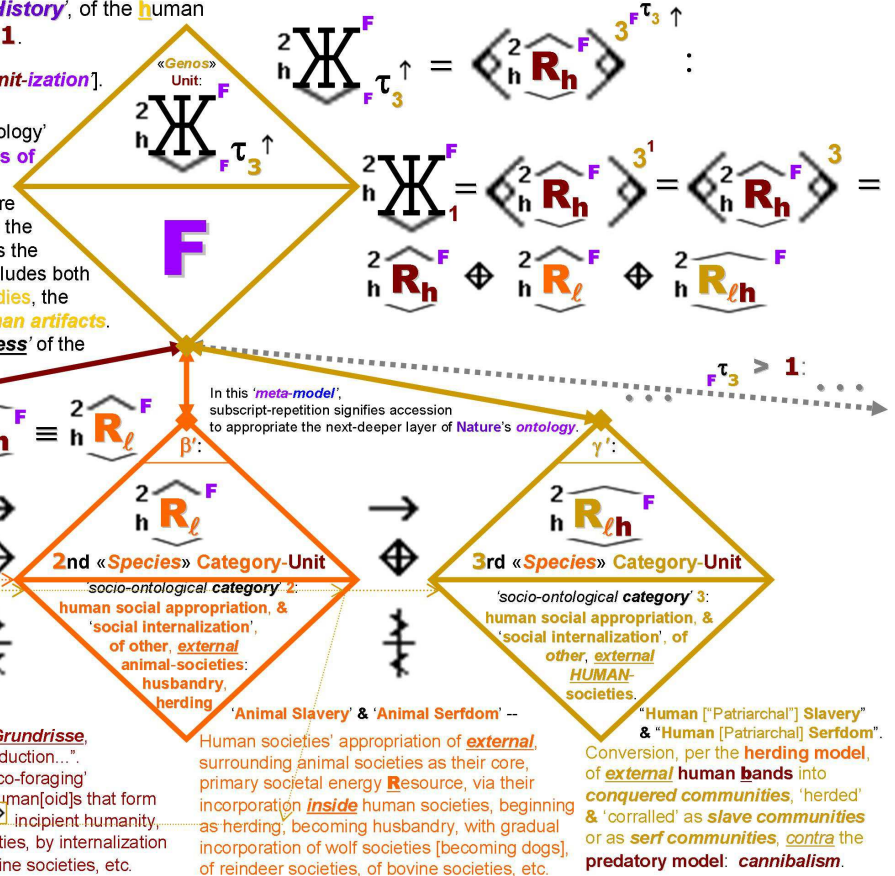
The **F.E.D. Triadic Seldon Function** version of the '**Meta-Model**' for the '[Psycho]Historical Dialectic of human-Natural History', of the human '**Social Forces of Production**', to epoch $\tau_3 = 1$.

[NOT a case of "horizontal", «aufheben» 'self-meta-unit-ization'].

F = "Super-category" for the 'socio-psycho-physio-ontology' of the entire "**Domain**" of the Marxian "**social forces of production**", manifested as **rate of reproduction** – of a particular/localized human society, or of the entire planetary human species as a whole -- measured as the rate of growth of human species '**onto-mass**', i.e., as the rate of expansion of '**human socio-mass**', which includes both the **biomass** of human-Genomic individual living bodies, the '**live body-mass**' of humanity, and **the mass of human artifacts**. This metric also measures the '**Meta-Darwinian fitness**' of the human species. The **means** by which the human species has historically achieved its generally accelerating rates of expanding social reproduction amount to a deepening appropriation of Nature's ontology in exact reverse order of its advent.

The **self-appropriation** of human society as its own energy **Resource** --

Karl Marx selected this «**arché**» for us all. He wrote, in the *Grundrisse*, that: "The community itself appears as the first great force of production...". "The [human] community" that we intend, by this symbol, is the 'co-foraging' community of the primeval "nomadic" predator **bands** of proto-human[oids] that form the first of the known, *proto-human*, social formations of incipient humanity, **prior to** the 'self-meta-socialization' of human-animal societies, by internalization of other, pre-human animal societies – wolf societies [dogs], bovine societies, etc.



Dialectical Models Specification --

<u>Dialectical Models Specification</u> : ‘meta-equation of human-social Forces of production meta-evolution ’	
Level, n, in <u>Encyclopedia Dialectica Universal Taxonomy</u>	Level n = 2 , primarily physical/non-psychohistorical “materialities”.
<u>universe</u> [-of-discourse], u, in <u>Encyclopedia Dialectica Universal Taxonomy</u>	[sub-] <u>universe u = h</u> , the [sub-] <u>universe[-of-discourse] of h</u> uman[oid] species.
Domain, D, within u, per <u>Encyclopedia Dialectica Universal Taxonomy</u>	D = F , h uman-social “ F orces of production.”
species of <u>dialectic</u> modeled	<u>Psychohistorical Dialectic</u> .
independent variable	[psycho]historical cardinal/ordinal epoch of h productive F orces, $f_{\tau_2} \in \mathbf{N}$.
<u>dialectical language applied</u>	the ‘meta-number space’ of the Seldonian ‘ First Dialectical Arithmetic ’: \mathbf{nQ} .
‘meta-model’ functional form	$v = 2$, <u>Dyadic Seldon Function</u> .
«arché» category selected	primeval h uman community itself as core societal “energy” R esource, R_h .
‘Meta-Model Meta-Equation’	<div style="display: flex; align-items: center;"> <div style="margin-left: 20px;"> <p>XK = ‘categorograms’ sum, non-amalgamative; <i>multi-ontology cumulum</i>. V = ‘contra-Boolean’ term in algebraic behavior. A = categorical single unit term. <, > = special parentheses for ‘histories-models’.</p> </div> </div> <p>\Uparrow = ‘the arrow of history”; “time’s arrow”; sign for consecutive monotonic escalation of “pure quantity” variable to its left.</p>
‘self-hybrid categories’ solutions	<p>R_e ≡ proto-language-based animal societies as human-social “energy” Resource; R_b ≡ pre-social meta-biota [“metazoa” & “metaphyta”] as h-social “energy” Resource; R_e = eukaryotic cells as human-social “energy” Resource; R_p = prokaryotic cells as human-social “energy” Resource; R_m = molecules as human-social “energy” Resource; R_a = atoms as human-social “energy” Resource; . . .</p> <p>R_{eb} ≡ human appropriation/utilization, as a human-social “energy” Resource, of the [inter]action of e &/on b--conversion of b bodies, br e bodies, into e bodies, e.g., use of yeasts in making breads.</p>
‘hybrid categories’ solutions – an example	
‘Dialectical Equation-Model’ specific categorial progression	$\begin{aligned} 2X_h^f &= \langle 2R_h^{\diamond f} \rangle^{>S} = 2R_h^{\diamond f}{}^{>32} = R_h^{\diamond f} + R_e^{\diamond f} + R_b^{\diamond f} + R_{eh}^{\diamond f} + R_{bh}^{\diamond f} + R_{be}^{\diamond f} + R_{eb}^{\diamond f} + R_{ph}^{\diamond f} + R_{pe}^{\diamond f} + R_{pb}^{\diamond f} \\ &\quad + R_{eh}^{\diamond f} + R_{eL}^{\diamond f} + R_{ehL}^{\diamond f} + R_{eb}^{\diamond f} + R_{ebh}^{\diamond f} + R_{ebL}^{\diamond f} + R_{ebhL}^{\diamond f} + R_p^{\diamond f} + R_{ph}^{\diamond f} + R_{pe}^{\diamond f} + R_{pb}^{\diamond f} \\ &\quad + R_{ph}^{\diamond f} + R_{pb}^{\diamond f} + R_{pbh}^{\diamond f} + R_{pe}^{\diamond f} + R_{pen}^{\diamond f} + R_{peL}^{\diamond f} + R_{peh}^{\diamond f} + R_{peb}^{\diamond f} + R_{pebh}^{\diamond f} + R_{pebl}^{\diamond f} + R_{pebhL}^{\diamond f} + R_m^{\diamond f} \end{aligned}$
/ cumulum for epoch $f_{\tau_2} = 5$,	
for domain F of [sub-] <u>universe h</u> , <u>E.D.</u> Universal Taxonomy Level 2 .	
‘generic’ categorial progression	$\text{H}_5 = [\text{T}_1]^{>S} = [\text{T}_1]^{>32} = \text{T}_1 \oplus \text{T}_2 \oplus \text{T}_3 \oplus \text{T}_4 \oplus \text{T}_5 \oplus \text{T}_6 \oplus \text{T}_7 \oplus \text{T}_8 \oplus \dots \oplus \text{T}_{32}$
/ cumulum for epoch h h = 5 ,	
common to all Dyadic Seldon Function dialectical model categorial progressions/cumula.	

