## Encyclopedia Dialectica

## Brief

## The $\underline{\underline{\text { Q }} \text { Dialectical Algebra }}$

## as «Characteristica Universalis»:

# A Step-by-Step Guide on How to Use It as an «Organon» for Discovery 

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## About the Author

Aoristos Dyosphainthos. The author wishes you to know the following about himself: "The General Council of the Foundation has asked me to help make dialectical ideography more accessible to the interested public, in a series of shorter works, written in a language a little bit closer to everyday English. Damned if I won't!"

## Contents Map

Title Page. The $\underline{\underline{Q}}$ Dialectical Algebra as *Characteristica Universalis»: A Step-by-Step Guide on How to Use It as an *Organon» for Discovery-Omni-Copyright Norice.
About the Author.

## Contents Map

(0) The $\underline{\underline{Q}}$ Dialectical Ideography as an Heuristic, Intentional/Intuitional 'Calculus for Discovery': General Instructions.

## (0.0) A Note to the Reader.

(0.1) Step 1. Assign the initial Ihypolthesis to $\hat{\mathrm{G}}_{1}$.
(0.2) Step 2. Insert the initial [hypo]thesis Symbol into the Generic $\underline{Q}_{\tau}$ 'Self-Iteration' Formula.
(0.3) Step 3. 'Self-iterate' the initial [hypo] thesis for $\tau=1$.
(0.4) Step 4. Contemplate/Calculate the Connotations/Intension of the first contra-thesis term, assigned to ${\underset{\mathrm{g}}{2}}^{\text {. }}$
(0.5) Step 5. 'Self-iterate' the initial [hypolthesis for $\tau=2$.
(0.6) Step 6. Contemplate/Calculate the Connotations/Intension of the first uni-thesis term, assigned to $\hat{\mathbf{G}}_{3}$.
(0.7) Step 7. Contemplate/Compute the Connotations/Intension of the second contra-thesis term, assigned to $\mathbf{G}_{4}$.
(1) Example 1: Historical Dialectic - The Dialectic of Nature [The «aufhebens Self-Progression of Natural Systems].
(1.1) Step a. Assign the ontological category for the physio-«arithmos» of "pre-nuclear monads" to $\stackrel{\wedge}{\hat{G}}_{1}$.
(1.2) Step $\mathbf{b}$. Insert the mnemonic ideogram denoting the "pre-nuclear monads" onto into the $\underline{\mathbf{Q}}_{\boldsymbol{r}}$ 'self-iterator'.
(1.3) Step C. 'Self-iterate' the "pre-nuclear monads" symbol for $\boldsymbol{\tau}=1$.
(1.4) Step d. Consider the connotations, the possible intension/identification, of the $\hat{G}_{n n}$ term, assigned to $\hat{G}_{2}$.
(1.5) Step e. 'Re-self-iterate' the result of the previous 'self-iteration', for $\boldsymbol{\tau}=\mathbf{2}$.
(1.6) Step f. Consider the connotations, the possible intension/identification, of the new term, assigned to $\mathbf{g}_{3}$.
(1.7) Step q. Consider the connotations, the possible intension/identification, of the new term, assigned to $\hat{\mathrm{f}}_{4}$.
(2) Example 2.: Meta-Systematic Dialectic -- The Dialectic of Arithmetical/Algebraical Systems of Logic.
(2.1) Step $\alpha$. Assign the rules-system for the ideo-«arithmos» of the Boolean "Logical Numbers"' to $\underline{G}_{1}$.
(2.2) Step B. Insert symbol denoting the rules-system of the Boolean "'Arithmetic of Logic"' into the $\underline{Q}_{\boldsymbol{r}}$ formula.
(2.3) Step $\gamma$. 'Self-iterate' the symbol denoting the rules-system of the Boolean "Logic-Arithmetic" for $\tau=1$.
(2.4) Step $\delta$. Consider the possible meanings of the resulting new term, assigned to $\hat{\mathbf{G}}_{2}$.
(2.5) Step $\boldsymbol{\varepsilon}$. 'Re-self-iterate' the result of the previous 'self-iteration', for $\boldsymbol{\tau}=\mathbf{2}$.
(2.6) Step $\mathcal{C}$. Consider the possible meanings of the resulting new term, assigned to $\hat{g}_{3}$.
(2.7) Step $n$. Consider the possible meanings of the resulting new term, assigned to $\hat{\mathrm{g}}_{4}$.
(3) Example 3.: Meta-Systematic Dialectic - The Dialectic of the Rules-Systems of Dialectical Ideography Itself.
(3.1) Step i. Assign the "first-order" rules-system for the ideo- $\alpha$ arithmos» of the "Natural Numbers", to $\mathbf{g}_{1}$.
(3.2) Step ii. Insert symbol denoting "first-order" rules-system of the "Natural Numbers" into $\underline{\mathbf{Q}}_{\pi}$ formula.
(3.3) Step iii. 'Self-iterate' symbol denoting "first-order" rules-system of the "Natural Numbers" for $\boldsymbol{\tau}=\mathbf{1}$.
(3.4) Step iv. Consider the possible meanings of the resulting new term, assigned to $\hat{\mathbf{G}}_{2}$.
(3.5) Step V. 'Re-self-iterate' the result of the previous 'self-iteration', for $\boldsymbol{\tau}=\mathbf{2}$.
(3.6) Step vi. Consider the possible meanings of the resulting new term, assigned to $\hat{G}_{3}$.
(3.7) Step vii. Consider the possible meanings of the resulting new term, assigned to $\stackrel{A}{A}_{4}$.

Appendix A. Example 4: Systematic Dialectic - A Q Model Derivation of the Content-Structure/Table of Contents of Das Kapital, Volume I., Part I., ©. Appendix B. Example 』: Meta-Systematic Dialectic - The Meta-System-ic, Meta-Dynamical, Disjunctive-Syllogistic Structure undergirding this Work as a Whole.

## (0) The $\underline{\underline{Q}}$ Dialectical Ideography as an Heuristic, Intentional/Intuitional 'Tool of Discovery'.

(0.0) A Note to the Reader. This Brief will be, indeed, unusually brief relative to the literature of the Foundation so far extant. It will also, necessarily, therefore, be short on illustrations, and therefore, too, somewhat abstract. You have my promise to provide, at a later date, a "cookbook" full of "'worked examples"' of the uses of dialectical ideography -- examples mostly not treated elsewhere in the F.E.D. writings extant so far, and, in many cases, elicited on a more mundane, less grandiose scale than are the three main examples of this Brief.

- A.D.
[A Note on Notation: We delimit major, formal hypotheses - typically textual, \& denoted generically, here, by ellipsis dots, '...' - as follows: —.. [though the majority of the material, so enclosed or not, remains conjectural], vs. [proven] theorems, derived deductively from explicit axioms, via..- . . Single quote-marks enclose 'self-quotes' of our own coinages. Double quote-marks enclose exact quotes of others. Triple quote-marks enclose approximate, paraphrased, or re-interpreted quotes of others. Double 'angle marks', «...», enclose non-English words, transliterated or rendered in their own alphabets. We use (1) an «arithmos" of 'rectilinearly-styled' ideograms,
 'curvilinearly-styled' ideograms, $\{\rightarrow, \underline{\boldsymbol{\Delta}}, \boldsymbol{\Omega}, \oplus, \oplus, \otimes, \mathbb{1}, \mathbb{D}\}$, for that dialectical ideography as interpreted for systematic dialectic as well as for 'meta-system-atic dialectic', and (3) an «arithmos" of 'dia-gon-al', or 'angularly-styled' ideograms, namely, the symbols-set $\left\{\rightarrow, \underline{\Delta},{ }^{4}, \vdash^{-\infty}, \oplus, \mathbb{\otimes}, \downarrow\right\}$, for that dialectical ideography as interpreted for historical dialectic.].


## (0.1) Step 1. Assign the initial [hypo] thesis to $\mathbf{~}_{1}$.

Suppose that you have formed an initial [hypo] thesis, mnemonically denoted by $\underline{\boldsymbol{\alpha}}$, as to the root, seed, or originating/governing ontological category for the dynamical-taxonomic classification, and systematic 'theorization', of a universe of discourse that has already come to be known to you -- that has been experienced previously by you -- 'unsystematically', or "chaotically" [cf. Marx].

Once you have identified this «arché» ontological category, or classification -- this "governing source" or "beginning" -- you may then proceed to employ the $\mathbf{Q}$ arithmetic, its algebra, and its 'organonic algebraic method', as set forth herein, to 'solve for the successor ontology' -- to heuristically facilitate your dialectical, [meta-]systematic ordering, theoretico-intuitive comprehension, and scientific/'psycho-historical' mastery of that empirical/experiential material.

The first step is to associate -- to "assign", or "interpret" -- that initial hypothesis, or «arché" thesis, with the first meta-number of the $\underline{\mathbf{Q}}$ succession, namely, with $\underline{\underline{\mathbf{g}}}_{1}$. We denote that action of assignment by --

$$
{\stackrel{A}{\mathbf{g}_{1}} \leftrightarrow \underline{\alpha}}_{\underline{\alpha}}
$$

or

$$
\hat{\mathbf{g}}_{1} \leftrightarrow \underline{\text { thesis }}_{1}
$$

-- making sure that what $\underline{\boldsymbol{\alpha}}$ stands for is, say, an alphabetical character-symbol, or phonogram, converted by you, for this usage, into a 'phono-mnemonic ideogram', which abbreviates, for you, and 're-minds' you of, a definite meaning, or "intension", connoting, for you, a unified complex of determinations -- of aspects, attributes, characteristics, facets, features, or predicates. It should, that is, 'character-ize', for your mind, the originating category of the domain of your experience which you wish to comprehend categorially, systematically, and 'onto-dynamically' -- in short, dialectically.

Scholium 0.1 - Whenever one employs the $\underline{Q}$ ideography as an heuristic tool to re-explore one's experience of a given sub-totality, for the systematic re-construction of a domain or universe of discourse for that totality, one is by that practice entertaining, at least implicitly, an hypothesis that the self-development of that domain, and/or of that sub-totality, is a special case of the generic pattern of self-development which the $\underline{Q}$ rules-system encodes and codifies; that the domain in question, and/or the sub-totality in question, can be fittingly modeled as one which self-deoelops as an 'caufheben", qualo-Peanic, archeonic consecuum-cumulum', i.e., that this domain's and/or this sub-totality's self-construction is a "species» of the $\underline{Q}$ "genos" - of the "genoss of "dialectic". The use of this heuristic tool should be expected to be misguiding, or "dia-bol-ikoss, as well as «hyper-bol-ikósn, for applications for which this hypothesis is incorrect. The use of this «organon" should, on the contrary, be expected to be 'guidant', or "sym-bol-ikós", as well as "para-bol-ikós", for those applications for which this hypothesis is correct.
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（0．2）Step 2．Insert the initial［hypo］thesis Symbol into the Generic $\underline{\mathbf{Q}}_{\mathbf{c}}$＇Self－Iteration＇Formula．

（0．3）Step 3．＇Self－iterate＇the initial［hypo］thesis for $\tau=1$ ．
［ Note on Notation：For their usage herein，the ideograms listed below may be defined as follows－
$' \Rightarrow$＇stands for the word＂implies＂；
＇ $\mathbf{m}$＇stands for＂equals by definition＂；
＇⿴囗十⿰丨丨⿱一一 ＇denotes a generalized addition operation，including both the heterogeneous and the idempotent－－opposite extreme－cases；
＇$\sigma^{\text {n＇}}$ denotes the operation of＇＂aufheben＂self－negation＇－－＂＇the dialectical operator＂＇par excellence；
＇${ }^{\text {＇}}$＇denotes the＇qualitative metafinite－differencing operator＇or＇ontology－incrementor＇，and；
＇凶＇denotes a generalized multiplication operation，namely，＇dialectical product－tion＇］．
Write down：$\tau=1 \Rightarrow{ }^{\alpha} \underline{Q}_{\tau}=\underline{ }^{\alpha} \underline{Q}_{1}=\llbracket \underline{\alpha} \rrbracket^{2^{1}}=\llbracket \underline{\alpha} \rrbracket^{2}=\underline{\alpha} \llbracket \underline{\alpha} \rrbracket=\tau \underline{\alpha} \rrbracket=$



That is，apply that＇generalized multiplication＇rule of the rules－system $\underline{\underline{\mathbf{Q}}}$ which we call the＇«aufheben» evolute product rule＇．That rule，for any＂Natural＂Numbers $\boldsymbol{\ell}$ ， $\mathbf{m}$ ，and $\mathbf{n}$ ，such that $\boldsymbol{\ell}+\mathbf{m}=\mathbf{n}$ ，i．e．，for any three numbers in the ensemble，or＇ideo－«arithmos»＇，denoted by $\mathbf{N} \equiv\{1,2,3, \ldots\}$ ，prescribes the following， generic，algorithm，which＇arithmeticizes＇the operation of the conservation of $\hat{\underline{G}}_{\mathrm{m}}$ by $\underline{\hat{g}}_{\ell^{\prime}}$ plus its $\ell$ elevation－－

$$
\underline{\underline{G}}_{\ell} \otimes \hat{\underline{G}}_{\mathrm{m}}=\quad \underline{\mathbf{g}}_{\mathrm{m}} \text { 田 } \underline{\underline{G}}_{\ell+\mathrm{m}}=\hat{\mathbf{g}}_{\mathrm{m}} \text { 田 } \underline{\underline{g}}_{\mathrm{n}}
$$

－－which，for the special case of the＇self－«aufheben»＇operation wherein $\ell=\mathbf{m}$ ，as above，for $\ell=1$ ，becomes－－
－－remembering that，for any＂Natural＂ $\mathbf{N}$ umbers $\mathbf{m}$ ，and $\mathbf{n}, \mathbf{m} \boldsymbol{m}$ implies that the unit－length，directional line－segment representing $\hat{\mathbf{G}}_{m}$ in the geometrical model of ${ }_{\mathbf{N}} \underline{\mathbf{Q}}$ ，i．e．，in the＇analytical－geometric space＇of $\underline{\underline{N}} \underline{\underline{\mathbf{Q}}}$ ，is perpendicular to the one representing $\hat{\mathbf{G}}_{n}$ ，or $\hat{\mathbf{G}}_{\mathrm{m}} \perp \hat{\mathbf{G}}_{\mathrm{n}}$ ，and that $\hat{\mathbf{G}}_{\mathrm{m}}$ is then non－qualitatively different from
 addition＇for the case of＇non－homogeneous sums＇，or＇heterogeneous sums＇，holds，for that reason，that $\hat{\mathbf{G}}_{m}$ 田 $\mathbf{g}_{n}$ ， cannot amalgamate，or reduce，to any $\hat{\mathbf{G}}_{\mathbf{x}}$ such that $\mathbf{X}$ is in $\mathbf{N}$ ，i．e．，such that $\hat{\mathbf{g}}_{\mathbf{x}}$ is in $\mathbf{N} \mathbf{Q}$ ．Re－expressed via the
 Note how the $\mathbf{Q}$ product－rule achieves an＇ideographical mimesis＇of Hegel＇s «aufheben» operation of qualitative transformation／elevation／conservation，thus making each $\underline{\underline{\mathbf{Q}}}$＇meta－number＇an «aufheben» operator．
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(0.4) Step 4. Contemplate/Calculate the Connotations/Intension of first contra-thesis term, assigned to $\hat{\mathbf{G}}_{2}$. Next, contemplate the possible ontological, qualitative, categorial, or taxonomic, 'classificatorial' meaning, or connotation, of 'delta- $\boldsymbol{\alpha}$ ', $\underline{\underline{\alpha}}$, or $\underline{\underline{G}}_{\alpha \alpha}$, in terms of your experience of the sub-totality, and universe of discourse, you are re-exploring, and in terms of your mental perception of your «arché», mnemonic, intensional/connotational symbol, $\underline{\boldsymbol{\alpha}}$ or $\underline{\underline{\mathbf{G}}}_{\alpha}$. Expect that the connotations of $\hat{\mathbf{g}}_{\alpha \alpha}$ will be, in some way(s), contrary to those of $\hat{\mathbf{G}}_{\alpha}$, 'intensioning' some determinations opposite to those of $\underline{\underline{\boldsymbol{q}}}_{\alpha}$ for some of the key characteristics of $\underline{\mathbf{G}}_{\alpha}$ or $\underline{\boldsymbol{\alpha}}$.

As you come to an intuitive grasp of this 'oppositional addition' [- $-\mathbb{-}$ ] aspect of the addition of $\hat{\underline{G}}_{\alpha}$ and $\underline{\underline{G}}_{\alpha \alpha}-$

- with $\hat{\mathbf{G}}_{\alpha}$ denoting your '«arché" thesis' and $\hat{\mathbf{G}}_{\alpha \alpha}$ denoting its first 'contra-thesis', frame a new, singular 'abbreviative ideogram', a univocal, mnemonic ""character[izing]-symbol"', or 'intuitive literal', to stand, more meaningfully, in place of $\hat{\mathbf{G}}_{\alpha \alpha}$, to record your own advancing cognition of the potential meaning of $\hat{\mathbf{g}}_{\alpha \alpha}$. We will denote this new symbol, here, per the generic-descriptive purposes of this section, generically, by $\underline{\beta}$, so that the categorial self-progression modeled by $\llbracket \underline{\alpha} \rrbracket^{2^{\tau}}$ so far, to $\tau=1$, looks like this --

$$
\underline{\alpha} \quad \rightarrow \quad \underline{\alpha}-\underline{\beta} \quad \leftrightarrow \quad \underline{\underline{g}}_{1} \quad \rightarrow \quad \underline{g}_{1} \rightarrow-\hat{\underline{g}}_{2}
$$

-- such that $\underline{\boldsymbol{\alpha}}-\boldsymbol{m}-\underline{\boldsymbol{\beta}}$ denotes the first 'antithesis-sum' emerging from the connotations of the 'first thesis', $\underline{\boldsymbol{\alpha}}$, now explicitly superposed with, and counter-posed to, those of the 'first contra-thesis', denoted by $\underline{\beta}$.
(0.5) Step 5. 'Self-iterate' the initial [hypo]thesis for $\tau=2$; apply the "rule of additive commutation" ${ }^{\text {"II }}$ twice*.

