E.D. Briefs --

E.D. Brief #9:

'Hybrid Ontos' --

Two Exotic Examples.

by Miguel Detonacciones

for

Foundation Encyclopedia Dialectica

(**0**) a <u>*dialectical*</u>-<u>*ideographic language*</u>; <u>*dialectical mathematics*</u>; or ***mathematics of*** <u>***dialectic***</u>, for ***mathematical*** «*mimesis*»/'*memesis*' of the *'****meta****-monadic'* «***aufheben***» '''<u>***dialectic of Nature***</u>''' *as Totality*;

(**1**) a ***calculus of*** <u>***qualo***</u>-<u>***quant****itative change'*</u>, encompassing an *explicit, ideographical* arithmetic for the ***dimensional unit***[*ie*]*s* or metrical *"monads"* of classical *"dimensional analysis"*, and, thereby, 'semantifying' the "meaningless" singularities [zero-division-induced, finite-time "infinite" values] of ***especially*** the "unsolvable" [in part, because of those very singularities] <u>***nonlinear***</u> integrodifferential equations and their solution-functions, via their metrical *'re-*<u>*qualification'*</u> using those new, explicit *'metrical* <u>*qualifiers'*</u> of this *'****dimensional arithmetic****'*, concretizing and operationalizing Plato's «***arithmoi monadikoi***» **&** Diophantus's $\overset{\circ}{\mathbf{M}}$;

(**2**) an alternative, <u>*onto*</u>-logical, ***contra-Boolean algebra***;

(**3**) an ideographic, 'onto-dynamical' "symbolic logic" for the state-space/control-parameter-space, or 'state/control ***meta***-space' '''***meta***-*dynamics*''' of ***meta***-finite', [self-]conversion-singularity' <u>*self-bifurcation'*</u>;

(**4**) ***a mathematics for modeling the history of mathematical ideas*** as well as a [*psycho*]*historical algebra* and ***arithmetic*** for modeling the '''***meta***-evolution''' of the sciences generally; an ideography for the [***psycho***]*history* of ***ideas***; an ideography of the '''***meta***-dynamical''' logic of conceptual self-innovation and self-development; a 'philosophical algebra'/trans-Leibnizian, <u>*dialectical*</u> «***characteristica universalis***»; an arithmetic/algebra of innovative conception; of the creative conceptual process;

(**5**) a rules-system for an ideographical language of <u>***qual****itative*</u>, *ontological* <u>*self*</u>-*escalation* in concretely <u>*self*</u>-transcending [***meta***-][super^n-]systems;

(**6**) a generic algorithm for the *'****meta****'* operation regress; for a trans-Hegelian, 'autopoiesic' version of the «***aufheben***» operation; and for a "dynamical", 'temporalized', diachronic, '''***meta***-*evolutionary*''' version of the Russellian/Gödelian "logical types hierarchy";

(**7**) a model for a 'meta-fractal', 'contra-Cantorian' ***theory of totalities***, of *'****meta****-finite'* arithmetics, and of the "foundations" of mathematics;

(**8**) an arithmetic, algebra, geometry, **&** analysis built upon certain *"non-standard natural numbers"*, i.e., upon the *'Gödelian* <u>***meta***</u>-*natural* <u>***meta***</u>-*numbers'*, a space of <u>*non*</u>-Musean *"hypernumbers"* 'of **2**nd degree', 'made up out of' "standard", '**1**st degree' "natural numbers", 'instancing' those *"non-standard models of **1**st order Peano arithmetic"* implied by the **1**st-order conjunction of Gödel's completeness **&** incompleteness theorem*s*, as *by the Löwenheim-Skolem theorem, yielding thereby an 'ontologically dynamical'*, 'de-Parmenideanized', 'de-idealisticized' actualization of Plato's *"arithmetic for dialectics"*, his '''assemblage*s* of **ιδεα**–«*monads*» or of «**ειδε**»-*units*''' -- his «***arithmoi*** <u>***ειδε****ikoi*</u>».

This treatise, in addition to that of *'ideogramic'*, *'pictogramic'*, and *'phonogramic' symbolization*, draws also upon the power of neo-mythological, allegorical, and mythopoeic — that is, of '''*psychohistorical*''' — symbolization to aid in the conveyance of its most urgent messages. Thus, <u>*everything*</u> about the **Foundation** is symbolic. Not just the ***Ideographies***. *Everything*. The author leaves it to the reader to decide what about the **Foundation** is '''***meta***-fiction''', versus what is real, as a test of the <u>*reader's*</u> discernment. <u>*Dialectical ideography*</u> is, he believes, a humble but potent seed. As with the several non-Euclidean geometries that arose from the failed attempts to prove the absoluteness of Euclid's geometry, these *non-Parmenidean*, *'contra-Boolean'*, and *'contra-Cantorian'*, '''*onto*-logical''' and 'onto-*dynamical arithmetics'* and their ***algebras of*** <u>***dialectics***</u> may bear fruit for **humanity** only if germinated through the intra- and inter-***personal*** dialogue, and <u>*dialectic*</u>, of assimilation, critique, refutation, and supercession. Taking to heart the ideas "graphed", *'pictographically'*, *'ideographically'*, **&** ***narratively*** [*'****phonogramically****'*], herein, can produce profound transformation in the very ***identity*** of the ***person*** so taking. Panic in response to perception of the early signs of such transformation by ***other perceivers*** of such transformation may elicit, from ***some*** of ***those perceivers***, a ***violent reaction***. In particular, intimations, herein, of the *'****meta****-****human****'* -- **Δh** -- implications of the *'cumulum'* of **human**[*oid*] [***meta***-]evolution is profoundly disturbing to ***some***. The author therefore lodges this ***all-persons*** Omni-Copyright statement as containing also a countervailing caveat: he recommends that *you* disseminate the ideas of this document, **&/** or related ideas of ***your own*** discovery, with careful judgment. *Give the friends of* **humanity** *a head start vis-à-vis their adversaries*. The system*s*, of <u>*dialectical ideography*</u> glossed herein continue to *evolve* **&** *to* '''***meta***-*evolve*''' rapidly in **o**<u>*ur*</u> research. *They burgeon beneath* **o**<u>*ur*</u> *feet*. <u>*Dialectics*</u> should inculcate humility. "Perfection" is <u>***not***</u> a final '''***meta***-*state*''' that can be finally manifested, but an open-ended, 'uncompleteable', asymptotic *process*, moving from greater to lesser imperfection. ***The author*** realizes that conceptual 'homeomorphic defect' is inescapable for ***cognizing beings*** such as ***ourselves***. Even at best, ***one*** must always be partly wrong. Even at best, ***one*** cannot be finally, completely, **&** wholly right. ***One's mental constructs*** cannot ever be the truth, the whole truth, **&** nothing but the truth. But ***one*** may be right enough for ***one's*** time, for ***one's*** moment, for ***one'*** role, **&** for ***one's*** part; right *enough* to help ***one's contemporaries*** to *live* through, **&** beyond, ***one's*** time, that ***they*** thus, ***potentially***, might enjoy the privilege, the pain notwithstanding, of a vital ['life-ful'] **&** willing participation in the succeeding epoch of imperfection.