For more amplitude regarding this particular ‘*psychohistorical-dialectical meta-model*’ and its ‘*psychohistorical-dialectical meta-equation*’, see the following blog-entries by my colleague in the **F.E.D.** Office of Public Liaison, Miguel Detonacciones –

<http://feddialectics-miguel.blogspot.com/2013/09/part-1-of-4-heart-and-soul-of-marxian.html>

<http://feddialectics-miguel.blogspot.com/2013/09/part-2-of-4-heart-and-soul-of-marxian.html>

<http://feddialectics-miguel.blogspot.com/2013/12/part-3-of-4-heart-and-soul-of-marxian.html>

<http://feddialectics-miguel.blogspot.com/2014/03/part-4-of-4-heart-and-soul-of-marxian.html>

III. The Meta-Equation of *Human-Social Relations of Production* Meta-Evolution.

a. «*Arché*»: **A**ppropriations [of products of pre-/extra-human Nature, in “raw” form]. $\mathbf{A} \xrightarrow{\tau_1}$

b. ‘*Dyadic Seldon Function*’ ‘*Meta-Equation*’ Formula: $\mathbf{R} \xrightarrow{\tau_R} = \langle \mathbf{A} \rangle^{2^{\tau_R}}$

c. Solution to epoch $\tau_R = 4$:

$$\mathbf{R} \xrightarrow{\tau_4} = \langle \mathbf{A} \rangle^{2^4} = \langle \mathbf{A} \rangle^{16} =$$

$$\mathbf{A} \diamond \mathbf{G} \diamond \mathbf{GA} \diamond \mathbf{C} \diamond \mathbf{CA} \diamond \mathbf{CG} \diamond \mathbf{CGA} \diamond \mathbf{M} \diamond$$

$$\mathbf{MA} \diamond \mathbf{MG} \diamond \mathbf{MGA} \diamond \mathbf{MC} \diamond \mathbf{MCA} \diamond \mathbf{MCG} \diamond \mathbf{MCGA} \diamond \mathbf{K} \xrightarrow{\tau_{16}}$$

$$\tau_1 \boxplus \tau_2 \boxplus \tau_3 \boxplus \tau_4 \boxplus \tau_5 \boxplus \tau_6 \boxplus \tau_7 \boxplus \tau_8 \boxplus \tau_9 \boxplus \tau_{10} \boxplus \tau_{11} \boxplus \tau_{12} \boxplus \tau_{13} \boxplus \tau_{14} \boxplus \tau_{15} \boxplus \tau_{16}$$

d. Key *categories* from the first sixteen *categories* of *human*[oid] *social Relations of production* can be summarily described as follows, using the ‘historical-systems’ assignment symbols, ‘ \longleftrightarrow ’ and ‘ $\xrightarrow{\tau}$ ’ --

A \longleftrightarrow “Raw” **A**ppropriations, “Predations” $\xrightarrow{\tau_1}$

G \longleftrightarrow **G**oods Production, ‘*multi-A*ppropriations’ [e.g., **burins** from clashing hard stones against **glassy stones**];
‘*Meta-A*ppropriations’ $\xrightarrow{\tau_2}$, each **G**oods unit a ‘*meta-A*ppropriation’, made by a heterogeneous multiplicity of *unit acts* of “Raw” **A**ppropriation; ultimates includes human “artificial selection” domestication of “wild” *social* *anima**ls* and “‘*social* *p*lants’”; on its “dark side”, \mathbf{AA} also connotes inter-*b*and *warfare* and *cannibalism*: ‘*A*ppropriations of the *A*ppropriators’; ‘hunting of the hunters’ [by other-*b*and hunters];

$\mathbf{GA} \longleftrightarrow$ Reconciliations of **G** & **A** / conversions from **A** into **G** $\xrightarrow{\tau_3}$, e.g., food processing tool **G**oods [stone blades] applied in *hunting*, e.g., creating, e.g., stone knives, arrows and spears.

C \longleftrightarrow **B**artered **C**ommodities, i.e., ‘*Meta-G*oods’ $\xrightarrow{\tau_4}$, each **C**ommodity unit a memetic ‘*meta-G*ood’, a *human* **G**ood-personifier’s mental list of the other kinds of **G**oods units that will conventionally exchange for the given *kind* so personified.

...

M \longleftrightarrow **M**onies, i.e., ‘*Meta-C*ommodities’ $\xrightarrow{\tau_8}$, each **M**oney unit a memetic ‘*meta-C*ommodity’, initially a *human* **M**oney-**C**ommodity-personifier’s “‘price-list’” of the kinds of **C**ommodity units it can buy.

...

$\mathbf{MC} \longleftrightarrow$ Subsumption of **C**ommodities by **M**onies, i.e., **M**onies-mediated *circulations* of **C**ommodities $\xrightarrow{\tau_{12}}$

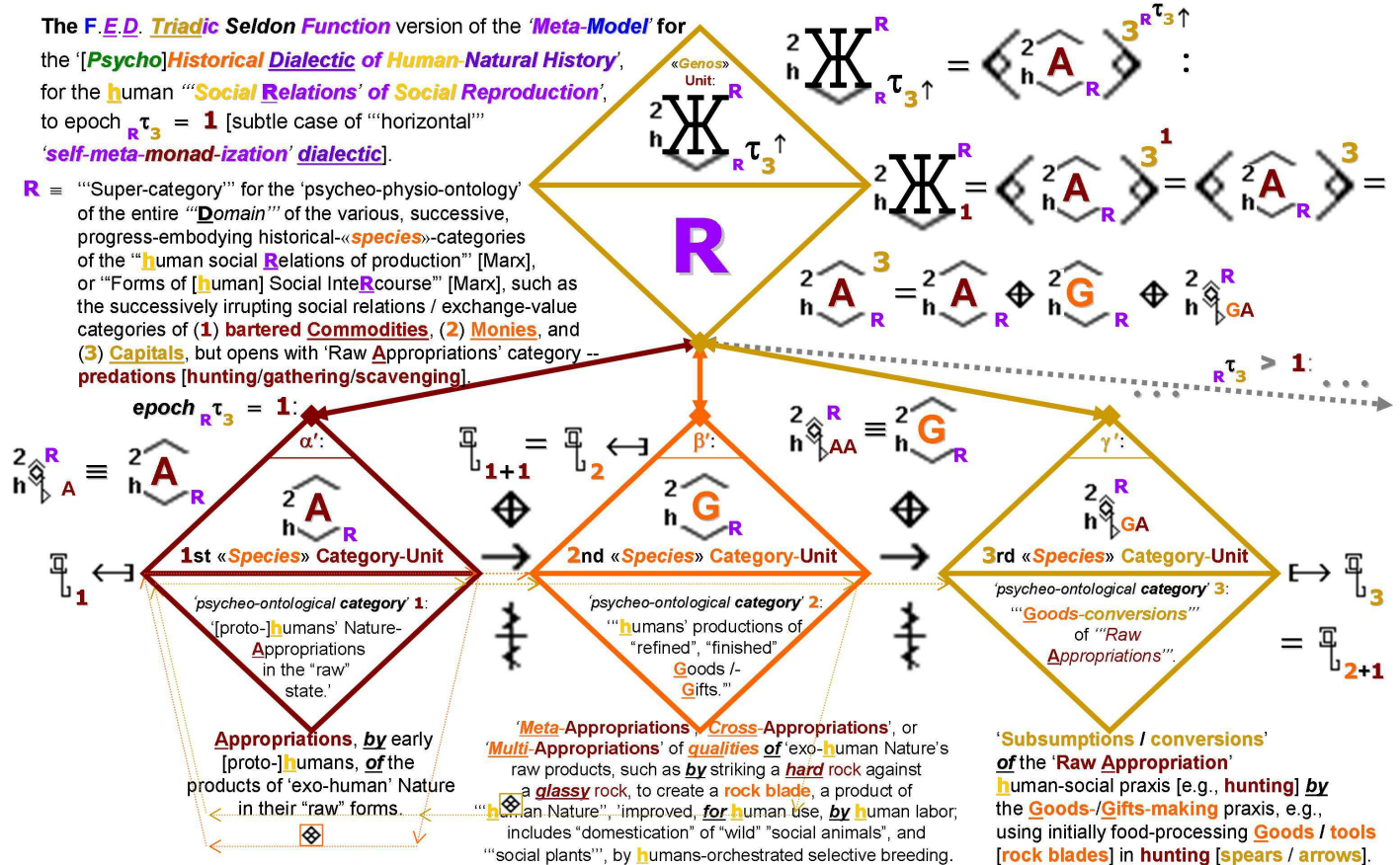
...

K \longleftrightarrow «**K**apitals», i.e., ‘*Meta-M*onies’ $\xrightarrow{\tau_{16}}$, each **C**apital unit a memetic ‘*meta-M*oney’, made up out of past periodic income statement **net profits/retained earnings** **M**onies that accumulated to the present **equity-value** of the given *capital unit* / *capital entity* / *going concern* / “*individual capital*”.