Write: $\tau=2 \quad \Rightarrow \quad{ }^{\alpha} \underline{Q}_{t}={ }^{\alpha} \underline{Q}_{2}=\llbracket \underline{\alpha} \mathbb{\rrbracket}^{2^{\tau}}=\llbracket \underline{\alpha} \mathbb{\rrbracket}^{2^{2}}=\llbracket \underline{\alpha} \mathbb{\rrbracket}^{4}=\llbracket \underline{\alpha}^{2} \rrbracket^{2}=\mathbb{K} \underline{\alpha} \boxplus \underline{\beta} \mathbb{\rrbracket} \mathbb{}^{2}=$






$\stackrel{-}{ }-$ thesis ${ }_{1} \mathbb{T}$ contra-thesis ${ }_{1} \rrbracket$
 $=$




【thesis 1 ¥ contra－thesis 1 ¥ $\hat{\mathbf{g}}_{\text {contra－thesis，thesis }}$ 团 $\hat{\mathbf{G}}_{\text {contra－thesis，contra－thesis }} \rrbracket$
【thesis ${ }_{1}$ 田 contra－thesis ${ }_{1}$ 田 uni－thesis ${ }_{1}$ 田 contra－thesis ${ }_{2}$ 】

$\leftrightarrow$





That is，apply the＂additive idempotency＂sub－rule of the rule of＇generalized addition＇of the rules－system $\underline{\underline{0}}$ ． That sub－rule，for any $\mathbf{N u m b e r} \mathbf{k}$ in $\mathbf{N}=\{1,2,3, \ldots\}$ ，holds that－－
$\hat{\underline{G}}_{k} \boxplus \hat{\underline{G}}_{k}=\hat{\underline{G}}_{k}$.
Apply also that more general sub－rule of the＇generalized multiplication＇rule of the rules－system $\underline{\underline{\mathbf{Q}}}$ which we call the non－distributive multiplication sub－rule of the＇«aufheben» evolute product＇rule．That rule，for any ＂Natural＂Numbers $\mathbf{k}, \boldsymbol{\ell}, \mathbf{m}$ ，and $\mathbf{n}$ ，such that $\mathbf{k}<\ell<\mathbf{m}<\mathbf{n}$ ，i．e．，for any such four numbers in the «arithmos» N，prescribes the following，generic，non－distributive algorithm for generalized multiplication over generalized addition，in which only the＇meristemal＇or＂＇vanguard＂＇ontological category，here denoted
 ontological categories constituents of its＇sum－operand＇or＇sum－argument＇，here denoted $\llbracket \mathbb{G}_{m} \boxplus \mathbf{g}_{n} \mathbb{\rrbracket}$－－




This general sub－rule，of poly－qualinomial multiplication，and，specifically，of hi－qualinomial multiplication， becomes，in the special case which we have encountered above，in which $\mathbf{k}=\mathrm{m}$ and $\ell=\mathbf{n}$ ，the following－－


 $\llbracket \hat{\mathbf{g}}_{\mathrm{k}} \boxplus \hat{\mathbf{g}}_{\mathrm{k}} \boxplus \hat{\mathbf{g}}_{\ell} \boxplus \hat{\mathbf{g}}_{\ell} \boxplus \hat{\mathbf{g}}_{\ell^{2+\mathrm{m}}} \boxplus \hat{\mathbf{g}}_{\ell^{+\ell}} \mathbb{\rrbracket}=\llbracket \hat{\underline{g}}_{\mathrm{k}} \boxplus \hat{\mathbf{g}}_{\ell} \boxplus \hat{\mathbf{g}}_{\ell^{++\mathrm{m}}} \boxplus \hat{\mathbf{g}}_{\ell^{+\ell}} \mathbb{\rrbracket}$ ．
［Note on Notation：the ideogram＇$E$＇stands for the phrase＂is an Element of＇．］

Scholium 0.5 -- Observe, via your experience of Steps 0.4 and $\mathbf{0 . 5}$, the two parallel, but quite contrary in content, 'streams of symbolization' that issue from either side of the ' $\leftrightarrow$ ' assignment symbol, as, for each successive value of $\tau \in W=\{0,1,2,3, \ldots\}$, we write, and enact, the recipe $\llbracket \underline{\alpha} \rrbracket^{2^{\boldsymbol{\tau}}} \leftrightarrow \llbracket \hat{\underline{G}}_{1} \rrbracket^{2^{\boldsymbol{\tau}}}$. One stream, the 'stream of symbolization' for the right-hand side of the ' $\leftrightarrow$ ' symbol, above, is strictly algorithmic, mechanical, and both minimally-interpreted and minimally-meaningful. The other stream, the 'stream of symbolization' for the left-hand side of the ' $\rightarrow$ ' symbol, above, can be massively interpreted, heuristic, intuitive, rich in intension/ connotation/determination; as replete with subjective meaning as a given user's mind can make it, per the degree of 'upworking' of the user's experience of the domain of discourse in question, and/or of the phenomenology of the sub-totality in question, that is cognitively extant and available for association with/assignment to the symbol $\underline{\boldsymbol{\alpha}}$. [Within the algebraci 'gencriaty' of this 0 th Section's general instructions, the 'stream of symbolization' issuing from the left-hand side of $\mathbb{I} \underline{\alpha} \mathbb{1}^{2^{z}} \leftrightarrow \mathbb{I} \hat{\underline{g}}_{1} \mathbb{\rrbracket}^{2^{\mathbf{x}}}$, namely, from $\mathbb{K} \underline{\alpha} \mathbb{I}^{2^{\mathbf{z}}}$, may not appear much less "algorithmic than that issuing from its right-hand side, namely, from $\mathbb{I} \hat{\mathrm{g}}_{1} \mathbb{I}^{2^{\mathbf{x}}}$. The fuller 'semanticity' of the left-hand side may be experienced by you, more convincingly, via the "specificities"' of the examples which follow, below, in Sections 1, 2, and 3.]. The point called to your attention now, via this Scholium -- for fuller demonstration later on -- is that the strict, unvarying uniformity of the right-hand side of $\llbracket \underline{\alpha} \rrbracket^{2^{\boldsymbol{T}}} \leftrightarrow \llbracket \hat{\underline{g}}_{1} \rrbracket^{\mathbf{2}^{\boldsymbol{\tau}}}$ is designed to provide its user with a stable guide to the generic structure of dialectical self-progressions, while the potentially infinite diversity and variety of the left-hand side is designed to provide the user with a method of expression of potentially universal applicability to all of those specific phenomenologies which 'instance' the generic dialectical process.

Thus linking of the intuitive with the rigorously algorithmic is related to the mathematico-scientific methodology of 'Dialectical Meta-Axiomatics', which F.E.D. advocates as the standard for Marxian, Dialectical Science, including for the 'psych[e]o-historically' expanded Science of Mathematics. 'Dialectical Meta-Axiomatics' «aufhebens-conserves, without apology, the full rigor of formal-logical/mathematical-logical deductive proof, of «verstands or «dianoetic» reason, within each Axioms-System of the Gödel-Incompleteness-driven, 'Gödelian-ideo-dialectical' self-progression of Axioms-Systems, which self-progression constitutes the Gödelian Meta-System for those Axioms-Systems. But it also applies dialectical reason in the trans-deductive realm of the necessarily nom-deductive derivation/determination of the possible Axioms, and to the rational iustification of the choice/selection of Axioms from among those possibilities. Moreover, it applies dialectical logic also to the uaufhebenss transitions between pairs of Axioms-Systems, from predecessor Axioms-System to its "'conservative extention"" in the succussor Axioms-System, both auffhebenv-conserving the Axioms of the predecessor Axioms-system in the Axioms of the successor Axioms-System, while also adding, via "aufhebens "'transformation"'/"'elevation"', the new comprehension Axioms, and the new 'ideo-ontology' that they implement, which renders "decidable", within the successor Axioms-System, the "undecidable" propositions of the predeossor Axioms-System, which was thus Gödel-Incomplete with respect to [at least] those propositions. E.g., it forms new kinds of "number" concepts, able to solve the diophantine equations that are unsolvable within the number 'ideo-ontology' of the predecessor Axioms-System - the equations the unsolvability of which is asserted by the undecidable propositions of that predecessor Axioms-System. It forms these new, higher kinds of numbers as new kinds/logionl-types of sets, qualitatively, ideo-ontologically different from the predecessor logical-types of sets, within the "power-set" auufhebens 'self-intemalization', or 'self-subsumption', of those sets of the predecessor Axioms-System's 'ideo-ontology' which represented the highest horizon of the number-concept extant within that predecessor 'ideo-ontology'. This «aufhebens process renders the truth of the formerly undecidable propositions provable via the new comprehension Axioms added to form the new-Axioms-subset of the successor Axioms-System, and also renders the formerly unsolvable diophantine equations solvable within the successor Axioms-System, using the new kinds/logical-types of sets, defining the new kinds of numbers thus «aufhebens-created within the successor Axioms-System. That is, 'Dialectical Meta-Axiomatics' drops the pretence that each Axiom in the Axioms-set of an Axioms-System can always be "self-evident", and uniquely-determined, with no possible alternative, contrary Axiom(s). By this pretense, the dimension of dialectical reason -- of the non-deductive derioation of multiple candidates for a given key Axiom, and of the justification of the selection of one Axiom from among those multiple candidates - has for solong been dogmatically denied [ever since Plato for the anti-dialectical traditions of academia, for which the Ocailental Dark 1 ges have never yet ended!] 'Dialectical Meta-Axiomatics' admits that axiomatic 'alternativity' veritably abounds, and that Axiom-choice needs to be justified dialectically, that is, "'self-reflexively"' and '"self-reflupively"', in light of each candidate Axiom's consequences in the context of the aarithmos» of Axioms - of the rest of the Axioms - it is candidate to join, and in light of the purposes for which the Axioms-System it is candidate to join is being designed. The classic examples of such 'alternativity' - of the "independence" or Godel-undecidability of key Axioms with respect to the rest of the Axioms of a given Axioms-system - include the choice of the Euclidean or 'fifth Axiom', the Parallels Postulate, versus one of its possible contraries, for the Axioms-System of Euclidean Geometry vs. those of the Non-Euclidean Geometries, and the choice of the Cantor Generalized Contimum Hypothesis, vs. one of its possible contraries, and/or of the Axiom Of Choia, vs. one of its possible contraries, for Axioms-Systems of Theories of Totalities ["Set Theories"]. 'Dialectical Meta-Axiomatics' also rejects any pretence that first order Axioms-Systems have but one possible, "categorical", unique "interpretation", or "model" - an old dogma that has been refuted both by the LonwenheimSkolem Theorem, and by the first order co-applicability of the Gōdel [syntactical] Completeness Theorem and the Gödel [semantical] Incompleteness Theorem. 'Dialectical Meta-Axiomatics' grasps the 'intra-duality', or 'intra-multiplicity', of the 'interpretability' or 'modelability' of a given first order Axioms-System, as a potential carchén, for a 'metasystem-atic dialectical', categorial-progression', 'Axioms-Systems-self-progression' exposition, and dialectical-algebraic modeling, of the alternative models of that first order Axioms-System. "Diachronically"', between each predecessor/successor pair of Axioms-Systems, the methodology of 'Dialectical Meta-Axiomatics' practices an expository, pedagogical discipline, which uses an heuristic, intuition-involving, "intensional" derivation of the self-«aufheben» self-progression of Axioms-Systems -- of the Axioms-Metasystem. "'Symchronically"", within each, progressive, Axioms-System contained in the Axioms-Metasystem, 'Dialectical Meta-Axiomatics' justifies the theorems implied by that Axioms-System's Axioms-collective via rigorous deductive logic. Those theorems are also justified, and explained conceptually and intuitively [sbegrifflichkeits], without apology. Indeed, the main expository narrative, in a work of 'Dialectical Meta-Axiomatics', may be the intuitive/conceptual exposition, with the parallel stream of formal-logical, algorithmic/mechanical deductive proof - which may often compel the mind to assent to a proposition without comprehension - consigned to the End-Notes or Appendices, as a necessary verification check on the conceptual/intuitive narrative's flow or progression of claims/assertions, but with bridging, interconnecting commentary - "'transversals"' and asides -- linking from the deductive proofs to the intensional-heuristic/intuitive narrative, and from the intensional-heuristicintuitive narrative to the deductive proofs, whenever and wherever such interconnexions can be profitably 'explicitized'.

The $\underline{\underline{\mathbf{Q}}}$ ideography is, as we have noted, an ideography of "'intensions"', of "'connotations"', of implicit meanings, rather than an ideography of '"extensions"', of "'denotations"', of explicit lists of elements. Of the interconnexion between extensional and intensional representations, Leibniz wrote as follows, in his New Essays on Human Understanding: "The common manner of statement concerns individuals, whereas Aristotle's refers rather to ideas or universals. For when I say every man is an animal I mean that all the men are included amongst all the animals; but at the same time I mean that the idea of animal is included in the idea of man. 'Animal' comprises more individuals than 'man' does, but 'man' comprises more ideas or more attributes [eg, more determinations - F.E.D.]: one has more instances, the other more degrees of reality; one has the greater extension, the other the greater intension". [translated and quoted in Wolfgang Lenzen, Leibniz's Logic, in Dov Gabbay, John Woods, editors, Handbook of the History of Logic, vol. 3, The Rise of Modem Logic from Ieilniz to Frege, Flsevier, [NY: 2004], p. 11, emphasis as in original].
(0.6) Step 6. Contemplate/Calculate the Connotations/Intension of the first uni-thesis, assigned to $\hat{\mathbf{G}}_{3}$.

Next, try to conceptualize the combinatory connotation suggested by the symbol $\hat{\underline{G}}_{\beta \alpha} \leftrightarrow \hat{\underline{G}}_{3}$. Try to arrive at a univocal abbreviative character-symbol that characterizes, for your cognition, the category of "complex unity" -- the 'unified complex' -- which integrates the contrary connotations of the categories $\underline{\boldsymbol{\beta}}$ and $\underline{\boldsymbol{\alpha}}$-- the intuitive unification that we will here denote generically by $\boldsymbol{\gamma}$.
(0.7) Step 7. Contemplate/Compute Connotations/Intension for the second contra-thesis, assigned to $\hat{\mathbf{G}}_{4}$.

Likewise, try to conceptualize the 'self-combinatory', self-confrontative self-critique or immanent critiqueembodying category, arising from the 'self-reflexion'/'self-refluxion' of the category $\boldsymbol{\beta}$ or $\hat{\underline{G}}_{\boldsymbol{\beta}}$, and suggested/connoted by the symbol $\underline{\underline{\beta}}$ or $\underline{\underline{\underline{G}}}_{\beta \beta} \leftrightarrow \underline{\underline{\mathbf{g}}}_{4}$.

We will here denote that category generically -- algebraically -- via the literal variable $\underline{\boldsymbol{\delta}}$, such that --

$\llbracket \underline{\alpha}-\underline{\beta}-\hat{\hat{A}}_{\beta a}-\underline{\underline{\alpha}} \mathbb{\rrbracket}=\llbracket \underline{\alpha}-\underline{\beta}-\underline{\gamma}-\underline{\delta} \rrbracket=$

The 'poly-qualinomial' sum, above, we term, again, the 'second antithesis', or 'second antithesis-sum'.
The categorial self-progression modeled by $\llbracket \underline{\alpha} \rrbracket^{2^{\tau}}$ from $\tau=0$ through $\tau=2$ thus look like this:

Scholium 0.7 -- The $\underline{\underline{\mathbf{Q}}}$ ideography, as «characteristica universalis», does not deliver a single, monolithic, certain, and incontrovertible truth, «à la» Leibniz's oft-cited desideratum, recently re-evoked as follows --
"...Leibniz was looking for a "universal characteristic" by means of which he hoped to become able to apply the logical calculus to arbitrary (scientific) propositions so that their factual truth could be calculated in a purely mechanical way. This overoptimistic idea was expressed in a famous passage:

If this is done, whenever controversies arise, there will be no more need for arguing among two philosophers than among two mathematicians. For it will suffice to take the pens in hand and to sit down by the abacus, saying to each other (and if they wish also to a friend called for help): Let us calculate." [p.1, Wolfgang Lenzen, Leibniz's Logic, op. at,, emphasis as in original].

Rather, in line with the revelations -- since Leibniz's life -- of the axioms-relativity of logical and mathematical truth, of axiomatic 'alternativity', and of inherent axiomatic incompleteness, that began, no later than the discovery of the non-Euclidean geometries, and continued with Gödel's and Cohen's work, the $\underline{\underline{\mathbf{Q}}}$ ideography is a dialectical «characteristica universalis» which accommodates and embraces 'alternativity'.
(1) Example 1.: Historical Dialectic - The Dialectic of Nature [The «Aufheben» Self-Progression of Natural Systems].

Suppose that you are working out, and working up, a model to reconstruct historically -- and 'retrodictively' / predictively -- the self-construction of the total cosmos -- of cosmos, or «physis», as ultimate totality -- in terms of the putative human knowledge-data thereof which is extant at this time, or which you have experienced up to the present time. Suppose further that you believe that the ontological category ['onto'] that you name "pre-nuclear units" or "pre-nuclear «monads»" -- the ontic category of those apparently discrete units of mass-energy which, you believe, arose into existence, in the history of nature, prior to the arising into existence of atomic nuclei -- is the ultimate "'ancestor"' category of all the physical categories that contemporary science can discern. Suppose, finally, that you hold that this general category -- or "genos" category -- comprises a finite number of 'sub-«genos»', or "species", sub-categories -- perhaps those of "photons", "electrons", "quarks", "mesons", etc., perhaps broken out further into 'sub-sub-species' for, e.g., the «monad» and 'anti-«monad»' variants of each sub-species, e.g., electrons vs. "anti-electrons" ["positrons"], etc. Let us 'phono-mnemonically' denote this as-far-as-now-known "ultimate-ancestral' '«physis"-ontological category', or 'physio-ontological category', of "pre-nuclear particles" by the character-symbol, or $\underline{\underline{\mathbf{Q}}}$-algebraic ideogram, $\underline{\mathbf{n}}$ connoting, for us, that «genos» of species and sub-species... . Let also take $\underline{\mathbf{n}}$ as denoting the specific '«arché»' for our historical-dialectical model of the history of nature as that of a 'multi-ontic archéonic consecuum-cumulum'.
(1.1) Step a. Assign the ontological category for the physio-«arithmoi» of "pre-nuclear monads" to $\hat{\mathbf{G}}_{1}$.