The **first triad** of this **reconstructed, historical** '**speci**'-ation' of the "'forms of **human-social intercourse**'" [cf. Marx and Engels, **1846**, in their **The German Ideology**] "'historically-**speci**'-fic'" [cf. Marx] **historical-*«species»*** of this '**psychohistorical dialectic**', can be depicted as below --

'Psychohistorical-Dialectical Meta-Equation of Human Relations of Social Reproduction Meta-Evolution' --

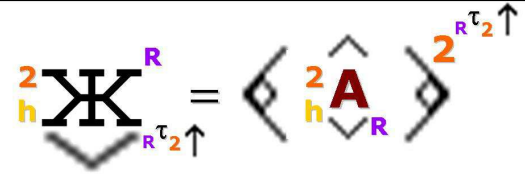
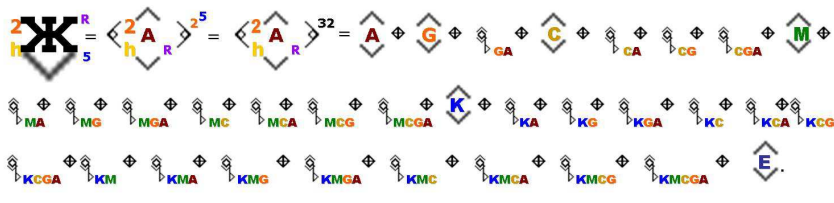
[Psycho]Historical Dialectic of 'Human-Nature-al' History, Social Relations, 1st Triad.



e. Categories of interest, already observed as having interrupted, or predicted to interrupt into possibility in future epochs, $\tau_R > 4$ --

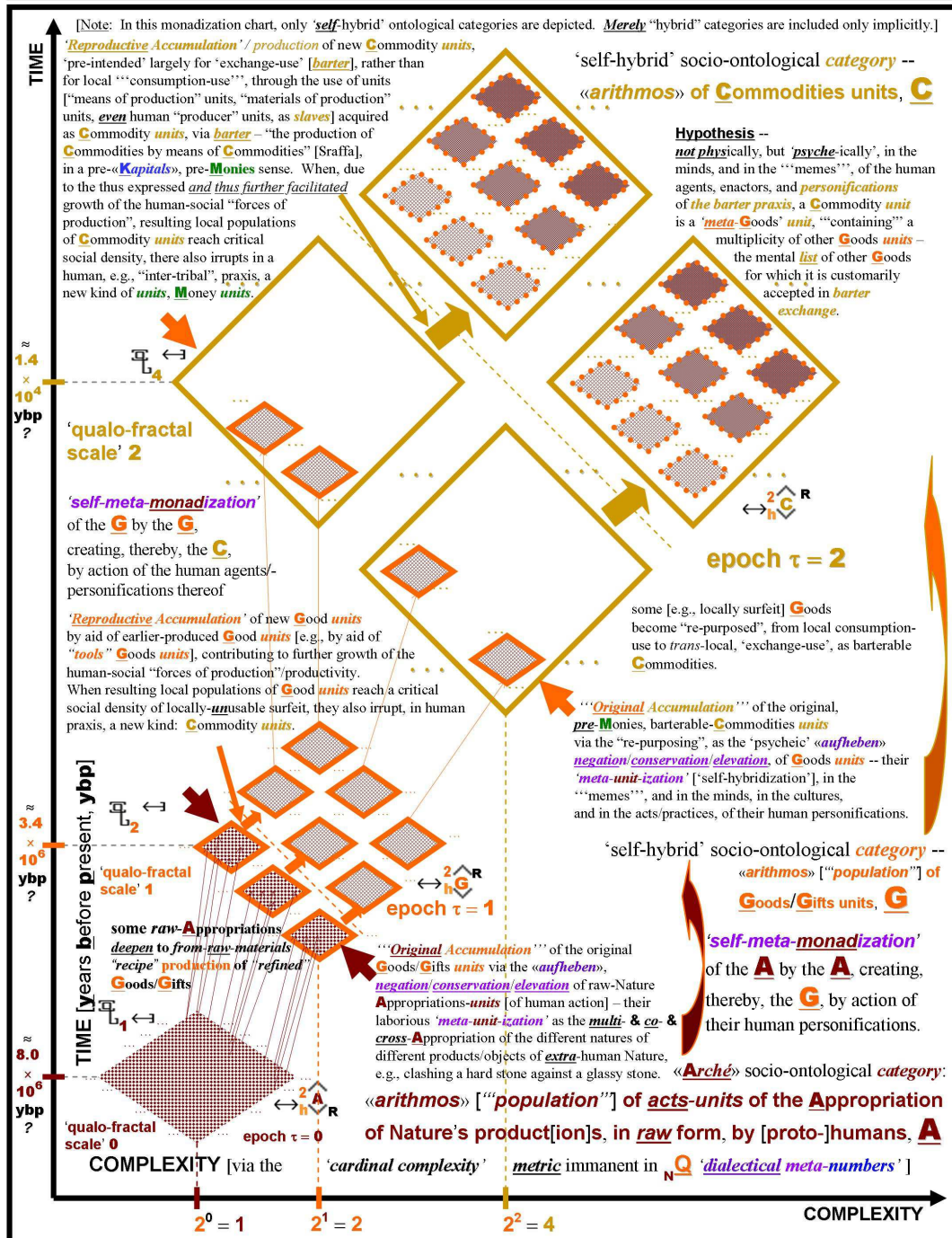
- KG** \longleftrightarrow Real subsumption/reshaping of **G**oods-production by the **K**apital-relation, & including **K**apital **G**oods $\rightarrow \tau_{18}$.
- KC** \longleftrightarrow Real subsumption of the **C**ommodity-relation by the **K**apital-relation, & including "**C**ommodity **K**apital" $\rightarrow \tau_{20}$.
- KM** \longleftrightarrow Real subsumption of the **M**oney-relation by the **K**apital-relation; includes "**M**oney **K**apital" $\rightarrow \tau_{24}$.
- KK** \longleftrightarrow **E** \longleftrightarrow Self-subsumption of the **K**apital-relation; The Generalized '**E**quity-arian' '**Political-ECONOMIC DEMOCRACY**' of "the associated producers" [Marx], i.e., '**Democratic Communism**', or '**Marxian Democracy**'. $\rightarrow \tau_{32}$.

Dialectical Models Specification --

<i>Dialectical Models Specification: ‘Meta-Equation of Human-Social Relations of Production Meta-Evolution’</i>	
Level, n, in <i>Encyclopedia Dialectica Universal Taxonomy</i>	Level n = 2 , primarily <i>physical/non-psychohistorical</i> “‘materialities’”.
universe [-of-discourse], u, in <i>Encyclopedia Dialectica Universal Taxonomy</i>	[sub-] u niverse u = h , the [sub-] u niverse[-of-discourse] of [the] h uman[oid] species.
Domain, D, within u , per <i>Encyclopedia Dialectica Universal Taxonomy</i>	D = R, h human “social R elations of Production” [Marx] D omain.
species of <i>dialectic</i> modeled	<i>Psychohistorical Dialectic</i> .
independent variable	[psycho]historical cardinal/ordinal epoch of h social R elation(s), $R\tau_2 \in \mathbf{N}$.
dialectical language applied	that of the ‘meta-number space’ of <i>F.E.D.</i> ’s ‘ 1st Dialectical Arithmetic ’, NQ .
‘meta-model’ functional form	$v = 2$, <i>Dyadic Seldon Function</i> .
«arché» category selected	<i>The ‘Predation-Relation’: “Appropriation” of Nature’s product[ion]s, raw.</i>
‘Meta-Model Meta-Equation’	<div>  </div> <div> \mathbb{X} = ‘categorograms’ sum, <i>non-amalgamative</i>; <i>multi-ontology cumulum</i>. \checkmark = a ‘contra-Boolean’ term in algebraic behavior. \wedge = categorial <i>single unit</i> term. \uparrow = ‘the arrow of history’; “time’s arrow”; sign for consecutive monotonic escalation of “pure quantity” variable to its left. \langle, \rangle = special parentheses for ‘histories-models’. </div>
‘self-hybrid categories’ solutions <i>*predicted, not yet actualized.</i>	$\mathbf{G} = \mathbf{G}$ oods = $\langle \mathbf{A} \rangle_{AA}$; $\mathbf{C} = \mathbf{C}$ ommodity-relation = $\langle \mathbf{G} \rangle_{GG}$; $\mathbf{M} = \mathbf{M}$ oney-relation = $\langle \mathbf{C} \rangle_{CC}$; $\mathbf{K} = \mathbf{K}$ apital-relation = $\langle \mathbf{M} \rangle_{MM}$; $\mathbf{E} = \mathbf{E}$ conomic Democracy-relation* = $\langle \mathbf{K} \rangle_{KK}$; ...
‘hybrid categories’ solutions – some examples	$\langle \mathbf{G} \rangle_{GA} = \mathbf{G}$ oods/tools [e.g., blades, spears] reshaping raw A ppropriation [e.g., hunting]; $\langle \mathbf{K} \rangle_{KA} = \mathbf{K}$ apital-relations reorganizing agricultural & mining ‘raw Nature- A ppropriation’.
‘Dialectical Equation-Model’ <i>specific categorial progression</i> / <i>cumulum for epoch $R\tau_2 = 5$,</i> for D omain R of [sub-] u niverse h , <i>E.D.</i> Universal Taxonomy Level 2 .	
‘generic’ categorial progression / <i>cumulum for epoch h = 5,</i> <i>common to all Dyadic Seldon Function dialectical model categorial progressions/cumula.</i>	

The next image depicts this *meta-model*’s **1st 2** stages of *dialectical*, «*aufheben*», “‘memetic’” ‘*self-meta-monad-ization*’ --

Monadization Chart: Human-Social Relations of Production.