First, let's "interpret" $\underline{\underline{G}}_{1}$ by, or "assign" $\underline{\underline{\mathbf{g}}}_{1} t o$ our $\underline{\mathbf{n}}: \underline{\boldsymbol{\alpha}} \boldsymbol{\equiv} \underline{\mathbf{n}}-$
write: $\quad \underline{\mathbf{g}}_{1} \leftrightarrow \underline{\mathrm{n}} \equiv$ «arché»" $\equiv$ onto $_{1} \equiv \underline{\text { first }}$ onto $\equiv$ pre-nuclears.
 generic/minimally-interpreted dialectical ideography, (2) an «arithmos» of 'curoaceous', or 'curvilinearly-styled' ideograms, $\left\{\rightarrow, \boldsymbol{\Delta}, \boldsymbol{\omega}^{\boldsymbol{*}}, \boldsymbol{\oplus}, \oplus, \otimes, \mathbb{A}, \boldsymbol{D}\right\}$, for that dialectical ideography as interpreted for systematic dialectic as well as for 'meta-system-atic dialectic', and (3) an «arithmos» of 'dia-gon-al', or 'angularly-styled' ideograms, namely, the symbols-set

(1.2) Step $\mathbf{b}$. Insert the mnemonic ideogram denoting the "pre-nuclear «monads»" onto into the $\underline{\mathbf{Q}}_{\tau}$ 'self-iterator'.

Second, let's insert the 'phono-mnemonic ideogram' denoting the 'onto', i.e., the category of '«physis"-ontology', i.e., the 'physio-ontological category' of "pre-nuclear «monads»", into the $\underline{\mathbf{Q}}_{\boldsymbol{r}}$ 'self-iterator'.

(1.3) Step $\mathbf{c}$. 'Self-iterate' the "pre-nuclear monads" symbol for $\tau=1$.

Third, let's see what happens when $\underline{\boldsymbol{n}}$ 'self-multiplies'.

onto $_{1} \oplus \underline{\underline{A o n t o}}_{1}=\underline{\text { onto }_{1}} \oplus \underline{\text { meta-onto }}_{1}=\underline{\text { onto of monads }} \oplus \underline{\text { meta-onto of meta-monads }}$
$=$ pre-nuclears $\oplus$ meta-pre-nuclears $\quad=$ onto $_{1} \oplus \underline{\text { onto }}_{2}=$ hetero-cumulum ${ }_{1}$

$$
\begin{aligned}
& \text { E.D. Briefs. The } \underline{\underline{Q}} \text { Dialectical Algebra: How To Use. [v.1.0] } 7 \text { Distributed -Sanizdarm by Foundation Encyclopedia Dialectica }
\end{aligned}
$$

(1.4) Step d. Consider the connotations, the possible meaning/intension/identification, of the $\hat{\boldsymbol{G}}_{\mathrm{nn}}$ term, assigned to $\hat{\mathbf{g}}_{2}$.

Fourth, let's see if we can identify, within the scientific data/experience of the reconstruction of past natural history -- of the ontological growth of the cosmos -- the 'physio-onto', or 'physio-ontological category', which arises from the self-confrontation and self-interaction -- from the 'self-reflexion' or 'self-refluxion of the inherent, 'essence-ial' activity of -- the various, local, physical-spatially-'contexted', self-expanding, or expandedly self-reproducing, and self-densifying/spatially self-concentrating populations of «monads» comprehended by the category of pre-nuclear "particles", denoted $\underline{n}$.

A quite commonly helpful self-query for this effort of semantic-identification of $\hat{\mathbf{G}}_{\alpha \alpha}\left[\leftrightarrow \hat{\mathbf{G}}_{n n}\right.$ in this case] is: '¿are there known 'meta-«monads»' of a known 'meta-«arithmos»', possibly connoted by $\mathbf{\underline { G }}_{\alpha \alpha}$, that emerge from the mutual 'monadic' confrontation/interaction within self-expanded, 'self-densified', self-concentrated local populations of the «monads" of the «arithmos" connoted by $\mathbf{g}_{a}$ ?'. I.e., in other words: 'iby what name should we call those 'meta-units' that arise from the mutual interactions of locally dense, concentrated populations of the units called "'pre-nuclear particles'", the units of the ontological category denoted $\underline{\mathbf{n}}$ such that each 'meta-unit' of the therefore-termed 'meta-ontology' or 'ontological meta-category', denoted by $\underline{\underline{\Delta} \mathbf{n}} \boldsymbol{n}$, or by $\mathrm{A}_{\mathrm{nn}}$, is a 'self-internalization'/'self-subsumption', and higher 'unit-ification', or 'meta-monad-ization', of a heterogeneous multiplicity of the units -- the 'pre-nuclear units' -- of the ontological category, or «arithmos», ideographically denoted $\underline{n}$ or $\mathbf{g}_{n}$ ?'. That is, in particular, what should we name the category whose «monads» include "protons", grasped as 'meta-pre-nuclear-"particles"', each one made up out of a heterogeneous multiplicity of pre-nuclear "particles", e.g., each one made up out of a heterogeneous multiplicity of "quarks"?

If we hold that these 'meta-units' belong to an existential category that should be named "sub-atomic particles", which includes, among its own species/sub-«arithmoi», that of the "proton" units, that of the "neutron" units, etc., we can then connote this new category of "physis" ontology via the 'phono-mnemonic', abbreviative category-symbol $\underline{\mathbf{s}}$, so that we have --

-- with $\underline{\mathbf{n}}$ denoting our '«arché» onto', and $\underline{\mathbf{s}}$ denoting its first 'meta-onto', we have framed a new, singular 'abbreviative ideogram', a univocal, 'phono-mnemonic' '"'character[izing]-symbol"', or 'intuitive literal', to stand, more meaningfully, in place of $\hat{\mathbf{g}}_{n n^{\prime}}$, to record our advancing cognition of the potential meaning of $\underline{\mathbf{g}}_{n n}$. We have expressed this new existential category here, per the instantiating/exemplary purposes of this section, specifically, by $\underline{\mathbf{s}}$, so that the categorial self-progression modeled by $\langle\underline{n}\rangle^{2^{\tau}}$ so far looks like this --

$$
\underline{\mathrm{n}} \quad \rightarrow \quad \underline{\mathrm{n}} \oplus \underline{\mathbf{s}} \quad \leftrightarrow \quad \hat{\mathrm{~g}}_{1} \quad \rightarrow \quad \underline{\mathrm{~g}}_{1} \text { 田 } \underline{\mathrm{g}}_{2}
$$

-- such that $\underline{\boldsymbol{n}} \oplus \underline{\mathbf{s}}$ denotes the first 'multi-ontic-cumulum' emerging from the connotations of the 'first onto', denoted specifically by $\underline{\mathbf{n}}$, now explicitly superposed with those of the 'first meta-onto', denoted specifically by $\underline{\mathbf{s}}$ : the first two components of a [trans-Leibnizian] 'Meta-Monadology' of the 'physio-ontology' of the cosmos.

The 'multi-meta-ontic meta-monadic consecuum-cumulum', or, in this $\tau=1$ case, the 'bi-ontic meta-monadic consecuum-cumulum', denoted by $\underline{\mathbf{n}} \oplus \boldsymbol{\mathbf { s }}$, is such that "matter", organized only up to the pre-/sub-nuclear level of material organization, still persists in existence -- is «aufheben»-conserved -- and may retain the bulk of the 'onto-mass' of the cosmos, even after the appearance of "matter" organized up to the next-higher level of material organization, the level of pre-atomic/sub-atomic organization - even after the irruption of the first pre-/sub-atomic "particles" out of sufficient self-densifications of sub-/pre-nuclear "particles". That is, the cosmos is 'evolute' in its 'diachronico-synchronic' structure, rather than 'convolute'. The cosmos continues to reveal all of the past whorls of its spiral/helical self-unfoldment, rather than covering over each previous whorl with its successor-whorl. The cosmos, in short, exhibits an «aufheben» self-structuring.

Note that the constituents of the localized cosmological populations of this -- as of epoch $\boldsymbol{\tau}=\mathbf{1}-$ newly emergent, unprecedented physical ontology of 'sub-atomic «monads"' collectively exhibit "emergent qualities", dynamical qualities, or "laws" of behavior, which differ markedly from -- which differ qualitatively from -- those exhibited by the earlier-emergent/earlier-emerged, '«arché»-ic' ontology/localized cosmological populations of 'pre-/sub-nuclear «monads»'.
(1.5) Step e. 'Re-self-iterate' the result of the previous 'self-iteration', for $\boldsymbol{\tau}=\mathbf{2}$.

Fifth, let's re-self-iterate the result of our first self-iteration, applying the rule of additive commutation twice* --

| $\begin{aligned} & \text { Write: } \tau=2 \Rightarrow \underline{n}_{\mathrm{t}}={ }^{n} \underline{Q}_{2}= \\ & \langle\underline{n} \oplus \underline{s}\rangle \otimes\langle\underline{n} \oplus \underline{s}\rangle=\langle\underline{n} \oplus \underline{s}\rangle \subset \\ & \varangle\langle\underline{n} \oplus \underline{s}\rangle \oplus\langle\underline{s}\langle\underline{n}\rangle \oplus \underline{s}\langle\underline{s}\rangle\rangle\rangle \end{aligned}$ |  |  |
| :---: | :---: | :---: |
|  |  |  |
|  |  |  |


$\left\langle\text { onto }_{1}\right\rangle^{2^{\tau}}=\left\langle\text { onto }_{1}\right\rangle^{2^{2}}=\left\langle\text { onto }_{1}\right\rangle^{4}=\left\langle\text { onto }_{1}{ }^{2}\right\rangle^{2}=\left\langle\text { onto }_{1} \oplus \text { meta-onto }_{1}\right\rangle^{2} \quad=$
$\left\langle\underline{\text { onto }}_{1} \oplus\right.$ meta-onto $\left._{1}\right\rangle \otimes\left\langle\right.$ onto $\left._{1} \oplus \underline{\text { meta-onto }}_{1}\right\rangle$
$\left\langle\right.$ onto $_{1} \oplus$ onto $_{2} \downarrow$ onto $1 \oplus$ onto $\left._{2}\right\rangle$

$\left\langle\left\langle\underline{\text { onto }}_{1} \oplus \underline{\text { onto }}_{2}\right\rangle \oplus\left\langle\underline{\text { onto }}_{2} \otimes\left\langle\right.\right.\right.$ onto $\left._{1}\right\rangle \oplus \underline{\text { onto }}_{2} \otimes\left\langle\underline{\text { onto }}_{2}\right\rangle \gg$



$\left\langle\right.$ onto $_{1} \oplus$ onto $\left._{2} \oplus \underline{\mathrm{G}}_{\text {onto }_{2}, \text { onto }_{1}} \oplus \mathrm{G}_{\text {onto }_{2}, \text { onto }}^{1} \boldsymbol{}\right\rangle$
$\left\langle\right.$ onto $_{1} \oplus$ onto $_{2} \oplus$ hybrid-onto $_{1} \oplus$ meta-meta-onto $_{1}$ 》
pre-nuclears $\oplus$ sub-atomics $\oplus$ hybrid[sub-atomics; pre-nuclears] $\oplus$ meta-meta-pre-nuclears $=$ pre-nuclears $\oplus$ meta-pre-nuclears $\oplus$ hybrids[sub-atomics; pre-nuclears] $\oplus$ meta-sub-atomics $\leftrightarrow$
$\tau=2 \Rightarrow \underline{Q}_{1}=\underline{Q}_{2}-\llbracket \hat{\mathrm{g}}_{1} \mathbb{Z}^{2}-\llbracket \hat{\mathrm{g}}_{1} \mathbb{Z}^{\mathbb{Z}^{2}}=\llbracket \hat{\mathrm{g}}_{1} \mathbb{\rrbracket}^{4}=\llbracket \hat{\mathrm{g}}_{1}^{2} \mathbb{\rrbracket}^{2}=\llbracket \hat{\mathrm{g}}_{1} \boxplus \hat{\mathrm{~g}}_{2} \mathbb{Z}^{2}=$



(1.6) Step f. Consider the connotations, the possible intension/identification, of the new term, assigned to $\mathrm{G}_{3}$.

Sixth, try to conceptualize the 'meta-connotation' suggested by the combination of the connotations of $\underline{\mathbf{s}}$ and of $\underline{n}$ suggested by the ideogram $\underline{\underline{G}}_{s n} \leftrightarrow \underline{\mathbf{G}}_{3}$. Try to arrive at a specific univocal abbreviation-symbol that 'character-izes', for your cognition, the category of "complex unity", the 'unifying complex', which integrates the
 given that it would appear to connote populations of pre-nuclear/sub-atomic hybrid units, or hybrid «monads»?
Often, we have found, in 'physio-dialectic' applications, such a category of ontological "hybrids"', or of ontological "hybridization'", can be located by attributing to it an «arithmos» of 'ontological conversion formations'. By an 'ontological conversion formation', we mean, in this context, a discrete cosmological process/formation which converts «monads», or units, of a predecessor onto into «monads» of a successor onto. That is, in this example, we do not mean the processes/formations which mediated the "primitive accumulation" or "original accumulation" of sub-atomic "particles" from pre-nuclear "particles". The $\mathbb{\mathbf { n }} \boldsymbol{b}^{2^{\boldsymbol{\tau}}}$ dialectical model 'retrodicts' that this was a process of self-interactive 'self-conversion' by spatially concentrated, locally densified populations of pre-nuclear "particles", irrupting sub-atomic "particles", as modeled by $\frac{\mathbf{n}}{2} \mathbf{n} \boldsymbol{\eta}$, i.e., by the 'self-function', 'self-operation', or 'self-application', "' $\underline{\underline{n}}$ "of' $\underline{\mathbf{n}}$ ", i.e., as modeled by $\underline{n}\langle\underline{n}\rangle=\underline{\underline{n}}^{2}=\underline{\underline{A}}_{n}{ }^{2}=\underline{n} \oplus \underline{\mathbf{s}}$. The classic example of an ontological category of "'heterotic"', 'ontological other-conversion' is that of the «arithmos» that has stars as its units or «monads». Each new star is an 'autokinesic self-formation' that [initially] converts «monads» of the 'sub-atomics' onto -- i.e., Hydrogen ions, e.g., naked protons -- into «monads» of the 'atomics' onto, that is, into the nuclei of atoms of "higher atomic species", e.g., Helium nuclei, through the process known as "stellar nucleosynthesis". The star «monads» would thus be aptly 'retrodicted' if a term arose, in the later [higher $\tau$-value] epochs' ontological self-expansion of the $\left\langle\underline{n} \boldsymbol{\nu}^{2^{\mathbf{T}}}\right.$ dialectical model, that looked like this: Alas, wherein a would denote the ontological category of atoms as «monads". If the initial irruption of the a "'meristem"' should be termed the "'formal subsumption"" of the predecessor ontology by the new, a ontology, then the formation of gas and, morenver, of ğ gasn would constitute the "'real subsumption" of that predecessor ontology by a.

That is, what we $\underline{d o}$ mean, in this example, is a population of processes/formations which conduct not an initial, self-terminating, "original accumulation" of sub-atomic "particles", but an ongoing 'reproductive accumulation', or '[expandedly] self-reproducing conversion' of populations of units/«monads» of the $\underline{n}$ «arithmos»/category, into populations of units/«monads» of the $\underline{\mathbf{s}}$ «arithmos»/category, catalyzed by the very presence of the units/«monads» of category $\mathbf{s}$ previously-synthesized, first by "original accumulation" and later by "reproductive accumulation" as well, i.e., via formations, structures, or 'self-structurings' -- self-organizing systems -- that involve/contain both n-type «monads» and $\underline{\mathbf{s}}$-type «monads», not just $\underline{\mathbf{n}}$-type «monads» alone, and that, "in the net", consume $\mathbf{n}$-type «monads", as their "fuel", thereby, producing new $\mathbf{s}$-type «monads», and which produce those $\underline{\mathbf{s}}$-type «monads» by turning the $\underline{\mathbf{n}}$-type «monads» that they consume into new $\underline{\mathbf{s}}$-type «monads», i.e., which "synthesize" $\mathbf{s}$, from $\boldsymbol{n}$ as "raw material". ¿Do, or did, these possible 'conversion formations', the $\underline{\mathbf{G}}_{\mathbf{s n}}$, 'retrodicted' as such by the $\left\langle\underline{n} \boldsymbol{b}^{2^{\tau}}\right.$ dialectical model of the dialectic of the cosmos, actually exist? ¿Do they even still exist, in nature, per the scientific data/experience accumulated as part of the astronomical/astrophysical/cosmological project of the theoretical reconstruction of the self-construction of the cosmos by modern science to date?

We interpret $\underline{\mathbf{Q}}_{\boldsymbol{\tau}}$ dialectical models as models asserting neither certainty nor as models asserting probability， but merely as models asserting possibility．Richer dialectical－ideographic languages，capable of descriptive expressions of greater＂determinateness＂，of greater＂＇thought－concreteness＂＇and＂＇thought－complexity＂＇in the Hegelian－Marxian sense，arising later than does $\underline{\underline{\mathbf{Q}}}$ in the＇meta－systematic dialectical＇self－progression of the dialectical ideographies［for more on this，see Example 4，below］，for higher values of $\boldsymbol{\tau}$ in the $\underline{\mathbf{Q}}_{\mathbf{r}}$ model of that dialectical self－progression，are needed in order to adequately assert either certainty or probability．Thus，we interpret the ${ }^{\mathrm{n}} \underline{\mathbf{Q}}_{\mathrm{r}}$ ，model for $\boldsymbol{\tau}=\mathbf{2}$ as asserting simply the possibility that onto $\mathbf{G}_{\text {sn }}$ is a non－empty one；that ＇self－formations＇answering to a＂＇hybrid＂＇onto＇denotable＇by that ideogram appear in the history of nature during and，perhaps，after this same $\tau$－epoch，also characterized by the emergence of＇self－formations＇answering to a non－hybrid or＇self－hybrid＇onto，denotable by the ideogram $\mathbf{G}_{\mathrm{ss}}$［also not yet identified within this discourse；but regarding which see sub－section 1.7 ，below］．That model does not，we hold，anything about the probability，or the frequency of observation／encounter／manifestation／instantiation，of the «monads» answering to the putative $\underline{\mathbf{g}}_{\mathrm{sn}}$ «arithmoi»．

Suppose you were to discover，in the data／experiential material turned up so far by modern science in its effort to reconstruct the＇self－meta－evolution＇ of this cosmos，that there is evidence，e．g．，of the existence of pre－stellar and／or pre－galactic＇self－formations＇which，in the net，convert cosmological populations of pre－nuclear＂particle＂«monads» into cosmological populations of sub－atomic＂particle＂«monads＂，in a way which is＂＇presided－over＂＂by the auto－catalytic presence of «monads» of the $\mathbf{s}$ category already produced．You would then be justified，we hold，in framing the hypothesis that those ＇selffformations＇answer to the＇retrodiction＇，by the＂으﹎ model of the dialectic of nature，of the objective existence，in the cosmological past，and，perhaps， also in the cosmological present／future，of local «arithmoi» of an ontic category＇character－izeable＇by the＇characters－complex＇or＇connotations－complex＇$\hat{\mathbf{g}}_{s n}$ ．
（1．7）Step g．Consider the connotations，the possible intension／identification，of the new term，assigned to $\hat{\mathbf{g}}_{4}$ ． Seventh，try to conceptualize the＇self－combinatory＇，self－confrontative self－critique or immanent－critique－ embodying category，arising from the＇self－reflexion＇／＇self－refluxion＇of the category $\underline{\mathbf{s}}$ or $\underline{\underline{G}}_{\mathrm{s}} \leftrightarrow \mathrm{g}_{2}$ ，and suggested／connoted by the symbol $\underline{\boldsymbol{A}} \mathbf{s}$ or $\underline{\underline{G}}_{s \mathrm{~s}} \leftrightarrow \hat{\mathbf{G}}_{4}$ ．Try to determine，if possible，a new＇phono－mnemonic＇， abbreviative ideogram that can encompass the connotations of the＇multi－vocal＇ideogram， $\mathbf{g}_{s s}$ ，＇uni－vocally＇．We will here denote that category generically，algebraically，via the literal variable $\boldsymbol{\chi}$ ，connoting that the connotative ＇uni－symbol＇sought is an ontological，qualitative value which is，as of this moment，a＇qualifier＇＂unknown＂－－



## 

The＇poly－qualinomial＇sum above denotes what we term the＇second meta－ontic，meta－monadic meristem＇，or ＇ontological vanguard＇，of the＇bi－meta－ontic，bi－meta－monadic＇physio－cumulum，as＇ontological meta－state＇of the ＇self－meta－evolving＇totality of Nature as of epoch $\boldsymbol{\tau}=\mathbf{2}$ ，per the ${ }^{n} \underline{Q}_{\tau}$ dialectical model of the history of Nature．Again，let us ask ourselves：¿What shall we call the＇meta－«monads»＇or＇meta－units＇of the＇meta－onto＇ of the＇meta－«arithmoi» denoted and connoted by $\underline{\mathbf{G}}_{s s}$ ，if we expect that each＇meta－«monad»＇of $\mathbf{\underline { \mathbf { g } }}_{\mathrm{ss}}$ is made up out of a heterogeneous multiplicity of the units／«monads» of its predecessor onto of «arithmoi»，$\hat{\mathbf{G}}_{s}=\underline{\mathbf{s}}$ ， that is，if the «monads» of $\hat{\underline{G}}_{s s} \equiv \underline{\underline{A}} \mathbf{S}$ are＇meta－sub－atoms＇each made up out of a heterogeneous multiplicity of＇sub－atoms＇，created via a self－«aufheben»＇self－internalization＇，or＇self－subsumption＇，of localized populations of sub－atomic «monads»？¿What should such＇meta－sub－atomics＇properly be named？If our answer is that these＇meta－units＇，or＇meta－«monads»＇，of $\mathbf{G}_{\text {ss }}$ must be＂atoms＂［in the sense of modern，not of ancient，science］， i．e．，those＇meta－＂particles＂each made up out of varying numbers of electrons plus of the sub－atomic＂particles＂
 Thus，our solution to the qualitative algebraic problem posited above can be written－out as follows： $\boldsymbol{\chi}=\underline{a}$ and we have：$\underline{n} \rightarrow \underline{n} \oplus \underline{\mathbf{s}} \rightarrow \underline{\mathrm{n}} \oplus \underline{\mathbf{s}} \oplus \hat{\underline{g}}_{\mathrm{g} n} \oplus \underline{\mathrm{a}} \leftrightarrow \hat{\underline{g}}_{1} \rightarrow \hat{\underline{g}}_{1}$ 田 $\underline{\underline{g}}_{2} \rightarrow \hat{\underline{g}}_{1}$ 田 $\underline{\underline{g}}_{2}$ 田 $\hat{\underline{g}}_{3}$ 田 $\hat{\underline{g}}_{4}$
(2) Example 2.: Meta-System-atic Dialectic -- The Dialectic of Arithmetical/Algebraical Systems of Logic.

Note: We use the term "logics"' here in a very "gen»-eral sense. By a "logic" we mean a "«species»" system of rules belonging to the "genos» of systems of rules regarding 'followership' -- regarding what [ought to/does] follow(s) [from] what.

Suppose that our project is to model the 'qualo-Peanic self-progression' -- the "'dialectic"1 -- of the extant/possible systems of arithmetical/algebraical logic. Suppose that our aim in this project is not necessarily to present these systems in their [psych[e]o-]historical order of appearance in Terran human history. Suppose that, instead, our aim is to present them in a "'systematic"' order. Suppose that our intended audiences for such presentation consist of those who have experienced various systems of logical arithmetic/algebra "chaotically" [cf. Marx], or in unsystematic disorder, but who wish to ""comprehend" their experience thereof via a "'comprehensive" exposition, one whose "'taxonomic ${ }^{\prime \prime \prime}$ classification and ordering of these categories/systems of logical arithmetic and of logical algebra applies the dialectical «aufheben" principle of 'ideo-meta-monadology' to the 'ideo-[meta-]«monads»', or "logical-numbers'" as "idea-objects'", of each successive/progressive «arithmos» of logic.
(2.1) Step $\boldsymbol{\alpha}$. Assign the rules-system for the ideo-«arithmos» of the Boolean "'Logical Numbers"' to $\hat{\mathbf{g}}_{1}$.

Suppose that we take George Boole's arithmetic and algebra of formal, deductive logic, upon which Boole published in 1847 and again in 1854 [with a likeness to one of Leibniz' 1686 -drafted arithmetico-algebraic logics, all of which were unpublished during Leibniz' lifetime [see W. Lenzen, Leebniz's Iogic, in Handbook of the History of Logic vol. 3, The Rise of Modem Logic: From Leibniz to Frege, Elsevier [NY: 2004], pp. 9; 16]. Leibniz's publications on ideographical logic, "characteristica universalisn, and on his vision of an "'alphabet of ideas"' began in 1666, the same samuns mirabilisw which saw Newton's discovery of his "'method of fluxions"' [differential allculus]], i.e., the original 'Boolean arithmetic' and "'Boolean algebra'", to be the 'meta-system-atic' "arché" of the systems [of the 'meta-system'] of the possible arithmetics and algebras of logics [as well as their historic "arché»]. If we do so, then we have, therefore, representing the rules-system of Boolean arithmetico-algebraic logic, the 'phono-mnemonic abbreviation' E, standing for that arithmetic/algebra of what Boole called the "mental operation" or "mental act" of "Election" [see H. de Nemores, Supplement A to the F.E.E. Introductory Letter, pp. 36-42.].


## - "arché" $=\underline{\text { thesis }}_{1}=\underline{\text { ideo-onto }}_{1}=\underline{\text { ideo-system }}_{1}=\underline{\text { first logic-arithmetic }}=$ Boolean arithmetic.

Let us then recall the principle characteristics of the rules-system of [later] Boolean logical arithmetic -- of the Boolean ideography for «dianoia» -- including that, for every $\mathbf{x}$ in $\boldsymbol{E}=\left\{\mathbf{0}_{\mathrm{B}}, \mathbf{1}_{\mathrm{B}}\right\}$, with $\boldsymbol{E}$ thus denoting the set or space of 'Boolean numbers' or '[formal-]logical numbers', we have the "dual" rules:
$\mathrm{x}+\mathrm{x}=\mathrm{x}$ [the rule of "additive idempotency"], e.g., $\mathrm{o}_{\mathrm{B}}+\mathrm{o}_{\mathrm{B}}=\mathrm{o}_{\mathrm{B}}$ and $\mathbf{1}_{\mathrm{B}}+1_{\mathrm{B}}=\mathbf{1}_{\mathrm{B}}\left[\neq 2\right.$; hence $\mathbf{1}_{\mathrm{B}} \neq 1$ ];
$\mathrm{X} \times \mathrm{X}=\mathrm{X}$ [the rule of "multiplicative idempotency"], or $\mathrm{X}^{2}=\mathrm{X}$, e.g., $0_{\mathrm{B}} \times 0_{\mathrm{B}}=0_{\mathrm{B}}$ and $1_{\mathrm{B}} \times 1_{\mathrm{B}}=1_{\mathrm{B}}$.
 the generic/minimally-interpreted dialectical ideography, (2) an «arithmos» of 'curvaceous', or 'curvilinearly-styled' ideograms, $\{\rightarrow, \underline{\boldsymbol{\Delta}}, \boldsymbol{\rightharpoonup}, \oplus-\oplus, \boldsymbol{\theta}, \boldsymbol{A}, \boldsymbol{D}\}$, for that dialectical ideography as interpreted for systematic dialectic as well as for 'meta-system-atic dialectic', and (3) an «arithmos» of 'dia-gon-al', or 'angularly-styled' ideograms, namely, the

(2.2) Step $\beta$. Insert the symbol denoting the rules-system of the Boolean "'Arithmetic of Logic"' into the $\underline{\mathbf{Q}}_{\mathrm{r}}$ formula.

Second, let's place our mnemonic ideogram denoting the 'ideo-onto', i.e., the category of ' «ideon-ontology', i.e., the 'ideo-ontological category' of the Boolean category/rules-system of 'logic-arithmetic', into the $\underline{\mathbf{Q}}_{\mathbf{r}}$ 'self-iterator'. Write:

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(2.3) Step $\boldsymbol{\gamma}$. 'Self-iterate' the symbol denoting the rules-system of the Boolean "'Logic-Arithmetic'" for $\tau=1$.

Third, let's 'self-apply' 匽, to see what the self-«aufheben»self-confrontation/self-critique of $\mathbf{E}$ logic looks like, syntactically.

(2.4) Step $\delta$. Consider the possible meanings of the resulting new term, assigned to $\hat{\mathbf{g}}_{2}$.

Fourth, let us consider the possible meaning(s) of $\boldsymbol{\Delta} \boldsymbol{E}$ and of ${ }^{\mathbf{E A}}$ (tE , the qualitative, 'ideo-ontological'

 «aufheben» self-negation -- of the Boolean thesis of logic; of the Boolean rules of conceptual followership or succession; of the Boolean arithmetic/algebra and of the logic which it models.

We propose the following construction of the connotations of $\boldsymbol{\Delta} \boldsymbol{E}$ : (1) that the additive idempotency rule for 'Boolean numbers' be conserved in the rules-system of the 'contra-Boolean numbers' of $\underline{\boldsymbol{\Delta}} \boldsymbol{E}$. We so propose because we hold that 'contra-Boolean logic' should mean and arithmetic and algebra of 'contra-formal logic' grasped as an arithmetic and algebra of "'dialectical logic"", such as that of the «arithmos eidetikos" of Plato, the Platonic-dialectical "arithmetic of ideas". If the 'contra-Boolean numbers' of this 'contra-Boolean arithmetic' are to be used to represent dialectical concepts, or categorial [ev]entities, then the idempotent addition rule captures the logic of uniqueness of concepts and categories, e.g., there need be but one concept or category for the "genos" 'apples', though there may be many different species of apple, and, moreover, many different individual apples, embraced by that unique and singleton intensional categorial [ev]entity: ".-it is impossble that any kinds of number corresponding to those of the dianoetic realm [the realm of 'diamoia', ie, of 'pre-/sub-dialectiarl' thinking -FED.] should exist here, since each eidetic number is, by virtue of its eidetic character [weiden-character or iika-nature - F.E.D.], wnique in kind [i.e., qualitatively unique/distinct/heterogeneous and without replicas or 'replicability'- F.E.D.], just as each of its "monads" has not only umity but also uniqueness. For each idea is characterized by being always the same and simply sinsular in contrast to the unlimitedly many homozencous monads of the realm of mathematical number, which can be rearranged as often as desired into definite numbers...each eidos is, by contrast, unreproducible and truly one (Metaphysics A $6,987 \mathrm{~b} 15 \mathrm{ff}$.: "... an eidos is each by ilself one only"...)." [Excerpted from ]. Klein, Greek Mathematical Thought and the Origin of Algebra, [ NY : Dover, 1992], pp. 90-91, bold italic emphasis added by F.E.D.]; (2) that the multiplicative idempotency rule for 'Boolean
 $\underline{\text { not }}$ in the sense, shared by ordinary, e.g., "rational" numbers, with exceptions $0 \& 1$, that $[\forall \mathrm{x} \in \boldsymbol{\Delta E}]\left[\mathrm{x}^{2} \neq \mathrm{x}\right]$, meaning $[\forall x \in \mathbb{\Delta} E]\left[x^{2} \geqslant x\right]$, but, instead, and on the contrary, per the $\underline{N} \underline{\underline{Q}}$ 'dialectical meta-numbers', that
 [denoting the set or space of the 'contra-Boolean logic-numbers', whose rules-system is denoted by $\boldsymbol{\theta} \boldsymbol{E}$ ], the proposed rule is that such a number "'squared"', or self-applied, is non-quantitatively different from, or qualitatively different from, that number itself, 'unsquared'.

Thus, the underscored 'curviform delta' symbol, $\boldsymbol{\Delta}$, connotes a qualitative incrementation operator/operation, i.e., an ontological incrementation operator/operation, one that symbolizes a change in kind, rather than a change in quantity.
[Technical Note: Because $\underline{\underline{E}}$ involves $\boldsymbol{0}_{\mathrm{B}}$, and is thus related to $\boldsymbol{W}$, not just to $\boldsymbol{N}$, so that $\boldsymbol{\Delta} \boldsymbol{E}$ is satisfied,



Lest these two proposals appear arbitrary, let us further explore their rationale. Boole wrote: "...the factor $1+\mathrm{x} .$. is not interpretable [within the rules-gystem of Boolean algebra - F.E.D.b because we carnot conceive of the addition of any class $\times$ to the wiviverse 1 ." " [G. Boole, An Investigation of the Laws Of Thought on Which are Founded the Mathematical Theories of Losic and Probabilities, [New York Dover, 19581, pp. 50 n ; originally published in 1854 ; bold italics emphasis alded by F.E.E.].
Boole did not mean, we hold, by this assertion, what it literally seems to state, if not interpreted as a technical comment arising from Boole's requirement that "logical addition"' be defined only for entities which have no content in common. Nonetheless, it does, even when interpreted per that technicality, still point to the otherwise implicit 'Parmenidean assumption' of an ontologically statical "Universe" [of discourse] -- i.e., of an 'ideo-onto-stasis' -- in the Boolean arithmetical/algebraical modeling of formal logic: there can be no "class", 'x', which is not always already part of the "Universe", $\mathbf{1}$, so no $\mathbf{X}$ can ever be 'Boolean-added' to that $\mathbf{U}$.
There are never any new $\mathbf{x s}$ arising in, or added to, a Boolean "Universe".
Thus, $\underline{\text { En }}$ or $\underline{\underline{G}}_{\underline{E}}$ denotes the rules-system of an ideography of/for logic, which is confined to the 'onto-statical' aspects of universes of discourse in general. We propose that 브트 or $\boldsymbol{\underline { G }}_{\underline{\text { eg }}}$, denoting the rules-system of a contra-Boolean logic -- of a 'contra-thesis' to the '"thesis'" of Boolean logic -- should therefore connote the contrary: a rules-system of an ideography of/for a logic which embraces the 'onto-dynamical' -- including the ontologically self-expanding -- aspects of universes of discourse in general. That is, we propose that $\mathbf{E q}_{\underline{\text { EE }}}$, as equal to ${ }^{\mathbf{E A}} \underline{\underline{G}}_{\mathbf{E}} \ominus_{\underline{\underline{G}}_{\mathrm{E}}}$, should include (a) rule(s) to model/describe universes [of discourse] which continually, and spontaneously, "'auto-kinetically'", generate internally, and add to themselves, new kinds of

 to model 'onto-dynamasis', as contrary to 'onto-stasis'. The rule $\hat{\underline{\hat{X}}}^{2} \frac{t}{x} \underline{\hat{X}}$ is a contrary of the rule $\mathbf{x}^{2}=\mathbf{x}$ that conduces to modeling 'ontological dynamics' better than does the alternative contra-rule, $\mathbf{x}^{2} \geqslant \mathbf{x}$.

Let us therefore, in summary, consider the following hypothesis as to the rules of behavior requisite to the 'contra-Boolean logic-numbers', or 'dialectical-logical meta-numbers', which constitute and characterize the expected ${ }^{\mathbf{E A}} \underline{\underline{E}}_{\text {er }}$ space of the ${ }^{\mathbf{E A}} \underline{\underline{G}}_{\text {EE }}$ rules-system.
 We then assume that the $\hat{\mathbf{q}}_{\text {ee }}$ «aufheben»-conserve and continue the additive idempotency rule of the $\hat{\mathbf{G}}_{\mathbf{E}}$,
 transform the multiplicative idempotency rule of the $\mathbf{E A}_{\mathbf{E}}$, positing the strongest contrary we can presently conceive to the Boolean rule which Boole termed "the fundamental law of thought", $\mathbf{x} \times \mathbf{x}=\mathbf{x}$, i.e., such that,
 with what might be termed the 'contra-Boolean' rule of 'multiplicative super-potency', of 'multiplicative hyper-potency', or of 'multiplicative meta-potency'.