For more amplitude regarding 'Political-ECONOMIC DEMOCRACY', see –

<http://www.equitism.org/Equitism/Theory/PoliticalEconomicDemocracy/PoliticalEconomicDemocracy.htm>

<http://www.equitism.org/Equitism/Theory/PoliticalEconomicLawOfMotion/PoliticalEconomicLawOfMotion.htm>

For more amplitude regarding this particular 'psychohistorical-dialectical meta-model' and its 'psychohistorical-dialectical meta-equation', see –

http://www.dialectics.org/dialectics/Primer_files/4_F.E.D.%20Intro.%20Letter,%20Supplement%20B-1,%20v.2_OCR.pdf [pp. B-24 through B-38]

IV. The Meta-Equation of *Human-Social Formation(s)* Meta-Evolution(s).

a. «*Arché*»: **b**ands/extended families of hunter-gathers/scavengers/foragers/predators, **b** $\xrightarrow{\tau_1}$ τ_1 .

b. '*Dyadic Seldon Function*' '*Meta-Model Meta-Equation*' Formula: $\begin{array}{c} \diagup \text{---} \text{---} \diagdown \\ | \\ m \text{---} \tau_m \uparrow \end{array} = \langle \underline{\mathbf{b}} \rangle^{2^{\tau_m \uparrow}}.$

c. Solution to epoch $\tau_m = 4$:

$$\begin{array}{c} \diagup \text{---} \text{---} \diagdown \\ | \\ m \text{---} \tau_m \uparrow \end{array} \quad \begin{array}{c} 2^4 \\ \text{---} \end{array} = \langle \underline{\mathbf{b}} \rangle^{2^4} = \langle \underline{\mathbf{b}} \rangle^{16} =$$

$$\underline{\mathbf{b}} \oplus \underline{\mathbf{c}} \oplus \begin{array}{c} \diagup \diagdown \\ \text{cb} \end{array} \oplus \underline{\mathbf{v}} \oplus \begin{array}{c} \diagup \diagdown \\ \text{vb} \end{array} \oplus \begin{array}{c} \diagup \diagdown \\ \text{vc} \end{array} \oplus \begin{array}{c} \diagup \diagdown \\ \text{vcb} \end{array} \oplus \underline{\mathbf{f}} \oplus$$

$$\begin{array}{c} \diagup \diagdown \\ \text{fb} \end{array} \oplus \begin{array}{c} \diagup \diagdown \\ \text{fc} \end{array} \oplus \begin{array}{c} \diagup \diagdown \\ \text{fcb} \end{array} \oplus \begin{array}{c} \diagup \diagdown \\ \text{fv} \end{array} \oplus \begin{array}{c} \diagup \diagdown \\ \text{fvc} \end{array} \oplus \begin{array}{c} \diagup \diagdown \\ \text{fvcb} \end{array} \oplus \underline{\mathbf{s}} \xrightarrow{\tau_1}$$

$$\tau_1 \oplus \tau_2 \oplus \tau_3 \oplus \tau_4 \oplus \tau_5 \oplus \tau_6 \oplus \tau_7 \oplus \tau_8 \oplus \tau_9 \oplus \tau_{10} \oplus \tau_{11} \oplus \tau_{12} \oplus \tau_{13} \oplus \tau_{14} \oplus \tau_{15} \oplus \tau_{16}.$$

d. Key *categories* from out of the first sixteen *categories* of *human-social*/'*meta-geological*' *formation(s)* can be summarily described as follows, using the 'historical-systems' assignment symbols, ' \longleftrightarrow ' and ' $\xrightarrow{\tau_1}$ ' --

b \longleftrightarrow **b**ands/extended families of hunter-gathers/scavengers/foragers/predators $\xrightarrow{\tau_1}$ τ_1 .

c \longleftrightarrow **c**amps; 'multi-band' semi-permanent home bases; *self*-«*aufheben*» '*meta-bands*' $\xrightarrow{\tau_2}$ τ_2 , each **camp unit** a '*meta-band*', initially made up out of a heterogeneous multiplicity of **band units**.

$\begin{array}{c} \diagup \diagdown \\ \text{cb} \end{array} \longleftrightarrow$ «*aufheben*» reconciliations / hybridizations of **c** & **b** / conversions from **b**s into **c**s $\xrightarrow{\tau_3}$ τ_3 , e.g., advantaged **c**amps expanding, largely by converting / recruiting nomadic **b**ands into them.

v \longleftrightarrow **v**illages; initially 'multi-**c**amp', longer-duration settlements, *self*-«*aufheben*» '*meta-Camps*' $\xrightarrow{\tau_4}$ τ_4 , each **village unit** a '*meta-camp*', initially made up out of a heterogeneous multiplicity of **camp units**.

...

f \longleftrightarrow chief**f**doms; multi-**v**illage, "tribal" domains; *self*-«*aufheben*» '*meta-Villages*' $\xrightarrow{\tau_8}$ τ_8 , each **chiefdom unit** a '*meta-village*', initially made up out of a heterogeneous multiplicity of **village units**.

...

s \longleftrightarrow city-**s**tates; *self*-«*aufheben*» '*meta-chiefdom*', or '*meta-tribal*', social for**m**ations $\xrightarrow{\tau_{16}}$ τ_{16} , each **city-State unit** a '*meta-chiefdom*', initially made of a heterogeneous multiplicity of **chiefdom** / **tribe** / **tribal units**.

The *first triad* of this, *historical* «*speci*»-ation' of the 'retro-observed' / *reconstructed historical progression* of "'*historically-speci*»-fic'" [cf. Marx] '*historical-species*' of **human**[oid] **society** in this '*psychohistorical dialectic*' of "'**human**[oid]-**social** for**m**ation(s)'" [cf. Marx], can be depicted as follows --

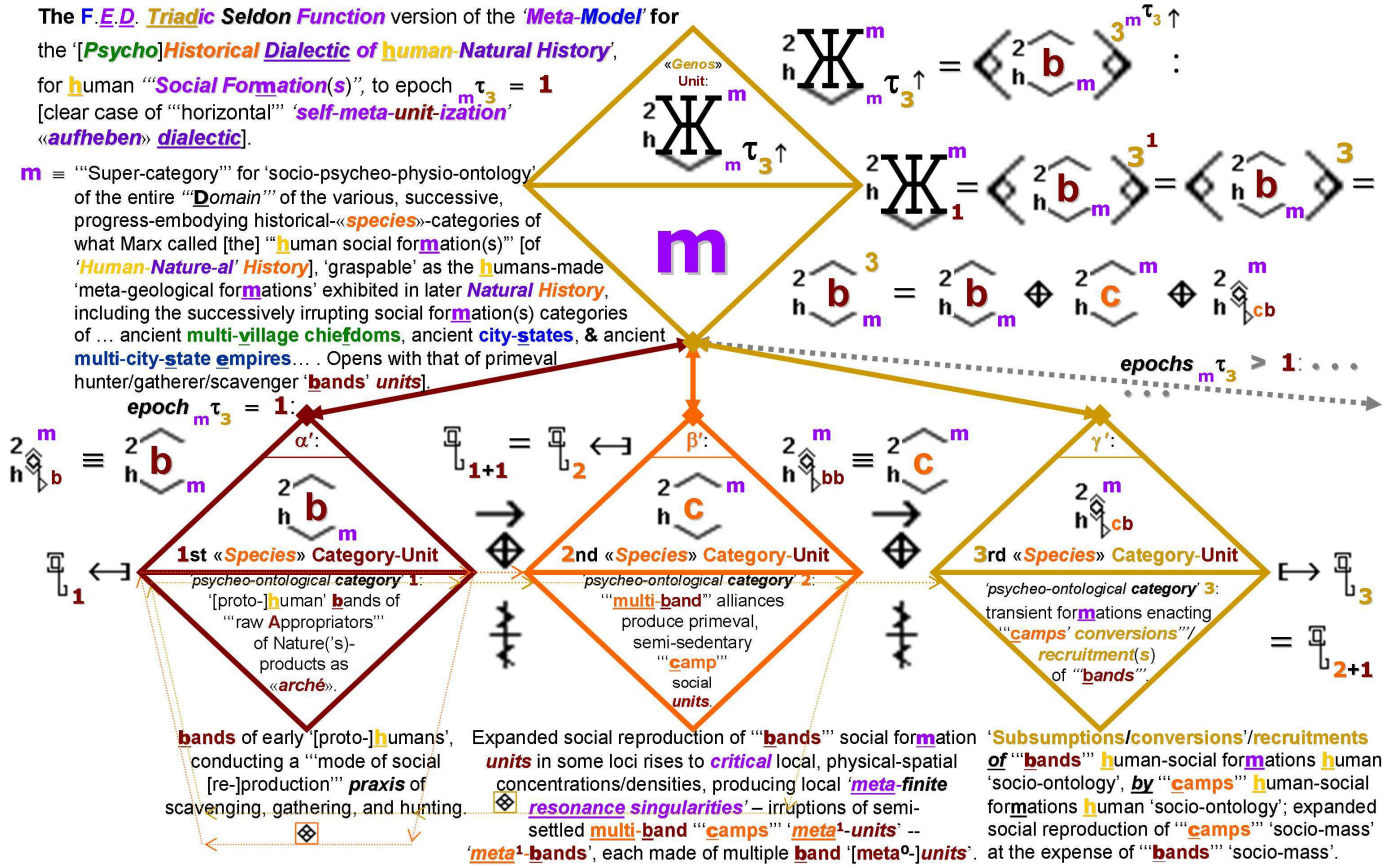
'Psychohistorical-Dialectical Meta-Equation of Human-Social Formation(s) Meta-Evolution' --

[Psycho]Historical Dialectic of 'Human-Nature-al' History, Social Formation(s), 1st Triad.