 ＂＇inhomogeneous sums＇＂，such as $\hat{\underline{\hat{X}}}$ 田 $\underline{\hat{\underline{\hat{t}}}}$ remain＂＇non－amalgamative ${ }^{\prime \prime \prime}$ or＂irreducible＂＇．

Then，given the definition that the rules－system of the＂Whole Numbers＂＇arithmetic，which we denote by $\mathbf{W}$ has，for its＇number－space＇，the space $\mathbf{W} \equiv\{0,1,2,3, \ldots\},=\mathbf{N} \cup\{0\}$ ，we have that the arithmetic／algebra of logic，described above，is an arithmetic／algebra of＇contra－Boolean＇logic，in the form of a rules－system for a ＂＂dialectical logic＂＇，noneother than the we rules－system，a «species» of the＂genos＂of the rules－system of the Q dialectical ideography－－

$$
\underline{E}^{2} \otimes \underline{E}=\underline{\underline{E}}=\underline{E}_{\underline{\underline{G}}}^{\underline{E E E}}=\chi=\underline{\underline{Q}}
$$

－－with the following basic rules of the $\mathbf{w}$ 으 rules－system：

（2）$\left[\forall w, v \in W_{\boxminus}\{0\}\right]\left[\forall \underline{\underline{G}}_{w}, \underline{\underline{G}}_{v} \in \underset{w}{ } \underline{\underline{Q}} \boxminus\left\{q_{0}\right\}\right]\left[[w \neq v] \Rightarrow \nexists \hat{g}_{\omega} \in \underline{w} \underline{\underline{Q}} \mid\left[\underline{\hat{g}}_{w} ⿴ 囗 十 \underline{\underline{g}}_{v}=\hat{\underline{g}}_{\omega}\right]\right]$ ， ＇rule of irreducibility＇；
（3）$[\forall \mathbf{w} \in \mathbf{W}]\left[\forall \underline{\mathbf{g}}_{\mathbf{w}} \in \underset{w}{\underline{Q}}\right]\left[[\mathbf{w}=\mathbf{w}] \Rightarrow \hat{\mathbf{G}}_{\mathbf{w}}\right.$ 田 $\left.\hat{\mathbf{G}}_{\mathbf{w}}=\hat{\mathbf{G}}_{\mathbf{w}}\right]$ ，＇rule of additive idempotency＇；

So we have－－


## Boolean ideography $\rightarrow \otimes$ Boolean ideography $=$ Boolean ideography $\otimes$ Boolean ideography $=$

Boolean ideography ${ }^{2}=$ Boolean ideography（Boolean ideography ）
Boolean ideography of Boolean ideography

## Boolean ideography－－$\Delta$ Boolean ideography

Boolean ideography－contra－Boolean ideography

## Boolean ideography for formal／deductive logic－－dialectical ideography for dialectical logic．

The principle of＇Meta－Monadology＇－－of «aufheben»＇meta－monadization＇－－is also instantiated in this example of＇metasystematic dialectic＇，as it was in the preceding example，of historical dialectic［Please reference H．de Nemores，Supplement A．to the F．E．D．Introductory Letter，page 40，for an exposition of the sense（s）in which each $\mathbf{w}$ Q space is a＇meta－E space＇， made up out of a heterogeneous multiplicity of $\mathbf{E}$ spaces．Briefly，the $\mathbf{w} \underline{Q}$ space is＇constitutable＇as a potentially－infinite multitude of $\mathbf{E}$ spaces， arranged in mutual perpendicularity，with all sharing only，and bridged together by，the＂point＂＂ g ，interpretable，variously，as denoting＂＇Nothing＂， existential／ontological＂＇Absence＂＇，propositional falsity，etc．，so that $\mathbf{w} \underline{\underline{Q}}$ is，indeed，a self－auffeben» of $\mathbf{E}$ ，and $\mathbf{w} \mathbf{Q}$ a meta－umonad» of $\mathbf{E}$ as＊monadw．］．
(2.5) Step $\boldsymbol{\varepsilon}$. 'Re-self-iterate' the result of the previous 'self-iteration', for $\boldsymbol{\tau}=\mathbf{2}$.

Fifth, self-iterate the $\left(\underline{\underline{E}} \oplus_{\underline{w}} \underline{\underline{Q}}\right)$ result of our first self-iteration; apply the additive commutation rule twice ${ }^{*}$ -
Write: $\tau=2 \Rightarrow \underline{E}_{\tau}=\underline{E}_{\underline{Q}_{2}}=(\underline{E})^{2^{\tau}}=(\underline{E})^{2^{2}}=(\underline{E})^{4}=\left(E^{2}\right)^{2}=\left(\underline{E}_{\underline{w}} \underline{\underline{Q}}\right)^{2}$



 ( $\underline{\text { logic-thesis }} 1\rangle^{2^{\tau}}=(\underline{\text { logic-thesis }} 1\rangle^{2^{2}}=(\underline{\text { logic-thesis }} 1)^{4}=\left(\underline{\text { logic-thesis }}{ }_{1}{ }^{2}\right)^{2}$
( logic-thesis $1 \oplus$ logic contra-thesis $\left._{1}\right)^{2}$
( logic-thesis $\underline{1}_{1} \oplus \underline{\text { logic contra-thesis }} 1$ ) $\otimes\left(\underline{\text { logic-thesis }} 1 \oplus\right.$ logic contra-thesis $\left.\mathbf{s}_{1}\right)$
( $\underline{\text { logic-thesis }} 1 \oplus$ logic contra-thesis 10 logic-thesis ${ }_{1} \oplus$ logic contra-thesis ${ }_{1}$ ) $\leftrightarrow$ (logic-thesis ${ }_{1} \oplus$ logic contra-thesis ${ }_{1}$ )
(f $\underline{\text { logic-thesis }} 1 \oplus \underline{\text { logic contra-thesis }} 1) \oplus \underline{\Delta(\underline{\text { logic-thesis }}} 1 \oplus \underline{\text { logic contra-thesis }} 1 \mathrm{D})$
$(\mathbb{( l o g i c - t h e s i s ,} \oplus \underline{\text { logic contra-thesis, }} \boldsymbol{\|} \oplus($ logic contra-thesis, $\otimes(\underline{\text { logic-thesis }}, i) \oplus$ logic contra-thesis, $\otimes($ logic contra-thesis, $i l)=$



 ( $\underline{\text { logic }}_{1} \oplus \underline{\text { contra-logic }}_{1} \oplus$ contra-contra-logic $_{1} \oplus \underline{\text { contra-logic }}_{2}$ )
( $\underline{\text { logic }}_{1} \oplus \underline{\text { contra-logic }}_{1} \oplus$ hybrid $\left.^{\text {contra-logic }}{ }_{1} ; \underline{\text { logic }}_{1}\right] \oplus$ contra-logic $_{2}$ )
( $\underline{\text { logic }}_{1} \oplus$ contra-logic $_{1} \oplus$ hybrid-logic $_{1} \oplus$ contra-logic $_{2}$ )
( $\underline{\text { logic }}_{1} \oplus$ contra-logic $_{1} \oplus$ uni-logic $_{1} \oplus$ contra-logic $_{2}$ )



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(2.6) Step $\mathcal{\text { . }}$ Consider the possible meanings of the resulting new term, assigned to $\hat{\mathbf{G}}_{3}$.

Sixth, let us carry through the 'connotative calculation' symbolized ideographically by --

## 



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- where it is our goal to "'solve for"' the [qualitative] meaning of $\underline{X}=$ EA $_{\underline{\text { OEE }}}$.
 new '"space"' of 'meta-numbers' of/for modeling [a new kind of] logic -- that somehow combines $\mathbf{w} \underline{\underline{Q}}$ and $\underline{E}$. That is, $\underline{\mathbf{X}}$ connotes something which constitutes, indeed, a category of the "complex unity ${ }^{\prime \prime \prime}$, or of the 'unifying complex', of the erstwhile opponents within the category of 'logical ideographies', one sub-category denoted E E and the other, qualitatively opposing that first sub-category, denoted $\underline{w}$ 으 . The new sub-category, denoted ${ }^{\text {Ef }}$ 을, , must thus connote the rules-system of an ideography of logic that exhibits characteristics of both
 from - and in that sense, at least, oppose, each - both -- of its 'ideo-ontological' predecessors; 'contrarizing' [to] both of its predecessor 'ideo-ontologies' of the ideographies of logic.

Let us try out the hypothesis that ${ }^{\text {EA }} \mathbf{g}_{\text {OE }}$ should connote the rules-system for an «arithmos" of 'meta-number' unit[ie]s, or «monads», each of which consists of, and combines, a 'Boolean [co-]factor' with a 'contra-Boolean [co-]factor', forming a new whole unit, or 'module', which is a product of these two 'co-factors'. This hypothesis holds, further, that the 'Boolean co-factor', which partially '"quantifies"' the contra-Boolean 'qualifier' co-factor, can take on only [either of] the two Boolean values, $\mathbf{0}_{\mathrm{B}}$ or $\mathbf{1}_{\mathrm{B}}$, i.e., the "'quantification"' of the 'qualifier' is either all [ $\forall$, or ' 1 ', signifying full manifestation/'extantcy', or full existential assertion], or none [ $\#$, signifying complete 'non-existence' as full 'unmanifestation' / 'undetectability' / 'unobservability'].

Conjecture. The following 'ideo-construct[ion] might "fill the bill": A rules system for an ideography of logic combining, in itself, in 'generalized-multiplicative', or 'generalized-product', fashion, for each of its possible 'meta-number unities, or 'meta-number «monads»', a 'Boolean-quantity'-valued [ $\therefore$ partial $]$ quantifier and/with a 'contra-Boolean', 'quasi-quantifiable', or 'partially-quantifiable', 'ontological qualifier' --
$\forall w \in \mathbb{W}: \quad \mathbf{b}_{\mathrm{w}}(\tau) \otimes \underline{\mathbf{b}}_{\mathrm{w}}$, or, $\operatorname{simply}, \mathbf{b}_{\mathrm{w}}(\tau) \underline{\mathbf{b}}_{\mathrm{w}} \quad$ or $\quad \mathbf{q}_{\mathbf{w}}(\tau) \otimes \underline{\mathbf{q}}_{\mathrm{w},}$ or, simply $\mathbf{q}_{\mathbf{w}}(\tau) \underline{\mathbf{g}}_{\mathbf{w}}$
-- where the value of $b_{w}(\tau)$, or of $q_{w}(\tau)$, is always "'Boolean'" -- always in the set $\left\{0_{B}, 1_{B}\right\}$. Thereby, for any
$\tau$ in $\mathbf{W}$, call it $\tau *$, using the assertion sign, $\boldsymbol{F}^{\prime}$, either, if $\mathbf{b}_{\mathrm{w}}(\tau *)=\mathrm{q}_{\mathrm{w}}(\tau *)=\mathbf{1}_{\mathrm{B}}-$
$b_{w}(\tau *) \underline{b}_{w}=1_{B} \otimes \underline{b}_{w}=r \underline{b}_{w}=\underline{b}_{w} \quad$ or $\quad q_{w}(\tau *) \underline{q}_{w}=1_{B} \boxtimes \underline{q}_{w}=+\underline{q}_{w}=\underline{q}_{w}$
-- so that $+\underline{\mathbf{b}}_{\mathbf{w}}$, or just $\underline{\mathbf{b}}_{\mathbf{w}}$, or $\mid \underline{\mathbf{q}}_{\mathbf{w}}$, or just $\underline{\mathbf{q}}_{\mathbf{w}}$, signify the full manifestation/'extantcy' of the system, or ontological category, denoted by $\underline{\mathbf{b}}_{w}$, or $\underline{\underline{q}}_{w}$, during epoch number $\tau *$, or, if $\mathbf{b}_{w}(\tau *)=\mathbf{q}_{w}(\tau *)=0_{B}$--

-- so that $+b_{0}$, or just $b_{0}$, or $\mid q_{0}$, or just $q_{0}$, signify the full ' $u n$-manifestation'/'in-extantcy', 'un-detectability', or 'un-observability', of the system, or the 'ontic category', denoted by $\underline{\mathbf{b}}_{\mathbf{w}}$, or $\underline{\underline{q}}_{\mathbf{w}}$, during epoch number $\boldsymbol{\tau}$ :

$$
\vdash \nexists \underline{\mathbf{b}}_{\mathrm{w}} \text { or, } \boldsymbol{+ \nexists \underline { \mathrm { g } } _ { \mathrm { w } } .}
$$

We should expect that the language-system denoted ${ }^{\text {EA }}$ 응 should have some descriptive capability advantages over both of its predecessor language-systems -- over both the language denoted ${ }^{\mathbf{E}} \underline{\underline{E}}_{\mathbf{E}}$ and the

 language-system with greater expressive power, capable of rendering a richer range of determinations, than either $\underline{\underline{E}}_{\underline{E}}$ or ${ }^{\boldsymbol{E}} \hat{G}_{Q}$ alone.
 Dialectic - of the "'Dialectic of Nature ${ }^{\text {I" }}$ - above, which we formulated in the $\mathbf{E A}_{\mathbf{Q}}$-related or $\underline{\mathbf{w}} \underline{\underline{Q}}$-related language "sister' language of $\mathbf{N} \underline{\underline{Q}}$. Suppose that you were to conclude that scientific experience to-date, in the project of reconstructing the [meta-]evolutionary history of our cosmos, finds no evidence of any pre-stellar, pre-galactic formations that sustainedly convert pre-nuclear "particles", $\underline{\mathbf{n}}$, into $\underline{\text { sub }} \mathbf{u b}$-atomic "particles", $\underline{\mathbf{n}}$. Such formations are those whose "arithmos» is intended, per our interpretation, by the term $\boldsymbol{A}_{\text {sn }} \leftrightarrow \boldsymbol{q}_{3}$. You could then reformulate/translate that $\underline{N} \underline{\underline{Q}}$ model in the EA $_{\underline{O E}}$ language, such that $b_{\text {sn }}(\tau)=0_{B}=q_{\text {sn }}(\tau)$ for all [past] values of $\boldsymbol{\tau}$, for every [past] epoch of cosmological [meta-]evolution, $\boldsymbol{\tau}$. Then your new model would assert the continuing non-existence/non-manifestation of that possibility or possible existence/possible kind of being denoted by $\underline{b}_{\mathbf{s n}}$ or $\underline{\underline{q}}_{\mathbf{s n}}$ :

$$
b_{s n}(\tau) \underline{b}_{s n}=0_{\mathrm{B}} \otimes \underline{b}_{s n}=b_{0}=q_{0}=0 \underline{g}_{\mathrm{sn}}=q_{\mathrm{sn}}(\tau) \underline{g}_{\mathrm{sn}}
$$

(2.7) Step $\eta$. Consider the possible meanings of the resulting new term, assigned to $\hat{\mathbf{g}}_{4}$.

Seventh, try to carry through the component 'connotative calculation' connoted by --

- so as to determine the semantic value, meaning-value, or connotations-complex/intension that would
 all $\leftrightarrow \hat{\mathbf{g}}_{4}$, in the 'pure-qualitative equation' above.

What is the best choice, pedagogically, and/or the truest choice, historically, for the next 'contra-thesis' -- the 'second contra-thesis' -- in this 'ideo-ontological' categorial progression / language-systems-progression of rules-systems of arithmetics/algebras of logic?

The ${ }_{\text {Goo }}$ language would, per the heuristic indications of this interpretation, in some sense oppose all/each
 that all of them lack, or carry only implicitly. Perhaps it would also continue, or continue to «aufheben»conserve, the "unit-interval confinement" ${ }^{\prime \prime}$ characteristic -- of abstracting from "'full multiplicity quantification"" -- which has so far characterized them all.


For some clues as to a possible solution, we refer the reader to the following sources -

- G. Boole, An Investigation of the Laws of Thought on which are Founded the Mathematical Theories of Logic and Probahilities, Dover [NY: 1958], Pp. 243-376.
- E. T. Jaynes, Probability Theory: The Logic of Science, Cambridge University Press [NY: 2003], pp. xix-xxix.
[ Note: The two works cited above, whose authors do not recognize the possibility of dialectical logic as such, let alone in the form of $\underline{\underline{G}}_{\underline{\underline{Q}}}$ or $\underline{w} \underline{\underline{Q}}$ as described above, skip -- from our point of view -- directly from what, in the exposition above, corresponds to $\hat{\mathbf{g}}_{1}$, to what, in the exposition above, corresponds to $\hat{\mathbf{g}}_{4}$, disregarding the possibilities assigned, in the model 'exposited' above, to $\hat{\underline{g}}_{2}$ and to $\hat{\underline{g}}_{3}$ ].
(3) Example 3.: Meta-System-atic Dialectic - The Dialectic of the Rules-Systems of Dialectical Ideography Itself.

Lastly, for the purposes of this Brief, let us apply the $\underline{\underline{\mathbf{Q}} \text { dialectical ideography to the discovery, and to the }}$ modeling, of that self-progression -- of that dialectic -- of the 'ideo-ontological' categories/systems of dialectical ideography itself, in which self-progression the $\underline{\underline{\mathbf{Q}}}$ dialectical ideography also constitutes one of the 'ideo-ontological' categories/systems.
 the generic/minimally-interpreted dialectical ideography, (b.) an «arithmos» of 'curoaceous', or 'curvilinearly-styled' ideograms, $\{\rightarrow, \boldsymbol{\Delta}, \boldsymbol{\sim}, \boldsymbol{\sim}-\oplus, \Theta, \otimes, \mathbb{C}, \boldsymbol{D}\}$, for that dialectical ideography as interpreted for '"systematic dialectic ${ }^{\prime \prime}$ as well as for 'meta-system-atic dialectic', and (c.) an «arithmos» of 'dia-gon-al', or 'angularly-styled' ideograms, namely, the symbols-set $\{\rightarrow, \underline{\Delta}, \boldsymbol{\square}, \rightarrow, \oplus, \stackrel{\otimes}{\boldsymbol{\Delta}}, \mathbb{4}, \downarrow\}$, for that dialectical ideography as interpreted for "'historical dialectic".].
(3.1) Step i. Assign the "first-order" rules-system for the 'ideo-«arithmos»' of the "'Natural Numbers"' to $\hat{\mathbf{G}}_{1}$.

First, let us take the "first order" axiomatic rules-system of the "Natural" numbers, which we denote by the symbol $\mathbf{N}$-- a double-underscored phonogram converted, for this modeling purpose, into an ideogram -- as our "arché» thesis' as our initial category/system, and "interpret" it by, or "assign" it to, $\underline{\underline{\mathbf{g}}}_{1}: \underline{\boldsymbol{\alpha}} \equiv \underline{\underline{\mathbf{N}}}-$ - write:
 [for an exposition of the 'vestigial dialecticality' of even the $\mathbf{\underline { \mathbf { N } }}$ arithmetic, see H. de Nemores, Supplements to the F.E.D. Introductory Letter, Supplement A, p. A-35.].
(3.2) Step ii. Insert the symbol denoting the "first-order" rules-system of the ""Natural Numbers"' into the $\underline{\mathbf{Q}}_{\mathrm{r}}$ formula.

Second, let's plug $\underline{\underline{\mathbf{N}}}$ into the generic $\underline{\underline{\mathbf{Q}}}$ 'self-reflexive function' or 'self-iteration' formula. Write:

(3.3) Step iii. 'Self-iterate' the symbol denoting the "first-order" rules-system of the "Natural Numbers" for $\boldsymbol{\tau}=\mathbf{1}$.

Third, let's 'self-iterate' ${ }^{\underline{\underline{\mathbf{N}}}} \underline{Q}_{\mathrm{t}}$ for $\boldsymbol{\tau}=1$.
Write: $\tau=1 \Rightarrow \quad \underline{\underline{N}}_{t}=\underline{\underline{N}}_{\underline{Q}_{1}}=(\underline{\underline{N}})^{2^{1}}=(\underline{\underline{N}})^{2}=\underline{\underline{N}}(\underline{\underline{N}} \mathbb{D}=\sim(\underline{\underline{N}} \mathbb{D}=\underline{\underline{N}} \otimes \underline{\underline{N}}=$

( ideography $\left.\underline{i d}_{1}\right)^{2^{1}} \equiv(\underline{\text { arithmetic-system }} 1)^{2} \equiv$ arithmetic-system $\left.{ }_{1}\{\text { arithmetic-system })_{1}\right)$
$\rightarrow\left(\right.$ arithmetic-system $_{1)} \equiv \underline{\text { arithmetic-system }} 1 \rightarrow$ - $\underline{\text { arithetic-system }}_{1}$
arithmetic-system $1 \rightarrow$ meta[ arithmetic-system $\left.{ }_{1}\right] \equiv$ Naturals - meta-Naturals
Naturals $\rightarrow-\underline{\text { contra-Naturals } \equiv \underline{\text { arithmetic-thesis }} 1 \rightarrow \text { arithmetic contra-thesis }} 1$


(3.4) Step iv. Consider the possible meanings of the resulting new term, assigned to $\hat{\mathbf{g}}_{2}$.

Fourth, let us consider the possible meaning(s), the possible definitions of 'ideo-ontological' categories/axiomatic rules-systems of arithmetic, including the kinds of arithmetical 'idea-objects', the kinds of numbers as 'idea-ontology', the kind of number «arithmoi» that would 'qualitatively satisfy' the 'qualitative unknown' or 'idea-ontology unknown', $\boldsymbol{\chi}$, in the 'pure-qualitative', purely 'ideo-ontological' algebraic equation
 axiomatic rules-system of arithmetic that would fulfill, per your mental perception, the ideographical equation $\underline{\underline{N}}(\underline{\underline{N}}\rangle \ominus \underline{\underline{N}}=\chi$, or $\boldsymbol{\underline { N }} \ominus \underline{\underline{N}}=\chi$. Note that the connotations of the unknown, $\chi$, here, are those of the fruits of a self-confrontation, self-critique, or immanent critique -- of an internal, immanent 'self-opposition', and of a 'self-reflexive function' self-«aufheben» self-negation -- of the standard "Natural" system of arithmetic; of the "Natural Numbers" rules of reckoning/computation. I.e., the N(N) syntactical 'self-juxtaposition',
 'self-elicitation' and 'self-externalization'/divulgence, the self-[s]election/self-evocation and self-outering, of a 'precedingly' implicit, occult inherent otherness of $\underline{\underline{\mathbf{N}}}$, hitherto harbored hidden and unheeded inside $\underline{\underline{\mathbf{N}} .}$

Since we assume at least "chaotic", un-systematic experience, and familiarity, with the totality/universe of discourse of $\underline{\underline{\mathbf{N}}}$ - with the $\mathbf{N} \equiv\{1,2,3, \ldots\}$ number-«arithmos», and its rules of operation - we can characterize $\underline{\underline{\mathbf{N}}}$ as follows:
$\mathbf{N}$ is the rules-system of an "arithmos" of number-ideograms ["numerals"], forming a [partially-] ideographical language of 'pure, unqualified quantifiers'. Let's clarify this characterization by stating that, by way of contrast, what we mean by a 'qualified quantifier', is, for example, the "five" in the context of the phrase "five apples", where the "quantifier", "five", is 'qualified' by the 'ontological qualifier', or "kind-of-being"' /"kind-of-thing" 'qualifier' -- "apples" -- which is, in turn, itself "quantified" by the, in this context, 'ontological quantifier', "five". By a 'qualified quantifier' we also mean, for example, the "three" in the context of the phrase "three inches", wherein the "quantifier", "three", is 'qualified' by the 'metrical qualifier', or "units-of-measure"' 'qualifier', "inches", which is, in turn, "quantified" by the, in this context, 'metrical quantifier', "three".
 an arithmetical ideography, or system of numerals, $\{\mathbf{1}, \mathbf{2}, \mathbf{3}, \ldots\}$, which can be characterized as - i.e., "'qualified" $"$ as -- an «arithmos» of 'pure, unqualified quantifiers'.
 or by $\underline{\underline{N}} \mathbb{\underline { N }} \downarrow \in \underline{\mathbf{N}}$, or by $\boldsymbol{\sim} \underline{\underline{\mathbf{N}}} \odot \underline{\underline{\mathbf{N}}}$, should be those of the 'ideo-ontological' opposite of $\underline{\underline{\mathbf{N}}}$, or of $\underline{N}_{\underline{\mathbf{N}}}-$ of the complete, relative contrary, or negation, of its descriptors, the result of the determinate negation with respect to the entire effect of the combination of the two determinations, namely 'unqualified' and 'quantifiers', of that description -- thus, that of an arithmetic of 'pure, unquantified qualifiers'. Moreover, to be conceived as the outering of the "'self-other", the "immanent other", the 'self-dual', 'inner dual', or 'intra-dual' of $\mathbf{\underline { \mathbf { N } } \text { . this }}$ "'other"', "'alternative ${ }^{\text {"' }}$ system of arithmetic, $\boldsymbol{\underline { \mathbf { N } }} \underline{\underline{\mathbf{N}}}$, must still have something 'self-essence-ial' in common with N. We hold that $\underline{\underline{\boldsymbol{N}}} \underline{\underline{N}}$ must be, like $\underline{\underline{\mathbf{N}}}$. 'Peanic' -- compliant with the "first order" sub-system of the Peano Postulates, the axioms for "'Natural"' arithmetic that were devised by Giuseppe Peano, circa 1889 C.E., so as to make $\mathbf{N}$, denoting the higher-than-first-order "Natural"' arithmetic-system, deductively derivable from them. We hold, in particular, that the $\boldsymbol{\boldsymbol { \Delta }} \mathbf{N}, ~ "$ space" [or ""set""] of 'meta-numerals' component of $\boldsymbol{\underline { \boldsymbol { \Delta } }} \mathbf{\underline { \mathbf { N } }}$ must be a succession/ progression of 'pure, unquantified qualifiers', and one which is 'Qualo-Peanic', just as the $\mathbf{N}$, a succession/progression of 'pure, unqualified quantifiers', is 'Quanto-Peanic' [for more on the 'Qualo-Peanicity' of the 'meta-numerals' of the $\boldsymbol{\Delta} \mathbf{N}$ arithmetic, see H. de Nemores, Supplements to the F.E.D. Introductory Letter, Supplement A. p. A-34.].

The 'Peano-compliance' of the $\boldsymbol{\Delta} \mathbf{N}$ together with the 'ideo-ontological' difference, or "'qualitative inequality"', between $\mathbf{N}$ and $\boldsymbol{\Delta} \mathbf{N}$-- $\mathbf{N}$ 娄 $\boldsymbol{\Delta} \mathbf{N}$-- renders $\boldsymbol{\Delta} \mathbf{N}$ a "'Non-Standard Model of the $\mathbf{N}$ atural $\mathbf{N}$ umbers"', $\mathbf{N}$.

One category/system of arithmetic that fulfils all of the above-noted criteria is none other than $\underline{\underline{\mathbf{Q}}}$ itself.
We therefore arrive at the hypothesis that: $\underline{\underline{\mathbf{N}}}_{\underline{Q_{1}}}=\underline{\underline{\mathbf{N}^{2}}}=\underline{\underline{\mathbf{N}}}-\underline{\underline{\boldsymbol{A}}} \underline{\underline{\mathbf{N}}}=\underline{\underline{\mathbf{N}}}-\underline{\underline{\mathbf{Q}}}$.
(3.5) Step $\mathbf{v}$. 'Re-self-iterate' the result of the previous 'self-iteration', for $\boldsymbol{\tau}=\mathbf{2}$.
 of our first [self-]iteration, thus for $\tau=2$, to $(\underline{\underline{\mathbf{N}}} \oplus \underline{\underline{Q}})^{2}=(\underline{\underline{\mathbf{N}}} \oplus \underline{\underline{Q}}) \otimes(\underline{\underline{\mathbf{N}}} \oplus \underline{\underline{Q}} \overline{)} \equiv \sim(\underline{\mathbf{N}} \oplus \underline{\underline{Q}}) \equiv$

Write: $\tau=2 \Rightarrow \underline{\underline{N}}_{\underline{Q}}=\underline{\underline{N}}_{\underline{Q_{2}}}=(\underline{\underline{N}})^{2^{2}}=\left(\underline{\underline{\mathbf{N}}} D^{4}=\left(\underline{\underline{\mathbf{N}^{2}}} \eta^{2}=(\underline{\underline{N}} \oplus \underline{\underline{Q}})^{2}\right.\right.$



 $(\underline{\text { first thesis }})^{2^{2}}=(\text { first thesis })^{2^{2}}=(\underline{\text { first thesis }})^{4}=\left(\underline{\text { first thesis }}{ }^{2}\right)^{2}$
( first thesis $\oplus$ first contra-thesis $)^{2}$
( first thesis $\oplus$ first contra-thesis $) \otimes \mathbb{f}$ first thesis $\oplus$ first contra-thesis )
( first thesis $\oplus$ first contra-thesis () first thesis $\oplus$ first contra-thesis )
$\rightarrow($ first thesis $\oplus$ first contra-thesis )
( ( 4 arithmetic-thesis $\oplus$ arithmetic contra-thesis $\mathbb{D}) \oplus(\underline{\text { arithmetic-thesis }} \oplus$ arithmetic contra-thesis D)




 ( thesis $_{1} \oplus$ contra-thesis $\left._{1} \oplus \underline{\text { hybrid }[\text { contra-thesis }} 1 ; \underline{\text { thesis }}{ }_{1}\right] \oplus \underline{\text { contra-thesis }}_{2}$ )
( standard "natural" arithmetic $\oplus$ non-standard "natural" arithmetic $\oplus$ hybrid non-standardistandard arithmetic $\oplus$ contra-arithmetice ) -



 $* \llbracket \hat{\mathrm{~g}}_{1} \boxplus \hat{\mathrm{~g}}_{2} \boxplus \hat{\mathrm{~g}}_{1} \boxplus \hat{\mathrm{~g}}_{3} \boxplus \hat{\mathrm{~g}}_{2} \boxplus \hat{\mathrm{~g}}_{4} \mathbb{\rrbracket}=\llbracket \hat{\mathrm{g}}_{1} \boxplus \hat{\mathrm{~g}}_{1} \boxplus \hat{\mathrm{~g}}_{2} \boxplus \hat{\mathrm{~g}}_{2} \boxplus \hat{\mathrm{~g}}_{3} \boxplus \hat{\mathrm{~g}}_{4} \mathbb{\rrbracket}=\llbracket \hat{\mathrm{g}}_{1} \boxplus \hat{\mathrm{G}}_{2} \boxplus \hat{\mathrm{~g}}_{3} \boxplus \hat{\mathrm{~g}}_{4} \mathbb{\rrbracket}$.
(3.6) Step vi. Consider the possible meanings of the resulting new term, assigned to $\mathbf{\underline { \mathbf { g } }}_{3}$.

We have thus already connotatively 'semantified' --

as $\underline{\underline{\mathbf{Q}}}$, and, more specifically, as $\underline{\mathbf{N}} \underline{\underline{\mathbf{Q}}}$ given the initial, connotative 'semantification' of --
$\underline{\underline{\mathbf{N}}}_{\underline{\mathbf{G}_{\underline{N}}}}=\underline{\underline{\mathbf{N}}} \leftrightarrow \underline{\underline{\hat{G}}}_{1}$

- that was supplied by our assigning $\underline{\underline{\mathbf{G}}}_{1}$ to $\underline{\underline{\mathbf{N}}}$ for the «arche» of our model of this dialectic of dialectical ideographies. Our next, sixth, task is to work out the identity of, i.e., to 'semantify', what we notated above as $\underline{?}$ the result of the following 'connotative calculation', 'ideo-ontological calculation', 'semantic calculation', or 'purely-qualitative calculation', symbolized ideographically by --


Note that, $\underline{\underline{N}}_{\underline{\mathbf{N}}}^{\underline{\mathbf{Q N}}}$ connotes the "'subsumption ${ }^{\text {" }}$ of $\underline{\underline{\mathbf{N}}}$ by $\underline{\underline{\mathbf{Q}}}$, which process is also, equivalently, symbolized by --

$$
\underline{\underline{\mathrm{O}}(\underline{\mathrm{~N}}} \overline{\underline{D}}=\underline{\underline{\mathbf{N}}} \oplus \underline{\mathrm{X}}
$$

 Thus, $\underline{\mathbf{X}}$, or ${ }^{\mathrm{N}} \mathbf{N}_{\underline{\mathbf{N N}}}$, connotes something -a new system of rules of a new kind of dialectical ideography, with a new 'ideo-ontology' of 'meta-numbers', with their own, new kind of 'meta-numerals' -- thus including a new "'population"/ / arithmos» of units/«monads», a new "'space"' of 'dialectors' -- that somehow combines the 'meta-numbers' of $\underline{\underline{\mathbf{N}}} \underline{\underline{Q}}$ with the "'standard numbers"' of $\underline{\underline{\mathbf{N}}}$, into a new species of 'meta-number'/'dialector'. Doing so, the $\underline{X}=\underline{N}_{\underline{\mathbf{G}}}^{\underline{Q N}}$ 'uni-thesis' would constitute, indeed, a new category of dialectical arithmetic, involving a new quality of 'ideo-ontological' "'idea-objects"', which would -- if we hold to the idea that the higher units, or unities, of a 're-uni-fication thesis', or 'uni-thesis', «arithmos» should represent a "'complex unity"' of the units of the "'thesis"' «arithmos» and of the 'contra-thesis' «arithmos» -- should represent a "'complex unity"' of the erstwhile opposites, $\underline{\underline{\mathbf{N}}}$ and $\underline{\underline{\mathbf{Q}}}$, including of their typical numerals, $\mathbf{n} \in \mathbf{N}$, and $\underline{\mathbf{G}}_{n} \in \underline{\mathbf{Q}}$. While combining, into a new, "higher" unity, the opposite qualities of $\underline{\underline{N}}_{\mathbf{N}_{\underline{N}}} \& \underline{\underline{N}}_{\underline{\underline{N}}}^{\underline{\underline{Q}}}$, we might also expect that the resulting new system of dialectical arithmetic, its 'meta-numbers' ${ }^{\prime \prime}$ and its 'meta-numerals', would therefore also differ

 'contrarize' -- to be opposite to -- each of its 'ideo-ontological' predecessors; both of its predecessor 'ideo-ontologies' of [[proto-]dialectical] arithmetical ideography / ideographies of arithmetic / ideographies of 'meta-numbers'.
 connote the "real subsumption" of $\underline{\underline{\mathbf{N}}}$ by $\underline{\underline{\mathbf{Q}}}$ in a way that the mere 'non-reductive sum', ( $\underline{\underline{\mathbf{N}}} \oplus \underline{\underline{\mathbf{Q}} \mathbf{D}}$, cannot. We might view the "'non-amalgamative sum"', ( $\mathbf{N} \oplus \underline{\underline{\mathbf{Q}} \mathbf{D}}$, as constituting merely a "'formal subsumption"' of $\underline{\underline{\mathbf{N}}}$ by $\underline{\underline{\mathbf{Q}}}$, by way of the mere presence of $\underline{\underline{\mathbf{Q}}}$ in that sum, as a supercession/ «aufheben» self-negation of $\underline{\underline{\mathbf{N}}}$. The system ${ }^{\underline{\mathbb{N}}} \underline{\underline{G}} \underline{\underline{N}}$ should be a "'real subsumption" of $\underline{\underline{\mathbf{N}}}$ by $\underline{\underline{\mathbf{Q}}}$ in the form of a new rules-system, unprecedented in this self-progression of rules-systems before $\boldsymbol{\tau}=\mathbf{2}$. It should rule the uses of an «arithmos» [of an assemblage/ensemble/multiplicity/population/space/set] of 'meta-number' unit[ie]s, or «monads», each of which, like the "Natural $\mathbf{N}$ umbers" of $\underline{\mathbf{N}}$ but unlike the 'meta-Natural $\mathbf{N}$ umbers' of $\underline{\underline{\mathbf{Q}}}$ semantically contains explicit, 'full-multiplicity' significance, not confined to unit-interval, either 1 or 0 , ALL or NOTHING connotations. Also, each ${ }^{\mathbf{N}} \mathbf{\underline { \mathbf { G } }} \underline{\underline{N}}$ 'meta-number', like the 'meta- $\mathbf{N}$ atural $\mathbf{N}$ umbers' of $\underline{\underline{\mathbf{Q}}}$, but unlike the "Natural $\mathbf{N}$ umbers" $^{\prime \prime}$ of $\mathbf{N}$, should also contain explicit 'ontological qualification'. Pursuant to such a system of arithmetic, let us consider a "space" or «arithmos", of 'meta-number' units/symbols, each of which contains, and combines or unifies, both a 'quantifier [co-lfactor' and an [ontological] 'qualifier [co-lfactor', forming a new, 'complexed', or "'compounded"' 'ideo-entity', which is the "'product"' of these two, qualitatively different [co-lfactors; a new whole, which is neither a 'pure qualifier', alone, like the 'meta-numbers' of $\underline{\underline{\mathbf{Q}} \text {, nor a '"pure quantifier'", alone, like }}$
 'quanto-qualitative', or, equally, of 'qualo-quantitative' arithmetical 'idea-entities', expressed ideographically.