The **F.E.D. Triadic Seldon Function** version of the '**Meta-Model**' for the '[Psycho]Historical Dialectic of human-Natural History',

for human **"Social Formation(s)"**, to epoch $\tau_3 = 1$ [clear case of "horizontal" '**self-meta-unit-ization**' «aufheben» dialectic].

m = "Super-category" for 'socio-psycho-physio-ontology' of the entire **"Domain"** of the various, successive, progress-embodiment historical-«**species**»-categories of what Marx called [the] **"human social formation(s)"** [of '**Human-Nature-al**' History], 'graspable' as the **humans-made** 'meta-geological formations' exhibited in later **Natural History**, including the successively interrupting social formation(s) categories of ... ancient **multi-village chiefdoms**, ancient **city-states**, & ancient **multi-city-state empires**... Opens with that of primeval hunter/gatherer/scavenger '**bands**' units.



e. Categorical solutions of interest, either observed as already having interrupted into possibility/actuality in **past** epochs, or as predicted to interrupt into possibility/actuality in **future** epochs, $\tau_m > 4$ --

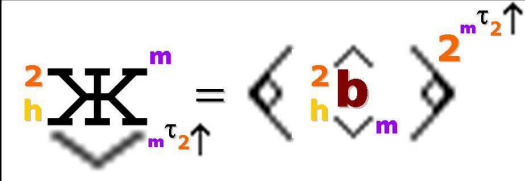
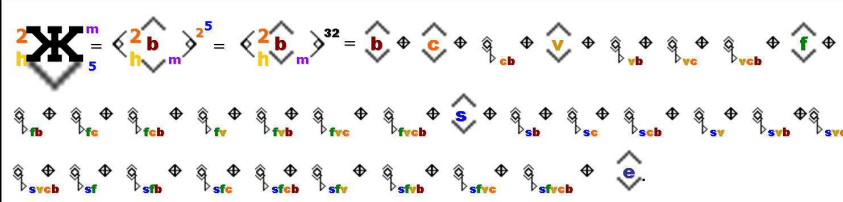
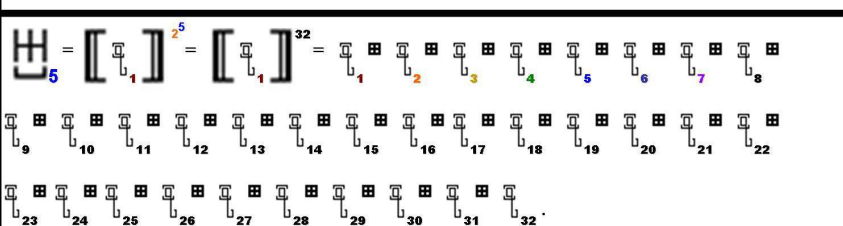
e ↔ **empires**, **multi-city-state**, **self-«aufheben»** '**meta-city-states**' $\rightarrow \tau_{32}$.
each **empire unit** a '**meta-city-state**' unit, made up out of a heterogeneous multiplicity of **city-state units**.

n ↔ **nation-states**; **multi-empire-remnant self-«aufheben»** '**meta-empires**' $\rightarrow \tau_{64}$.
each **nation-state unit** a '**meta-empire**' unit, typically made up out of a heterogeneous multiplicity of **past/fallen empire-fragments units**.

p ↔ **planetary-polis**; **multi-nation-state self-«aufheben»** '**meta-nation-states**' [not yet known extant] $\rightarrow \tau_{128}$.
each **planetary-polis unit** a '**meta-nation-state**' unit, made up out of a heterogeneous multiplicity of **nation-state units**.

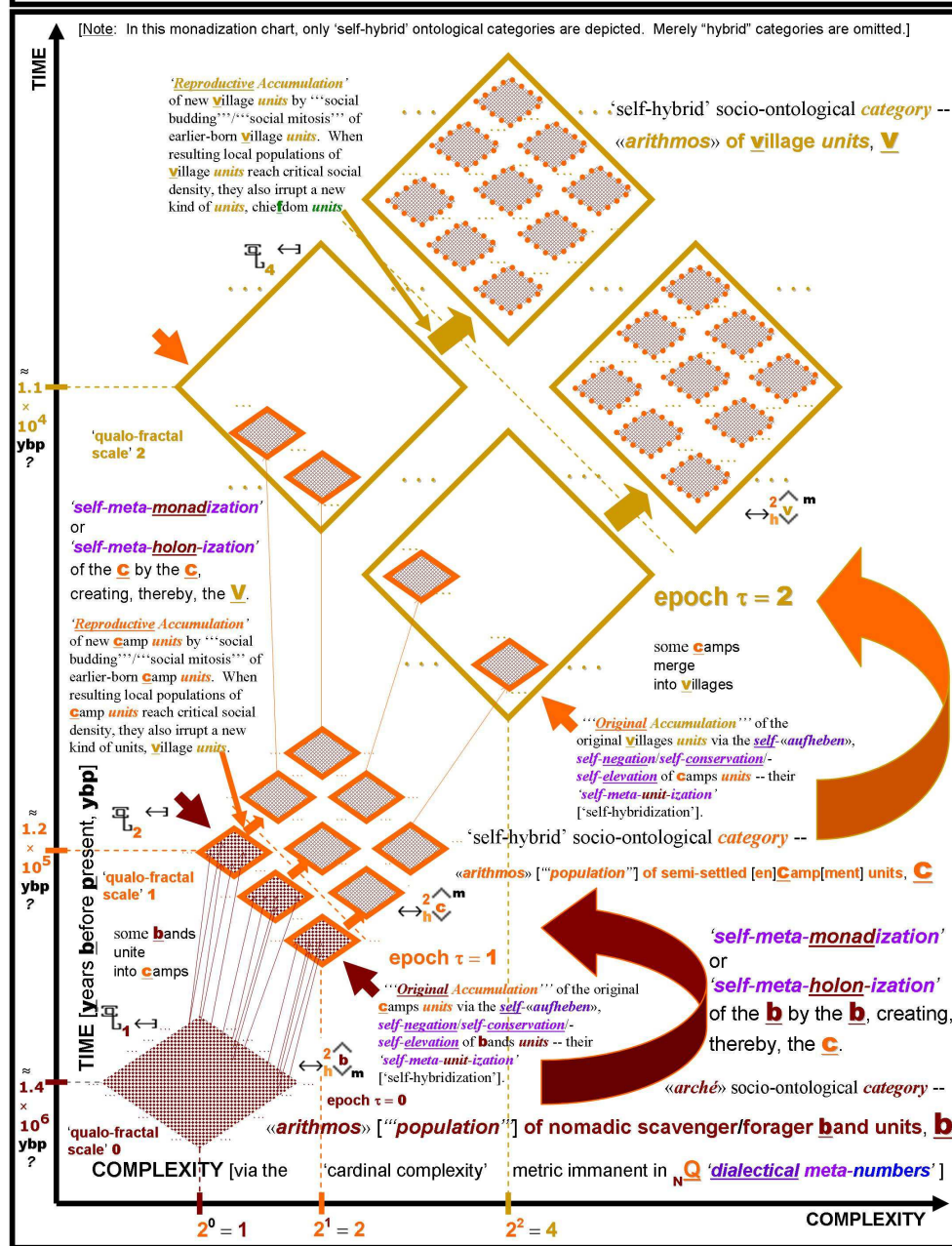
m ↔ **multi-planetary** federations; **self-«aufheben»** '**meta-planetary-polis**' [not yet known extant] $\rightarrow \tau_{256}$.
each **multi-planetary federation unit** a '**meta-planetary-polis**' unit, made up out of a heterogeneous multiplicity of **planetary-polis units**.

Dialectical Models Specification --

<u>Dialectical Models Specification: 'Meta-Equation of Human-Social Formation(s) Meta-Evolution'</u>	
Level, n , in <u>Encyclopedia Dialectica Universal Taxonomy</u>	Level n = 2 , primarily physical/non-psychohistorical “materialities”.
<u>universe</u> [-of-discourse], u , in <u>Encyclopedia Dialectica Universal Taxonomy</u>	[sub-] <u>universe</u> u = h , the [sub-] <u>universe</u> [-of-discourse] of h uman[oid] species.
<u>Domain</u> , D , within u , per <u>Encyclopedia Dialectica Universal Taxonomy</u>	D = m , h uman-social/geographical, ‘meta-geological’ for m ations.
<u>species</u> of <u>dialectic</u> modeled	Psychohistorical Dialectic .
<u>independent variable</u>	[psycho]historical cardinal/ordinal epoch of h social for m ation(s), $m\tau_2 \in \mathbf{N}$.
<u>dialectical language applied</u>	the ‘meta-number space’ of the Seldonian ‘ First Dialectical Arithmetic ’, $\mathbf{N_Q}$.
‘ <u>meta-model</u> ’ functional form	$v = \mathbf{2}$, Dyadic Seldon Function .
« <u>arché</u> » category selected	primeval forager/scavenger “bands” of primitive [proto-] h uman[oids], b .
‘ <u>Meta-Model Meta-Equation</u> ’	<div>  </div> <div> \mathbf{X} = ‘categorograms’ sum, non-amalgamative; multi-ontology cumulum. \vee = ‘contra-Boolean’ term in algebraic behavior. \wedge = categorial single unit term. \uparrow = ‘the arrow of history’; “time’s arrow”; sign for consecutive monotonic escalation of “pure quantity” variable to its left. \langle, \rangle = special parentheses for ‘histories-models’. </div>
‘ <u>self-hybrid categories</u> ’ solutions	$\underline{\mathbf{c}} = \underline{\mathbf{c}}$ amps = $\langle \mathbf{c} \rangle_{bb}$; $\underline{\mathbf{v}} =$ multi- c amp v illages = $\langle \mathbf{v} \rangle_{cc}$; $\underline{\mathbf{f}} =$ multi- v chief d oms = $\langle \mathbf{f} \rangle_{vv}$; $\underline{\mathbf{s}} =$ multi- f [“multi-tribe”] city- s tates = $\langle \mathbf{s} \rangle_{ff}$; $\underline{\mathbf{e}} =$ multi- s empires = $\langle \mathbf{e} \rangle_{ss}$; ...
‘ <u>hybrid categories</u> ’ solutions – some examples	$\langle \mathbf{f} \rangle_{vv}$ = chief d oms recruiting/coercing v illages to absorb into said chief d oms; $\langle \mathbf{e} \rangle_{ss}$ = e mpires conquering/incorporating formerly-independent city- s tates.
‘ <u>Dialectical Equation-Model</u> ’ specific categorial progression / cumulum for epoch $m\tau_2 = \mathbf{5}$, for domain m of [sub-] <u>universe</u> h , E.D. Universal Taxonomy Level 2 .	
‘ <u>generic</u> ’ categorial progression / cumulum for epoch h h = 5 , common to all Dyadic Seldon Function dialectical model categorial progressions/cumula.	