Conjecture. Thus, the following 'ideo-construct[ion]' may "fill the bill". First, since we now expect ${ }^{\text {N }}$ (inN denote, as the "'first $\underline{\mathbf{u}}$ ni-thesis"' system of the systems of dialectical ideography, a system of 'meta-numerals'
 the components of the generic 'meta-numerals' of this new dialectical-arithmetical system. Let us also designate this new system, as a whole, as a unit, by $\underline{\underline{\mathbf{U}}}{ }^{\mathbf{N}} \underline{\underline{\mathbf{G}}} \mathbf{\underline { N }} \mathbf{=} \underline{\underline{\mathbf{U}}}$. This rules-system is denoted by a doublyunderscored symbol. We denote its 'meta-number' "arithmos", or "'space"', by a singly-underscored symbol, $\underline{\mathrm{U}}$.
Let us then endeavor to construct the generic 'meta-numeral' variable of this new rules-system for dialectical arithmetic, by combining, within itself, in "'generalized multiplication"' or "'product"', fashion, and for each of its possible 'meta-number' values, a full-multiplicity-valued -- in the first instance, here, an $\mathbf{N}$-valued, $\mathbf{N}$-like -quantifier, generically denoted by $\mathbf{u}_{n}(\tau)$, with a $\underline{\underline{Q}}$-like 'ontological qualifier', generically denoted by $\underline{\hat{\mathbf{u}}}_{n}$ :

For every $\mathbf{n}$ in $\mathbf{N}[\forall \mathbf{n} \in \mathbb{N}]$, and for every $\boldsymbol{\tau}$ in $\mathbf{N}[\forall \boldsymbol{\tau} \in \mathbb{N}]$ such that $\mathbf{u}_{\mathrm{n}}(\boldsymbol{\tau})$ is also in $\mathbf{N}\left[\forall \mathbf{u}_{\mathbf{n}}(\boldsymbol{\tau}) \in \mathbf{N}\right]$--


The 'omicron headdress', ' 0 ', of the 'ontological qualifier co-factor', $\underline{\hat{\mathbf{u}}}_{n}$, follows Diophantus of Alexandria's usage, circa 250 C.E., of $\frac{10}{\mathbf{H}}$ as a syncopated abbreviation for the Greek word «Monag», for «monad», or "unit', to denote the generic qualitative unit in his proto-ideographic arithmetical and algebraic treatise, the «Arithmetiké". This ' $\mathbf{o}$ ' is our dialectical-ideographic "'diacritical mark"', used to indicate that the $\underline{\hat{\mathbf{M}}}_{n}, \underline{u n l i k e}$ the

 "'analytical-geometrically"' by a unit-length directed line-segment in the $\underline{\mathbf{U}}$ 'dialector space'.


Analytical-geometrically, in the $\underline{\underline{U}}$ 'dialector space', this translates to: $\underline{\hat{u}}_{n}{ }^{2} \perp \underline{\hat{u}}_{n}$; asserting that $\underline{\hat{u}}_{n}$ is perpendicular to $\underline{\hat{\underline{H}}}_{n}{ }^{2}=\underline{\underline{\hat{H}}}_{2 n}$; that the "'arrow-head"' of the $\underline{\hat{H}}_{2 n}$ "'unit-length arrow"' points/is directed in[to] a different dimension than is $\hat{\mathrm{O}}_{n}$. Note here that the 'quantifiability', or 'addibility', of the $\hat{\underline{\hat{H}}}_{n}$ 'ontological qualifiers', in contradistinction to the 'unquantifiability', or 'unaddibility, of the $\mathbf{g}_{n}$ 'ontological qualifiers', works a subtle shift in the meaning of the units of 'ontological qualification' between these two systems of 'ontological qualifier' dialectical arithmetic.
Among the 'ontological qualifier units', or «monads», of the type $\hat{\mathbf{g}}_{\mathbf{k}^{\prime}} \forall \mathbf{k} \in \mathbf{N}$, each value of the generic $\underline{\underline{\mathbf{Q}}}$ 'meta-number', e.g., the value for $\mathbf{k}=\mathbf{2}$, namely, $\hat{\mathbf{g}}_{2}$, can denote the whole, entire ontological category assigned to $\hat{\mathbf{g}}_{2}$, as $\underline{a}$ [categorial] unit. Alternatively, e.g., $\hat{\mathbf{G}}_{2}$ can also denote, ambiguously, a generic, representative individual, a typical unit, or «monad», belonging to the «arithmos» of the ontological category assigned to, and connoted by, that value. Recalling our first example, in which $\underline{\underline{g}}_{2}$ was assigned to the ontological category of "'sub-atomic particles"', if we write $\underline{\underline{g}}_{2} \leftrightarrow \underline{\underline{\mathbf{g}}}_{\mathbf{s}} \equiv \underline{\mathbf{s}}$, then $\underline{\underline{\underline{G}}}_{\mathbf{s}}$ might denote either the entire cosmo[-onto-]logical category of all 'sub-atomic «monads»', or just a single sub-atomic "particle", such as a single proton, representative of that category -- all depending upon the context of usage.
However, when we move on to using $\underline{\hat{\mathbf{u}}}_{2} \leftrightarrow \hat{\hat{\mathbf{H}}}_{\mathbf{s}}$, then the 'quantifiability' or 'addibility' of $\underline{\hat{u}}_{5}$ as a new symbol for the ontological category of 'sub-atomic «monads»" requires a conceptual/semantic adjustment. The symbol $\underline{\hat{u}}_{\mathbf{s}}$ must now denote a single unit of the ontological category $\underline{\mathbf{s}}$, a single $\underline{\underline{s}}$ ub-atomic "particle', and $2 \underline{\underline{\hat{u}}}_{\mathbf{s}}$ must denote two units belonging within the category $\underline{\mathbf{s}}$, e.g., two protons, or two neutrons, or one neutron and one proton, and so on.

Each $\underline{\underline{\mathbf{U}}}_{\mathrm{k}}^{\mathrm{A}}$ denotes, not the kth possible ontological category, system, or «arithmos» of the ontology of the universe of discourse being modeled using $\underline{\underline{U}}$ comprising the totality -- and collective unity, or whole - of the units or «monads» "'populating"' that category, system, or "arithmos». Rather, on the contrary, each $\underline{\underline{u}}_{k}$ denotes any single "logical individual" of the "'population'" of logical individuals "'populating'" that category. Thus, if our model holds that, during epoch $\tau_{*}$ of the historical dialectic of nature, there were an average of
$\mathbf{5 5 0 , 0 0 0}$ photons moving through a certain liter volume of space, with $\underline{\hat{u}}_{1} \leftrightarrow \stackrel{\hat{\hat{u}}}{n}^{\underline{\underline{\hat{u}}}} \boldsymbol{m}$ the 'cosmo-ontological category' of pre-nuclear "particles", we could write $\mathbf{u}_{1}\left(\tau_{\star}\right) \underline{\hat{H}}_{1}^{A}=(550,000) \underline{\hat{\dot{H}}}_{1}$ to describe the pre-nuclear/photonic ontological contents of that liter volume of space during epoch $\boldsymbol{\tau}_{\boldsymbol{*}}$, asserting the average of $\mathbf{5 5 0 , 0 0 0}$ pre-nuclear "particle" units, in the form of photons, in that volume. We might still assign the first 'onto', as a whole, to $\hat{\underline{G}}_{1}$, and assert that such pre-nuclear "particles" were a possible 'existant' of epoch $\boldsymbol{\tau}_{\star}$, by writing: $\hat{\mathbf{g}}_{1} \leftrightarrow \underline{\underline{n}} \boldsymbol{\Sigma}^{\mathbf{n}} \underline{\mathbf{Q}}_{\tau_{*}}$, wherein ' $\boldsymbol{\Sigma}^{\prime}$ ' denotes the phrase 'is contained in' in a generalized, 'trans-set-theoretical' sense.

The meaning of the individual 'unit-qualifier meta-numerals', constituent of the sets, or spaces, $\underline{\mathbf{Q}}$ and $\underline{\mathbf{U}}$ in the transition from $\underline{\underline{\mathbf{N}}}$ vs. $\underline{\underline{\mathbf{Q}}}$ to $\underline{\underline{\mathbf{U}}}$ thus revises itself. Each 'ontic qualifier' symbol $\underline{\underline{G}}_{\mathrm{k}}$ in $\underline{\underline{\mathbf{Q}}}$ denotes a unique ontic category as a whole. Multiplicity would be meaningless. Each 'ontic qualifier' symbol $\underline{\hat{\mathbf{u}}}_{\mathrm{k}}$ in $\underline{\mathbf{U}}$ denotes one single, individual unit of the $\mathbf{k}$ th type of being, e.g., of category $\hat{\underline{G}}_{\mathbf{k}}$. Thus, for $\underline{\underline{U}}$ for the $\underline{\hat{\mathbf{u}}}_{\mathbf{k}}$, full $\mathbf{N}$-type multiplicity, or quantification beyond the unit-interval's $\mathbf{1}$ or 0, ALL or NOTHING kind, is meaningful.

Thus, per our model of Example 1,,$\hat{\mathbf{G}}_{4} \leftrightarrow \underline{\mathbf{a}} \equiv \underline{\underline{G}}_{\mathrm{A}}$ in ${ }^{n} \underline{\underline{Q}}_{2}$ stands for the entire 'ontological category' of atoms, as a whole/unit, whereas $\underline{\hat{u}}_{4} \leftrightarrow \underline{\hat{u}}_{a}$ in $\underline{\underline{U}}_{2}$ stands for any individual atom, any individual unit, or «monad», of the 'ontological category'/«arithmos» of atoms, $\hat{\mathbf{G}}_{\mathrm{a}}$.

Continuing to draw from Example 1. in contrasting the capabilities of the $\underline{\underline{Q}}$ and $\underline{\underline{U}}$ ideographical languages, let us first advance from the $\underline{\mathbf{N}}$ versions of $\underline{\underline{\mathbf{Q}}}$ and $\underline{\underline{\mathbf{U}}}$ [specifically denoted $\underline{\underline{\mathbf{N}}} \underline{\underline{\mathbf{Q}}}$ and $\underline{\underline{\mathbf{N}}} \underline{\underline{\mathbf{U}}}$ ] to the $\underline{\mathbf{W}}$ versions of $\underline{\underline{\mathbf{Q}}}$ and $\underline{\underline{U}}$ [specifically denoted $\underline{\underline{w}} \underline{\underline{Q}}$ and $\underline{w} \underline{\underline{U}}$, so that, in the latter, $\tau \in \boldsymbol{W}$ and $\mathbf{u}_{w}(\tau) \in \boldsymbol{W}=\{0,1,2,3,4, \ldots\}$.
This advance introduces the possibility that $\mathbf{u}_{w}(\tau)=0$, and, therefore, that $\mathbf{u}_{w}(\tau) \underline{\hat{u}}_{w}^{\hat{A}}=0 \underline{\underline{u}}_{w}^{\hat{A}}=\mathbf{u}_{0}$, wherein $\mathbf{u}_{0}$ denotes the special "zero" -- the ontological/existential absence symbol, and the joint additive-identity/-multiplicative-identity element, of $\underline{w} \underline{\underline{\mathrm{U}}}$, not available in $\underline{\underline{N}} \underline{\underline{\mathrm{U}}}$. Then, suppose that you come to the conviction that the existence of «monads» corresponding to the connotations, for you, of the ontological category denoted $\hat{g}_{3} \leftrightarrow \underline{\underline{g}}_{\text {sn }}$ in ${ }^{n} \underline{Q}_{2}$ is not born out by the current observational and theoretical evidence of cosmology.

You could then model this conviction by moving from $\mathrm{a}_{\underline{N}} \underline{\underline{Q}}$ model of the 'meta-evolution' of the cosmos - of the historical dialectic of nature -- to a $\underline{w} \underline{\underline{U}}$ model, as follows:

Raise the "'thought-concreteness'"/"'determinateness'" of your Nature-model, by ascending from the $\underline{\underline{\mathbf{Q}} \text { model -- }}$

$$
\underline{\mathbf{n}} \rightarrow \underline{\mathrm{n}} \oplus \underline{\mathbf{s}} \rightarrow \underline{\mathrm{n}} \oplus \underline{\underline{s}} \oplus \underline{\underline{G}}_{\mathrm{sn}} \oplus \underline{\mathrm{a}} \quad \rightarrow \quad \ldots
$$

-- which posits only the possibility of the existence/finite manifestation of actualities corresponding to your connotations for the symbol $\underline{\underline{G}}_{\text {sn }}$, from epoch $\boldsymbol{\tau}=\mathbf{2}$ on, to the "higher-in-determinateness" $\underline{\underline{\mathbf{U}}}$ model --

-- with $\mathbf{n}(0), \mathbf{n}(1), \mathbf{s}(1), \mathbf{n}(2), \mathbf{s}(2), \mathbf{u}_{\mathrm{sn}}(2)$, and $\mathbf{a}(2)$, denoting the epoch-average population-counts of the
 respectively, and for the epochs $\tau=0$, and $\boldsymbol{\tau}=1$, and $\boldsymbol{\tau}=\mathbf{2}$, respectively, and with the further stipulation, for all $\tau \in \boldsymbol{W}$, and, especially, for all $\tau \geq 2$, that we have: $\mathbf{u}_{s n}(\tau) \underline{\underline{u}}_{s n}^{\hat{A}}=0 \underline{\hat{\mu}}_{s n}^{A}=\mathbf{u}_{0}$.

Then, your model -- one that can be 'character-ized' as a 'population state-space' model for the ontological '"state of nature"', and as 'meta-dynamical', because 'state-space-ially', dimensionally [self-]expanding, and 'meta-system-atic', because multi-system-ic, deployed as a sequence of epochs-as-systems in temporal succession/diachronic progression, with a growing number of state-variable dimensions as $\boldsymbol{\tau} \uparrow-$ - becomes:

 and also such that $\mathbf{n}(\mathbf{2})>\mathbf{0}$, and $\mathbf{s}(\mathbf{2})>\mathbf{0}$, and $\mathbf{a}(\mathbf{2})>0$, plus, indeed, for every epoch $\boldsymbol{\tau}$ in $\mathbf{W}$, that $\mathbf{n}(\boldsymbol{\tau})>\mathbf{0}$, and, for every epoch $\boldsymbol{\tau}>0$, that $\mathbf{s}(\boldsymbol{\tau})>0$, and for every epoch $\boldsymbol{\tau}>\mathbf{1}$, that $\mathbf{a}(\boldsymbol{\tau})>0, \underline{\text { ut }}$, for every epoch $\boldsymbol{\tau}$ in $\mathbf{W}$,


Indeed, what we have in this $\underline{\underline{\mathrm{U}}}$ formulation of the dialectic of nature can be visualized as 'a progressive march of the hitherto unmanifest into manifestation', and, obversely, as 'a progressive accumulation of diverse ontology'. That is, if you accept, provisionally, as empirically apt, the "lockstep"' order of manifestation, and of 'cohortization', or "'companionship'", of manifestation, of the 'ontos', per the $\underline{\underline{\mathbf{Q}}}$ model, into your $\underline{\underline{\mathrm{U}}}$ model, we have, with $\underline{\underline{m}}$ or $\hat{\mathbf{g}}_{m}, \& \underline{\hat{\mathbf{u}}}_{\boldsymbol{m}}$, all referring to the 'onto' of molecules, ie., of 'meta-atoms' made up out of $\underline{a}$ toms --


-- which, for the first, $\boldsymbol{\tau}=0$ epoch, would then become --

 $\mathbf{n}(0) \underline{\hat{u}}_{\mathrm{n}} \oplus \mathrm{u}_{0} \oplus \quad \mathbf{u}_{0} \oplus \quad \mathrm{u}_{0} \oplus \quad \mathbf{u}_{0} \oplus \mathbf{u}_{0} \oplus \quad \mathbf{u}_{0} \oplus \quad \mathbf{u}_{0} \oplus \ldots=$ $\mathrm{n}(0) \underline{\hat{G}}_{\mathrm{A}}^{n}$
-- and which, for the second, $\tau=1$ epoch, would then become --


 $n(1) \underline{\hat{u}}_{n} \oplus s(1) \underline{\hat{H}}_{s}$
-- and which, for $\boldsymbol{\tau}=\mathbf{2}$, 'states' the ontological content of the third epoch of this 'meta-monadology', this advancing 'cumulum' of systems of ' [meta-]ontos' made up out of [meta-]«monads», as --



 $\underline{\underline{\mathbf{Q}}}$ language. The $\underline{\underline{\mathbf{U}}}$ language is not limited to either "'pure quantification"', as is the $\underline{\underline{\mathbf{N}}}$ language, or to 'pure qualification', as is the $\underline{\underline{\mathbf{Q}}}$ language, but rather combines 'ontological qualification' with 'ontological quantification', so that, by a suitable [re-]deployment of the zeros of the $\mathbf{U}_{\mathbf{k}}(\boldsymbol{\tau})$ quantifier-functions, or epochal population-functions, any epochal order of appearance/order of manifestation of the 'ontological categories', $\underline{u}_{k}$, of this ""dialectic of nature" model can be encoded so that the actual, empirical order is always expressible.
(3.7) Step vii. Consider the possible meanings of the resulting new term, assigned to $\underline{\underline{G}}_{4}$.

We have thus already connotatively 'semantified' --

as $\underline{\underline{\mathbf{Q}}}$ and, more specifically, as $\underline{\underline{\mathbf{N}}} \underline{\underline{\mathbf{Q}}}$ given the initial connotative 'semantification' of $\underline{\underline{N}}_{\underline{\underline{G}_{\underline{N}}} \boldsymbol{\underline { N }}}^{\underline{\mathbf{N}}} \leftrightarrow \underline{\underline{G}}_{1}$ that was supplied by our assigning $\underline{\mathbf{g}}_{1}$ to $\underline{\underline{\mathbf{N}}}$ as the «arché» of our model of this dialectic of dialectical ideographies. Our next, seventh, and, for this exposition, final, task is to 'semantify' -

## 


 attributed to $\underline{\underline{\mathbf{Q}}}$ and that $\underline{\underline{\mathbf{N}}}_{\underline{\underline{G}}}^{\underline{\underline{\underline{N}}}} \leftrightarrow \hat{\mathrm{G}}_{3}$ is best attributed to $\underline{\underline{\mathrm{U}}}$ we need to determine an intuitively -connotatively and denotatively -- satisfying, and therefore also 'expositionally'/pedagogically advantageous
 arising from the -- 'contra-Boolean' -- 'categorial computation':
 solve for $\underline{\underline{Y}}$ in the 'pure-qualitative', 'pure-ontological', 'contra-Boolean' algebraic equation $\underline{\underline{N}}_{\underline{N_{Q}}}{ }^{2} \theta^{\underline{N_{G}^{A}}} \underline{\underline{Q}}=\underline{\underline{Y}}$. Suppose we have noted a pattern, instantiated so far in our "'expansion"' of $(\underline{\underline{\mathbf{N}}})^{\mathbf{2}^{\boldsymbol{\tau}}}$ part-way, through $\tau=2$. Suppose further that one part of this pattern is contained in this observation: a value ${ }^{\underline{N_{N}} \mathrm{G}} \underline{\underline{z}}$ whose 'postsubscript value, $\underline{\underline{\boldsymbol{Z}}}$ involves an even number of repetitions of the «arché", $\underline{\underline{\mathbf{N}}}$ connotes an arithmetic/algebra


Suppose that the other part of this pattern is contained in the observation that a value ${ }^{\mathbf{N}} \mathbf{G} \underline{z}$ whose 'postsubscript' value, $\underline{\underline{\boldsymbol{Z}}}$, involves an odd number of repetitions of the «archè, $\underline{\underline{\mathbf{N}}}$ connotes either (1) an arithmetic/algebra of, either 'pure, unqualified quantifiers', as does, in the very first, $\tau=0$, epoch, the case of $\underline{\underline{G}}_{1} \leftrightarrow \underline{\underline{N}}_{\underline{\underline{G}}}^{\underline{\mathbf{N}}}{ }_{\underline{\mathbf{N}}}=\underline{\underline{N}}$ for the '《arché»' odd number 1, or (2) an arithmetic/algebra of 'qualifiable quantifiers', and,
 for the next/second odd number, 3.