The next image depicts this ‘meta-model’s’ **1**st **2** stages of dialectical, «*aufheben*» ‘**self-meta-monad-ization**’ --

Monadization Chart: Dialectic of Human-Social Formation(s).



For more amplitude regarding this particular 'psychohistorical-dialectical meta-model' and its 'psychohistorical-dialectical meta-equation', see –

Robert Wright, *NONZERO: The Logic of Human Destiny*, Pantheon [NY: 2000], pp. 20, 78-92, 102, 109, 110-111, 12, 113, 125, 165, 353, 355, 357, 363, 365, 368, 376, 402, etc.: [<http://nonzero.org/toc.htm>].

http://www.dialectics.org/dialectics/Primer_files/4_F.E.D.%20Intro.%20Letter.%20Supplement%20B-1.%20v.2_OCR.pdf [p. B-23]

http://www.adventures-in-dialectics.org/Adventures-In-Dialectics/DiaRith/Intro/Dialectical-Ideography_An-Introductory-Letter.htm#Example_5

http://www.adventures-in-dialectics.org/Adventures-In-Dialectics/DiaRith/Intro/Dialectical-Ideography_An-Introductory-Letter.htm#An_Ideography_for_Example_5

http://www.dialectics.org/dialectics/Briefs_files/F.E.D.-Brief2-part3-07DEC2008_OCR.pdf

http://www.adventures-in-dialectics.org/Adventures-In-Dialectics/Dialectical_Pictography/Dialectical_Pictography.htm [slides 54-59]

V. The Equation of the *Human Genome* \ *Human 'Phenome'* *Systematic-Dialectic*.

a. «*Arché*»: The *human* *G*enome, as continually-*present*, mediately ['Darwinianly']-developing *meta-system*, since its *proto-human* origin, $\underline{G} \mapsto \mathbb{Q}_1$.

b. '*Triadic Seldon Function*' *Model Equation* Formula: $\mathbb{H}_{s_u} = (\underline{G})^{3^s_u}$.

c. Solution to epoch $s_u = 1$:

$$\mathbb{H}_1 = (\underline{G})^{3^1} = (\underline{G})^3 = \underline{G} \oplus \underline{P} \oplus \underline{PG} \mapsto \mathbb{Q}_1 \boxplus \mathbb{Q}_2 \boxplus \mathbb{Q}_3.$$

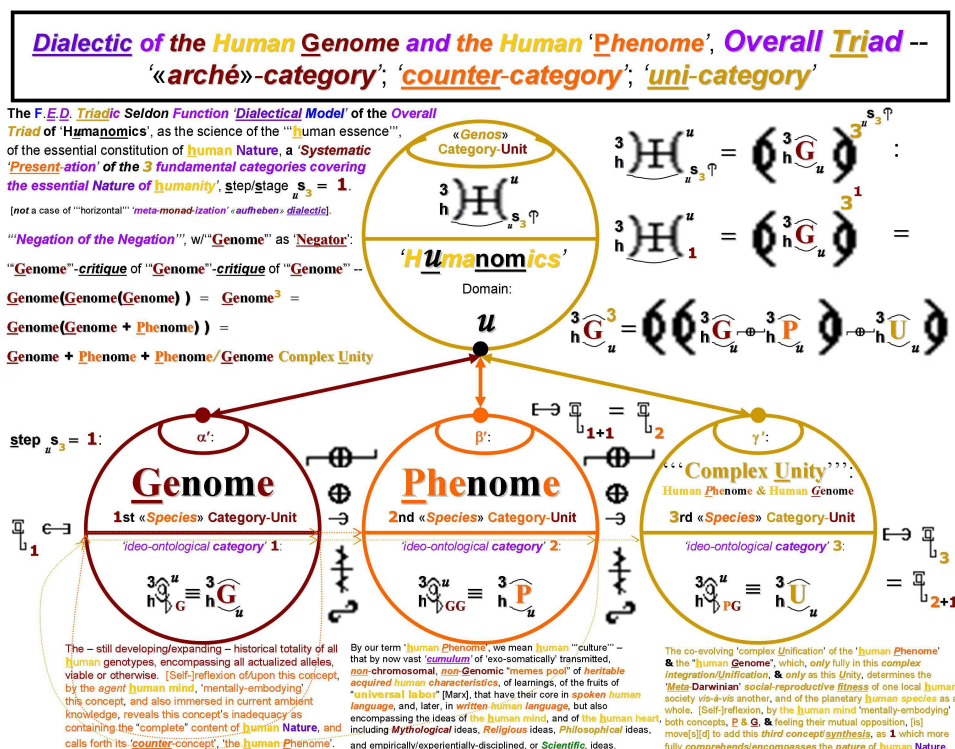
d. The categories of *human*[oid] *genomic* \ *human*[oid] *phenomic* '*co-meta-evolution*' can be summarily described as follows, using the '*systematic-dialectics*' assignment symbols, ' \mapsto ' and ' \mapsto ' --

$\underline{G} \mapsto$ The continually '*meta-evolving*' "*human G*enome" $\mapsto \mathbb{Q}_1$.

$\underline{P} \mapsto$ The '*meta-evolving*' '*human P*henome' of *non*-chromosomal, phenotypic, cultural, "acquired characteristics" $\mapsto \mathbb{Q}_2$.

$\underline{PG} \mapsto$ Their "*co-meta-evolving*" *hybrid*; the "*complex unity*" of the *human P*henome \ *human G*enome $\mapsto \mathbb{Q}_3$.

The *overall triad* of this [*Method of*] *Presentation* [= "*Systematic Dialectic*"] for this minimal *progression* of '*ideo-ontological*' conceptions of *human*[oid] *Nature* can be depicted as follows. The sign ' \mapsto ' indicates the order and direction of categorial *presentation* [the "*arrow of micro-historical micro-time*", if you will] --



For more amplitude regarding this particular "*psychohistorical-dialectical model*" and its "*psychohistorical-dialectical equation*", see --

<http://point-of-departure.org/Point-Of-Departure/ClarificationsArchive/PsychoHistory/PsychoHistory.htm>

VI. The Equation of the Meta-Evolution of *Planetary Human*[oid]ities.

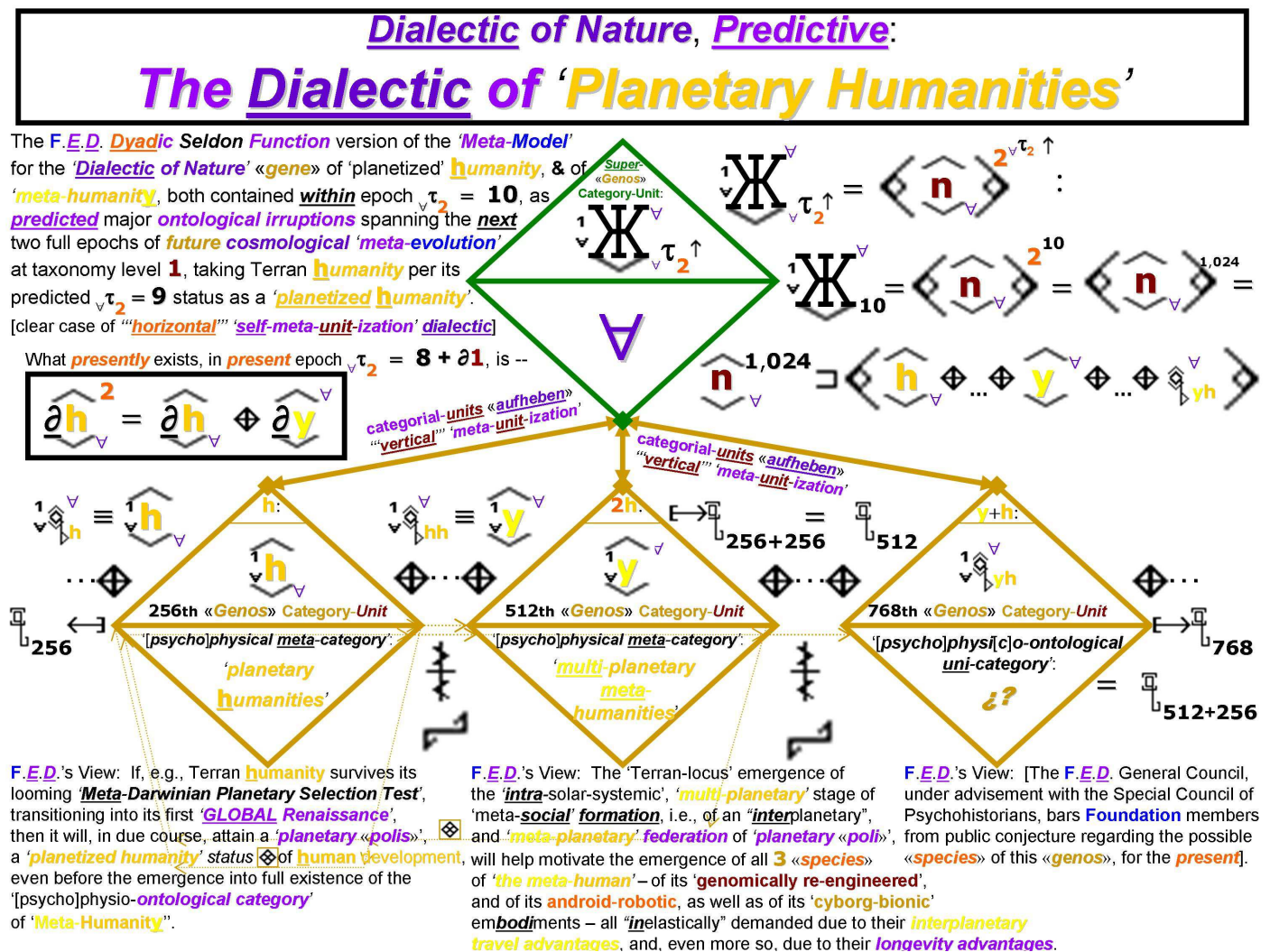
a. «*Arché*»: ‘planetary *human*[oid]ities’, $\downarrow \mathbf{h} \vdash \rightarrow \downarrow 256$.