This pattern might lead us to the conjecture that the $\underline{G}_{4}^{A} \leftrightarrow{ }^{\mathbb{N}_{\mathbf{G N N N}}}={ }^{\mathrm{N}} \underline{\mathbf{G}_{\underline{Q}}}=\underline{\underline{Y}}$ arithmetic/algebra should connote yet another, new kind of 'unquantifiable', or 'pure-qualifier', dialectical ideography. The $\underline{\underline{N}}_{\underline{\mathbf{G}_{\underline{N}}}}=\underline{\underline{N}}_{\underline{\underline{N}}}^{\underline{\underline{Q}}}=\underline{\underline{Q}}$ arithmetic/algebra has already been interpreted as one of 'ontological qualifiers', or for 'ontological qualification'. What other kinds/species of 'qualifiers' and of 'qualification' are there, in our experience of this "'universe of discourse"', or "'totality'", of 'quanto-qualifying', or 'qualo-quantifying', language? What other "types"' of 'numeralic' "'qualitative units"' or qualitative «monads" must we evoke -ideographically and arithmetically/algebraically -- in order to progressively construct ever more fully/richly quanto-qualitative, or qualo-quantitative, ideographical languages, able to express the thought-concreteness of the experienced totalities -- including of the experienced totality of the extant applied mathematics -- that we may so far know "chaotically" [cf. Marx], but not yet "system-atically" [or 'meta-system-atically]?

The following list of 'ideo-ontological' categories of [potential] qualifier unit[ie]s, or «monads», comes to mind:
[1. ontological qualifiers];
2. metrical qualifiers;
3.a. state-variable 'identity-tag' qualifiers;
3.b. control-parameter 'identity-tag' qualifiers;
4. system \& «genos» 'identity-tag' qualifiers [alternatively: sub-system \& species identification qualifiers];
5. super-system/super-«genos» qualifiers [or system-w/-explicit-subsystems/"genos»-w/-explicit-species qualifiers];
.

We hold that the next-more-"'concrete'"/ next-more-"'complex'" form of 'qualification', after 'kind-qualification', or 'ontological qualification', is 'metrical qualification'. We hold that next higher category of "'qualifiers'" -- next higher in thought-complexity/thought-concreteness/determinateness -- after that of the 'ontological qualifiers' of $\underline{\underline{\mathbf{Q}}}$, is that species of the «genos» of "'qualifiers'" known herein as "'metrical qualifiers"'.

Thus, for example, a standard «monad», or unit, for the measurement of physical-spatial extent, or "Length", denoted $\mathbf{L}$, is the "centimeter", denoted/abbreviated/syncopated by "cm.". Likewise, a standard «monad" for the measurement of weight, "Mass", denoted $\mathbf{M}$, is the "gram", abbreviated "gm.". Finally, a standard metrical «monad» for the measurement of Time, denoted $\mathbf{T}$, is the "second", denoted "sec.".
Note that all of these 'metrical qualifier «monads»' are 'contra-Boolean', i.e., follow the same 'squaring rule' as

$\mathrm{cm} .^{1} \times \mathrm{cm} .^{1}=\mathrm{cm}^{2}{ }^{2} ; \mathrm{cm}^{2}{ }^{2} \nless \mathrm{~cm} .^{1}$, and $\mathbf{c m} .^{2} \neq \mathrm{cm} .^{1}$, and $\mathrm{cm}^{2}{ }^{2} \neq \mathrm{cm} .^{1}$;
 $\mathrm{gm} .{ }^{1} \times \mathrm{gm} .^{1}=\mathrm{gm}^{2}{ }^{2} ; \mathrm{gm}^{2}{ }^{2} * \mathrm{gm} .^{1}$, and $\mathrm{gm}^{2}{ }^{2} \neq \mathrm{gm} .^{1}$, and gm. ${ }^{2} \neq \mathrm{gm}^{1} .^{1} ;$ $\therefore$ square-gram $=$ gm. $^{2} \frac{\frac{7}{k}}{\mathrm{~g}} \mathrm{gm} .^{1}=$ linear-gram.
sec. ${ }^{1} \times$ sec. $.^{1}=$ sec. $^{2}{ }^{2}$; sec. ${ }^{2} \nless$ sec..$^{1}$, and sec. ${ }^{2} \neq$ sec..$^{1}$, and sec. ${ }^{2} \ngtr$ sec. ${ }^{1}$; $\therefore$ square-second $=$ sec. $^{2} \frac{\frac{1}{k}}{\frac{1}{2}}$ sec. $^{1}=$ linear-second.

So, we model $\underline{\underline{N}}_{\underline{\mathbf{G}_{Q Q}}}^{\mathcal{A}}=\underline{\underline{Y}}$ as ${ }^{\mathbf{N}_{\underline{\underline{M}}}^{A}}=\underline{\underline{N}} \underline{\underline{M}}$ the initial arithmetic/algebra of the series of the next three arithmetics/algebras of new "'qualifiers'", which we interpret as arithmetics/algebras of 'metrical qualifiers', presented/grasped, initially, as a special class/sub-species, of 'ontological qualifiers', and as a new, second 'contra-thesis' to $\underline{\underline{\mathbf{N}}}$, and as a new, first 'contra-thesis' to $\underline{\underline{N}} \underline{\underline{Q}}=\underline{\underline{N}}_{\underline{\underline{N}}}^{\underline{A}}$ :

We halt this meta-systematic dialectical presentation here, because the further exposition/construction/development of the 'ideo-meta-system' of the systems of dialectical ideography -- of the systems of dialectical algebra/ arithmetic -- would take us beyond $\underline{\underline{Y}} \leftrightarrow \underline{\underline{G}}_{4}$, i.e., beyond $\underline{\underline{N}}_{\underline{Q}}={ }^{\mathbf{N}_{\underline{Q}}} \equiv\left(\underline{\underline{N}} i^{2^{2}}\right.$, and therefore beyond the scope of this Brief. [The fuller instantiation of the 'meta-systematic dialectical' method of presentation for this 'ideo-meta-system' belongs to the third part of Dialectical Ideography, entitled 'The Arithmetics of Meta-Evolution'].

Scholium 3.7 - One may use the $\underline{\underline{\mathbf{Q}}}$ rules to organize, and to re-construct "'system-atically'", one's contemporaneous, "chaotic" [cf. Marx] experience of a given [sub-]totality. One may also, perhaps, use those rules to help discern, or to reconstruct, and thereby to 'retro-dict', unrecorded or overlooked ontological constituents of that [sub-]totality's past self-manifestations. Most ambitiously of all, one may essay to apply the $\underline{\underline{\mathbf{Q}}}$ rules-system to 'pre-cognize' never previously experienced anticipations/'pre-constructions', 'pre-visions', or 'pre-imaginations' -- and "'pre-dictions"' -- of that [sub-]totality's future ontological constituents. These arise as the possible temporal self-prolongations, or diachronic 'self-extentions', that its past-through-present 'metastates' already onto-logically imply as their own temporal, historical entailments. Whenever one engages in such cognitive activities -- "seeding the clouds" of one's latent, "chaotic", or infelicitously-ordered experience and knowledge to precipitate insights into the systematic structure of one's present, past, and potential future experience of a given [sub-]totality -- one is, at least implicitly, entertaining, and acting in alignment and in consistency with, a certain, dialectical hypothesis. That hypothesis holds that the sub-totality in question is ordered -- is diachronically/historically, and/or synchronically/system-atically self-deployed -- as a dialectical «species» of the dialectical «genos» of the dialectic itself. That is, this hypothesis holds that the sub-totality in question self-deploys as an «aufheben», 'qualo-Peanic, archeonic consecuum-cumulum' of ontological categories/systems, together forming/constituting a single, and a singular, 'meta-system'; a dialectical, i.e., a 'meta-dynamical', 'meta-evolving', 'diachronic meta-system'/'synchronic superw-system' [ $\mathbf{w} \in \mathbf{W}$ ] hybrid; in short, a 'meta-super-system'. As such, that sub-totality is expected to exhibit the following, generic, joint, diachronic/meta-system-ic//synchronic/super-system-ic sequence of series, succession of series, or progression of heterogeneous/non-reductionist/evolute series, as its 'multi-meta-ontological', 'multi-meta-monadic', and also 'meta-monadological' and multi-super-system-ic 'consecuum-cumulum', as the temporal epoch index, $\boldsymbol{\tau}$, rises in $\underline{\text { meta-super-system }}_{\text {. }}$. For the 'contra-thesis' sub-sequence only --

-- so that, for $\mathbf{w} \geq \mathbf{1}$, each 'contra ${ }^{\mathbf{w}}$-thesis' successor super-system, super ${ }^{\mathbf{w}+1}$-system or super-system ${ }_{2}{ }^{\mathbf{w}}$ ' «aufheben» '"contains"'/"'conserves'", or is a [self-]subsumption of, its '[contra ${ }^{\mathbf{w}}$-]thesis' predecessor-system:

## super $^{\text {w}}$-system, or super-system ${ }_{2}$ w

Thus, to cite some later epochs of our first example, of the historical dialectic of nature, suppose we take, as our 'Nature-al' [super-]systems, the units or «monads» of the populations, or ""arithmoin"', to which the $\underline{\underline{\mathbf{0}}}$ 'ontological qualifiers' of that model refer, denoting the 'ontological categories' possibly extant/instantiated in the successive epochs of the history of nature. Then individual molecules, identified as individual 'molecular systems', «aufheben»-contain their predecessor systems, individual atoms, identified as individual 'atomic systems', and, these 'atom-systems', each, in turn, «aufheben»-contain their predecessor systems, individual sub-/pre-atomic "particles", identified as individual 'sub-atomic particle systems'. Thus, were we to take the latter, 'sub-/pre-atomic "particles" systems' as comprising our '«arché»-system' category, then that self-same 'sub-/pre-atomic "particles" systems' category would be our system $_{1}$, the 'atomic systems' category would be our super ${ }^{1}$-system, and the individual 'molecular systems' category would be our super ${ }^{2}$-system --
system $_{1}+$ super $^{1}$-system $\ldots+\ldots$ super ${ }^{2}$-system $=$ sub-atomic systems + atomic systems...+..molecular systems
-- or, for example, if we re-describe our super ${ }^{2}$-system category, for molecular systems, as, simply, the system category, then the systems of that system category «aufheben"-"contain" atomic systems as their immediate sub-systems, or sub ${ }^{1}$-systems, and therefore also "contain" sub-atomic systems as their "'once-removed"' or sub ${ }^{2}$-systems, i.e., sub ${ }^{1}$-sub ${ }^{1}$-systems, and so on.

Thus, a super ${ }^{4}$-system is a 'synchronic meta-fractal' self-structuring, a sub-totality, explicitly described as a 4-super-level 'super-organism', involving a crowning (4) 'super-super-super-super-system', containing, and made up out of, a heterogeneous multiplicity of sub-super-super-super-super-systems, or (3) of super-super-supersystems, i.e., of super ${ }^{3}$-systems, wherein each of the latter contains, and is made $\underline{u p} \frac{o u t}{} \frac{o f}{2}$, a heterogeneous multiplicity of sub-super-super-super-systems, or (2) of super-super-systems, i.e., of super ${ }^{2}$-systems, each containing, and made up out of, a heterogeneous multiplicity of sub-super-super-systems, i.e., (1) made up out of super-systems, i.e., super ${ }^{1}$-systems, each of which, in turn, contains, and is made up out of a heterogeneous multiplicity of sub-super-systems, or ( 0 ) of systems, i.e., of super ${ }^{0}$-systems, this "system" level being the base, or "arché", level, the 'origin-al' level that is explicitly rendered/described in such a, super ${ }^{4}$-system model. Alternatively, we can re-describe a super ${ }^{4}$-system as a sub ${ }^{4}$-system; as, again, a 'synchronic meta-fractal', or scale-regressed qualitative self-similarity structure, a sub-totality, explicitly described as a 4 -sub-level 'super-organism', involving a crowning, or top-level, (0) 'system', or sub ${ }^{0}$-system containing, and made up out of, a heterogeneous multiplicity (1) of sub-systems, i.e., of sub ${ }^{1}$-systems, wherein each of the latter contains, and is made up out of, a heterogeneous multiplicity of sub-sub-systems, or (2) of sub ${ }^{2}$-systems, each in turn containing, and made up out of, a heterogeneous multiplicity of sub-sub-sub-, or (3) of sub ${ }^{3}$-systems, each of which, in turn, contains, and is made up out of, a heterogeneous multiplicity of sub-sub-sub-sub-systems, or (4) of sub ${ }^{4}$-systems, this final, "sub ${ }^{4}$-systems", level being the base, or «arché», level, that is explicitly rendered/described in such a, sub ${ }^{4}$-system model.

The later, higher- $\tau$, epoch $\tau>3$ self-iterates in the $(\underline{\mathbf{N}})^{2^{\boldsymbol{\tau}}}$ series/sequence of this, our third, example, elaborate a dialectical-ideographic syntax for explicitly "'describing"', or qualo-quantitatively modeling, as such, such 'meta-evolving', 'meta-dynamical' 'meta-super-systems', including the successive/progressive evocation of quantifiable 'qualifier meta-numerals' for meta-super ${ }^{0}$-systems, meta-super ${ }^{1}$-systems, meta-super ${ }^{1}$-super ${ }^{1}$-systems, meta-super ${ }^{3}$-systems, and beyond, specifically, via the $\underline{\beta}_{\underline{\underline{\mu}}}^{\gamma} \underline{\underline{\underline{\mu}}} \boldsymbol{\delta} \underline{\underline{\underline{\mu}}}$, and,$\underline{\underline{\mu}}$ dialectical arithmetics, respectively.
The 'syntactical self-structuring' of their successive/progressive "qualifier meta-numerals' mirrors the above-described 'meta-fractal' self-structuring of the sub-totalities that they are designed to 'languify'. That is, the syntactical structure of those 'meta-numerals' is also 'meta-fractal'. This structure is that of an iterated, nested scale-regress of 'sub-script-ations', or of a 'pure-qualitative' or 'quanto-qualitative' finitely-]continued fraction, i.e., a scale regress of nested '"denominations'", or 'denominatorizations'.

Consider, for instance, the generic 'beta meta-numeral' for that $\tau$-epoch in which the explicit $(\mathbb{N} \underline{\mathbf{N}})^{2^{\tau}}$ language for "'[meta-]dynamical"', "'[meta-levolving'", 'meta-super ${ }^{0}$-systems' appears - namely, that of the language denoted ${ }_{\beta} \underline{\underline{\mu}}$ or $\underline{\underline{\beta}}$. That 'beta meta-numeral' takes a heterogeneous, non-amalgamative, non-reductionist sum of the 'alpha meta-numerals' of its predecessor language, denoted $\alpha \underline{\underline{\mu}}$ or $\underline{\underline{\alpha}}$, as its subscript, or as its denominator, under the generalized, qualo-quantitative fraction-bar. The ${ }_{\boldsymbol{q}} \underline{\underline{\mu}}$ or $\underline{\underline{\alpha}}$ language is a language limited to expressing state-variables and control-parameters. Heterogeneous, non-amalgamative sums of epoch-varying values of those state-variables and control-parameters, can $\therefore$ model the $\boldsymbol{\tau}$-epoch average values, or "'attractor"'-values, of the "'state-[control-]vector"' "'[meta-]state" of a 'meta-super ${ }^{0}$-system' being modeled thereby. The generic 'gamma meta-numeral' of the language denoted , $\underline{\underline{\underline{\mu}}}$ or $\underline{\underline{y}}$ designed for the explicit description of 'meta-super ${ }^{1}$-systems', takes, as its denominator, heterogeneous sums of $\beta \underline{\underline{\mu}}$ or $\underline{\underline{\beta}}^{\prime}$ 'metanumerals', each representing a different 'meta-super ${ }^{0}$-system', and denoting thereby the modeled "'sub-systems"' of the modeled 'meta-super' -system', wherein each such 'beta meta-numeral' has a different heterogeneous sum of 'alpha meta-numerals', in turn, as its denominator, and so on, creating an ontologically non-reductionist 'co-eval co-representation', or 'holistic notation', of co-existing wholes, parts as sub-wholes, sub-parts as sub-sub-wholes,. . . etc., each as a qualitatively distinct, contemporaneous, irreducible level of emergent [meta-]dynamical "Lawful"-ness, and of 'emergent ontological quality'.

A user of the dialectical ideographies' 'ideo-meta-[super ${ }^{\boldsymbol{\tau}}$-]system' of dialectical languages need but "dial-up", in the (N) $\mathbf{N D}^{2^{\tau}}$ 'ideo-graph-ical' language-systems' 'systems-progression' -- by picking out the correct epoch, $\boldsymbol{\tau}$-- that particular dialectical language containing the depth of levels of explicit 'sub ${ }^{\mathbf{w}}$-systems' resolution needed for the application at hand. E.D. Briefs. The Q Dialectical Algebra: How To Use. [v.4.24.03] 3-12 Distrikuled -Sani=dat-by Foundation Encvclopedia Dialectica