b. ‘*Dyadic Seldon Function*’ Formula: $\downarrow \mathbf{h} \vdash \rightarrow \downarrow \tau_2 \uparrow = \langle \downarrow \mathbf{h} \rangle^{2^{\tau_2 \uparrow}}$.

c. Solution for epoch $\downarrow \tau_2 = 1$:

$$\downarrow \mathbf{h} \vdash \rightarrow \downarrow 1 = \langle \downarrow \mathbf{h} \rangle^{2^1} = \langle \downarrow \mathbf{h} \rangle^2 = \downarrow \mathbf{h} \oplus \downarrow \mathbf{h} = \downarrow \mathbf{h} \oplus \downarrow \mathbf{y} \vdash \rightarrow \downarrow 256 \boxplus \downarrow 512.$$

This predicted, next-epoch ‘«*gene*»-ation’ of $\downarrow \mathbf{h} \vdash \rightarrow \downarrow \mathbf{y} \vdash$, the ‘pre-constructed’ next new ‘self-hybrid’ «*genos*» of ‘*cosmo-ontology*’, can be depicted as follows --



d. The two ‘[*psycho*-]*physio-ontological categories*’ for this *meta-evolution of planetary human[oid]ities equation*, and the *three sub-categories* of the *second*-to-emerge into possibility of those *categories*, can be summarily described as follows, using the ‘historical-systems’ assignment symbols, ‘ \longleftrightarrow ’ and ‘ $\xrightarrow{\mathbb{T}}$ ’ --

$\mathbb{T}_1^1 \mathbf{h}_y \longleftrightarrow$ ‘planetized *humanities*’ [or ‘planetized *human[oid]ities*’] $\xrightarrow{\mathbb{T}_1}$

$\mathbb{T}_1^1 \mathbf{h}_y \longleftrightarrow \mathbb{T}_1^1 \mathbf{y}^y \longleftrightarrow$ ‘*meta-humanity*s’ $\xrightarrow{\mathbb{T}_2}$; a predicted, or ‘mathematically pre-constructed’ ‘taxonomy level 1’ ‘*genos*’ with 3 predicted ‘body-form’ ‘*species*’, \mathbf{g}_y , \mathbf{r}_y and \mathbf{c}_y --

$$\mathbf{y}^y \mathbb{T}_1^1 = \langle \mathbf{g}_y \rangle^3 = \langle \mathbf{g}_y \rangle^3 = \mathbf{g}_y \oplus \mathbf{g}_y \oplus \mathbf{g}_y = \mathbf{g}_y \oplus \mathbf{g}_y \oplus \mathbf{g}_y = \mathbf{g}_y \oplus \mathbf{r}_y \oplus \mathbf{c}_y \xrightarrow{\mathbb{T}_1 \boxplus \mathbb{T}_2 \boxplus \mathbb{T}_3} \dots$$

$\mathbf{g}_y \longleftrightarrow$ ‘Thesis’ ‘*species*’: ‘*meta-humanity*’ via *human-g*enomic self-re-engineering $\xrightarrow{\mathbb{T}_1}$

$\mathbf{r}_y \longleftrightarrow \mathbf{g}_y$ -‘*aufheben*’ ‘Antithesis’ ‘*species*’: ‘*meta-humanity*’ via *android r*obotics $\xrightarrow{\mathbb{T}_2}$

$\mathbf{r}_y \mathbf{g}_y \longleftrightarrow \mathbf{c}_y \longleftrightarrow$ ‘Synthesis’ ‘*species*’: ‘“*complex unity*”’ of \mathbf{r}_y & \mathbf{g}_y : ‘*meta-humanity*’ via *Cyborg* prosthetics/bionics $\xrightarrow{\mathbb{T}_3}$

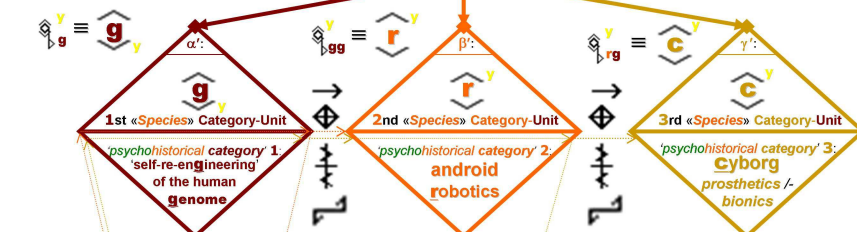
The *triad* of this predicted, next-epoch ‘*speci*’-ation’ of the body-forms ‘*species*’ of this new ‘*genos*’ ‘*cosmo-ontological*’ category, that of ‘*meta-humanity*’, can be depicted as follows --

Predicted Historical Dialectic -- The ‘Speci-ation’ of ‘The Meta-Human’; ‘*arché*’-category; first [full] ‘*contra*’-category; first [full] ‘*uni*’-category

The F.E.D. *Triadic Seldon Function* version of the ‘*Meta-Model*’ for The [Psycho]Historical Dialectic of the ‘body-form’ ‘*species*’ of ‘*Meta-Humanity*’, for epoch $\tau_3 = 1$, a predicted major ontological irruption in the next full epoch of cosmological ‘*meta-evolution*’ in taxonomy level 1, epoch $\tau_2 = 9$. [A subtle case of ‘*self-meta-unit-ization*’ dialectic]

What presently exists, in present epoch $\tau_2 = 8 + \partial 1$, is --

$$\mathbf{g}_y^3 = \mathbf{g}_y \oplus \mathbf{r}_y \oplus \mathbf{c}_y \quad \mathbf{g}_y^3 = \mathbf{g}_y \oplus \mathbf{r}_y \oplus \mathbf{c}_y \quad \mathbf{g}_y^3 = \mathbf{g}_y \oplus \mathbf{r}_y \oplus \mathbf{c}_y$$



F.E.D.’s View: The ‘*self-re-engineering*’ of the *human genome*, mediated through the advanced biotechnologies of the later *human* ‘phenome’, driven by the exigencies of a space-faring civilization, but also driven, most irresistibly, by the ultimate in ‘*inelastic demand*’ -- demand for the *ultra*, ‘*über*’-utility of marked *human* life-span extension, is the intended meaning of this term.

F.E.D.’s View: The ‘*generalization*’ of key *human* body parts, i.e., the mapping of innumerable instances/units of such *human* body-parts to single, standard, *non*-genomic, ‘artificial’, ‘artefactual’, e.g., metal, plastic, ceramic, etc., *android robot* body-parts, thus as body-part ‘*meta-units*’ to the *human*-genomic body-part *units*, is the meaning intended for this term. The prehistory to this predicted *new ontology* has long existed, in special purpose, *non*-android robots.

F.E.D.’s View: The *combination*, the ‘*complex-unification*’, or the ‘*ontological hybridization*’, of *android robot* parts with *genomically-reengineered* *human* parts, is the intended meaning of this term. The prehistory to this predicted *new ontology* is already extant in *humans* sustained by artificial hearts, heart pace-maker implants, artificial corneas, hip-replacements, etc., etc.

For more amplitude on this particular ‘“*psychohistorical-dialectical model*”’ and its ‘“*psychohistorical-dialectical equation*”’, see – http://www.dialectics.org/dialectics/Dialectic_Ideography_files/DI_Prolegomena-Epitome-24OCT2009.pdf [p. I. 19]

VII. The Meta-Equation of *The Psychohistorical Dialectic of the Dialectic Itself*.

a. «*Arché*»: Systematic / Synchronic *Dialectics*, #S $\mathbb{E} \rightarrow \mathbb{T}_1$.

b. '*Dyadic Seldon Function*' '*Meta-Equation*' Formula: $\# \overline{\text{S}}_{\tau_{\#}^{\uparrow}} = \langle \# \underline{\text{S}} \rangle^{2^{\tau_{\#}^{\uparrow}}}$.

c. Solution to epoch $\tau_{\#} = 2$:

$$\begin{aligned} \# \overline{\text{S}}_2 &= \langle \# \underline{\text{S}} \rangle^{2^2} = \langle \# \underline{\text{S}} \rangle^4 = \\ &\# \underline{\text{S}} \oplus \# \overline{\text{SS}} \oplus \# \overline{\text{SSS}} \oplus \# \overline{\text{SSSS}} = \\ &\# \overline{\text{S}} \oplus \# \overline{\text{H}} \oplus \# \overline{\text{HS}} \oplus \# \overline{\text{HH}} = \# \overline{\text{S}} \oplus \# \overline{\text{D}} \oplus \# \overline{\text{DS}} \oplus \# \overline{\text{DD}} = \\ &\# \underline{\text{S}} \oplus \# \underline{\text{H}} \oplus \# \underline{\text{M}} \oplus \# \underline{\Psi} \mathbb{E} \rightarrow \mathbb{T}_1 \boxplus \mathbb{T}_2 \boxplus \mathbb{T}_3 \boxplus \mathbb{T}_4. \end{aligned}$$

d. These four '*human-historical ideo-ontological categories*' of *Dialectics* can be summarily described as follows, using the '*psycho*historical-systems' assignment symbols, ' \leftrightarrow ' and ' $\mathbb{E} \rightarrow$ ' --

#S \leftrightarrow Systematic / Synchronic *Dialectics* $\mathbb{E} \rightarrow \mathbb{T}_1$.

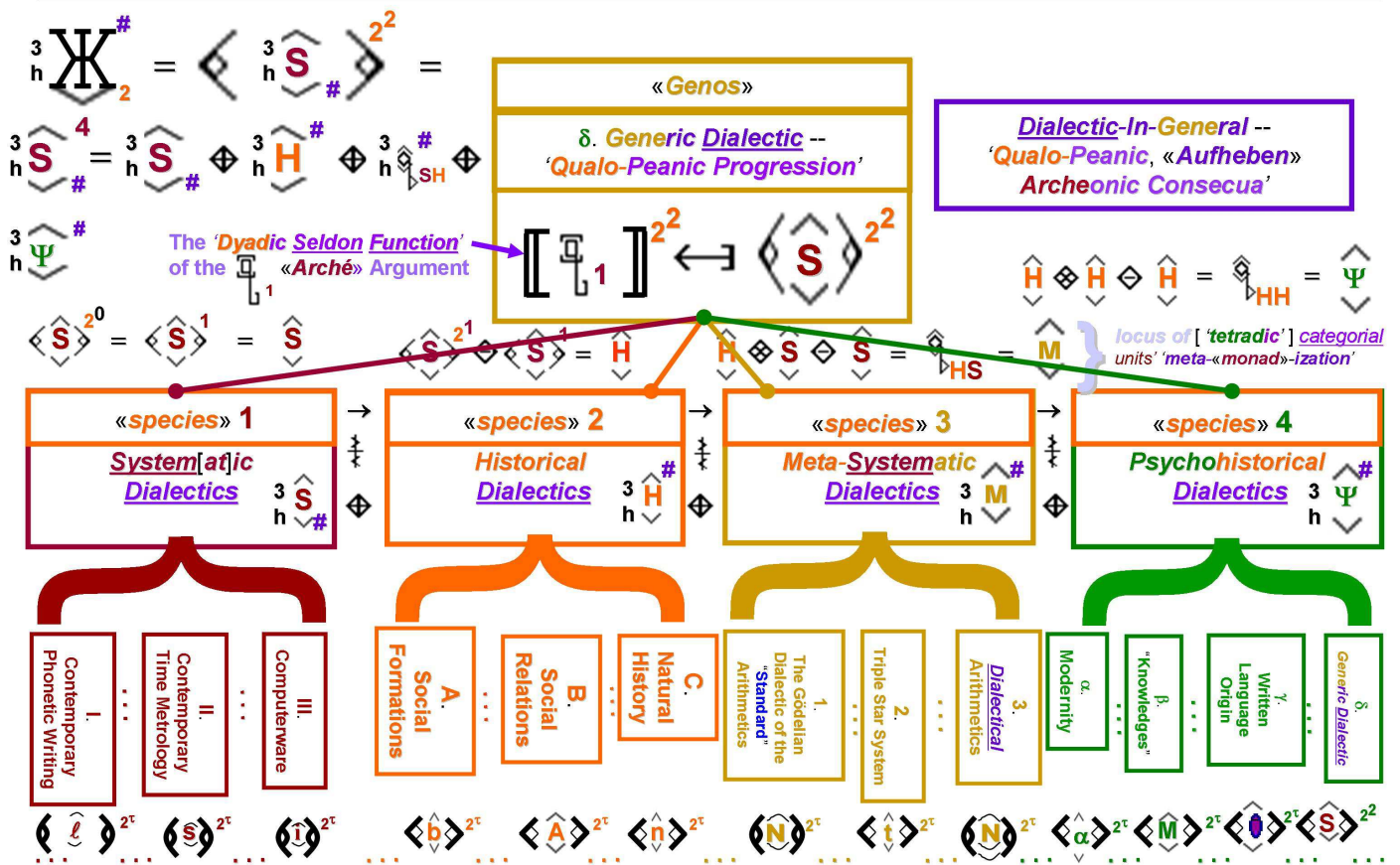
#H \leftrightarrow Historical / Diachronic *Dialectics* $\mathbb{E} \rightarrow \mathbb{T}_2$.

#M \leftrightarrow Meta-Systematic / Diachronico-Synchronic *Dialectics* $\mathbb{E} \rightarrow \mathbb{T}_3$.

#Ψ \leftrightarrow Psychohistorical, or 'Ψchohistorical', *Dialectics* $\mathbb{E} \rightarrow \mathbb{T}_4$.

The *tetrad* of the *historical* «*species*» of the «*genos*» of *dialectics*, can be depicted as follows --

The Dialectic of the Dialectic Itself



For more amplitude about this particular, very crucial 'psychohistorical-dialectical meta-model' and its 'psychohistorical-dialectical meta-equation', see –

<http://www.adventures-in-dialectics.org/Adventures-In-Dialectics/PreludePostludeLetters/Postlude7/Postlude7.pdf>

<http://point-of-departure.org/Point-Of-Departure/ClarificationsArchive/SystematicDialectics/SystematicDialectics.htm>

<http://point-of-departure.org/Point-Of-Departure/ClarificationsArchive/HistoricalDialectics/HistoricalDialectics.htm>

<http://point-of-departure.org/Point-Of-Departure/ClarificationsArchive/MetaSystematicDialectics/MetaSystematicDialectics.htm>

<http://point-of-departure.org/Point-Of-Departure/ClarificationsArchive/PsychohistoricalDialectics/PsychohistoricalDialectics.htm>

Key Challenges for “Simultaneous” and ‘QUANTO-Qualitative’ Solution of these 7 [Meta-]Equations.

1. Correlating the different “tempos”/temporalities/‘epochalities’ of the **six psychoHISTORICAL [meta-]equations** among the **seven [meta-]equations** presented above, since, in general, and given that ‘ $\mathbf{t}(\bullet)$ ’ denotes a function which converts **ordinal times** to **real, historical “Real” times** [really, to “**Rational-Number times**”] --

$$\{\mathbf{t}(\tau_{\mathbf{I}\backslash\mathbf{K}})\} \neq \{\mathbf{t}(\tau_{\mathbf{F}})\} \neq \{\mathbf{t}(\tau_{\mathbf{R}})\} \neq \{\mathbf{t}(\tau_{\mathbf{m}})\} \neq \{\mathbf{t}(\tau_{\mathbf{v}\mathbf{2}})\} \neq \{\mathbf{t}(\tau_{\#})\};$$
2. Modeling the thus coordinated **quantitative** ‘epochality’ using “continuous” rather than “discrete” arithmetical **models** of **time**, e.g., using **time-value** \mathbf{t} **not** in **W**; i.e., more specifically, using **time-value** \mathbf{t} **in** **R** | **R** \equiv the set of the “**Real**” **Numbers** -- **R** \ni $\mathbf{t} \notin$ **W**;
3. Re-expressing the ‘**quality meta-dynamics**’, or ‘**ontology meta-dynamics**’, of the **qualifier-sums** in these “purely”-**qualitative**, “purely”-**ontological** [meta-]equations, more determinately, as “[space-]time-varying” **evolution state trajectory** / **[self-]control path dynamics**, with [‘**metafinite**’, **ontologically-revolutionary**] “**singularities**”, for **time-function-quantifier quantified** state-variables and control-parameters, expressed in the higher, later **dialectical-ideographical languages** of combined, **dynamical** and ‘**meta-dynamical**’ [super²-][meta-]systems, by means of ‘**singularity semantification**’, resulting from ‘**ontological** and **metrical qualifier**’ ‘**re-qualification**’ of “**standardly**” “**unqualified**”, **quantifier(s)-only dynamical equations** [∴ also by **division-by-zero** ‘**semantification**’ & ‘**metafinalization**’, via the $\mathbf{u}\oplus$ axioms for the **revolutionary** new **mathematical** ‘**ideo-ontology**’ of ‘full zero’, ‘**0**’];
4. Facilitated by **1. & 2. & 3.**, solving this system of **7 [meta-]equations** “simultaneously”;
5. **Modeling** the ‘inter-mutual’ interactions among the **ontologically distinct** but co-existing actualities described by these **7 [meta-]equations**, i.e., **dialectically modeling** the interactions of the actualities described by each such [meta-]equation with the other, co-extant actualities described by each of the other such [meta-]equations.
6. Deriving a **single** ‘**super-meta-equation**’, unifying all **7** of the [meta-]equations presented above.