'Hybrid Ontos' [*Dialectical* [*Partial*] *Syntheses*] -- *Two Exotic Examples*:

Two Little-Known Participating Causes in the Formation of Earth's "Rain" Phenomenon.

by Miguel Detonacciones.

Preface. **O**ur term *'hybrid ontos' refers*, in *general*, to *ontological categories*, in *this context within* the *overall present*, *synchronic*, *systematic*, *taxonomic dialectic of Nature*, *whose units* are of *higher complexity/determinateness* than are *those* of the *main other kind* of *ontological categories*, the *'self-hybrid ontos' kind*, *relative to* the *'self-hybrid ontos'* that *they explicitly involve*.

Background. *Examples* of **o**ur $_NQ$ *algebraic representation* for the *'self-hybrid ontos' kind* in the *synchronic* -- *present*-*day* -- *taxonomic dialectic of Nature include*, (**1**) *using* the *subscript-epithet* '$_a$' to *symbolize* "**a***toms*", the *'category-symbol'* 'Φ_{aa}', which **we** *solve* as *connoting* the *ontological category* of the **m***olecules*, 'Φ_m'; (**2**) the *'category-symbol'* 'Φ_{mm}', which **we** *solve* as *connoting* the *ontological category* of the '**p***re*-*eukaryotic' living cells*, 'Φ_p'; (**3**) the *'category-symbol'* 'Φ_{pp}', which **we** *solve* as *connoting* the *ontological category* of the "**e***ukaryotic" living cells*, 'Φ_e', *and* (**4**) the *'category-symbol'* 'Φ_{ee}', which **we** *solve* as *connoting* the *ontological category* of the *'multi*-[*eukaryotic*-]*cellular' living organisms*, "meta-zo**a**" and "meta-phyt**a**" alike, which **we** *also name*, *collectively*, the *'meta*-**b***iota'*, 'Φ_b'.

Examples of **o**ur $_NQ$ *algebraic representation* of the '[*merely*-]*hybrid ontos' include* (**1**) the *'category-symbol'* 'Φ_{pm}', *whose connotations include*, for **u**s, the *'''eating'''* of **m***olecules* by '**p***re-eukaryotic' living cells*; (**2**) the *'category-symbol'* 'Φ_{ep}', with *connotations* of the *'''eating'''* of '**p***re-eukaryotic' living cells* by "**e***ukaryotic" living cells*, *and* (**3**) the *'category-symbol'* 'Φ_{pmh}', *whose connotations include*, for **u**s, e.g., the *'''eating'''* of **h***uman sinus tissue* by *'''common toxic cold''' bacteria*, *already* "*softened up*", for *such bacterial susceptibility*, by *'''common viral cold''' virus*-**m***olecules*.

We *find* that the *solutions* to *many* of the *'''algebraic-unknown''''*, '[*merely*-]*hybrid onto' terms*, of the *general form* '$\Phi_{zy...}$', such that $\Phi_z \neq \Phi_{y...}$, are *obscure* for the *modern* '**h***uman phenome'*.

That is, the *more complex 'hybrid ontos'*, i.e., the *combinations* of *'self-hybrid ontos'* [with or without *explicit combination also* with the '«*arché*»-*onto'* for the **D***omain* in question], which is *precisely* what *they connote*, are *often today **not** noticed*, as such, *at all*, despite the *fact* that *these hybrids*, or *'''mixed cases'''*, or *'dialectical* [*full* or *partial*] *syntheses'* are *obtrusively and crucially present* in *our contemporary biosphere*, *and* in the *present cosmos at large*.

Two Exotic Examples. *Two cases* in point are the *two 'hybrid onto algebraic terms' whose actual, physical referents participate crucially*, as *participating, enabling causes*, in *our Earthly phenomenon* of *rain*.

The *episodic rain* of *droplets* of *water* from *our skies* is a *phenomenon* that, as far as **we** *know*, is *unique* to *Earth* -- at least *within* the stellar-planetary system of *star, **Sol*** -- *our **Sol**ar* System.

*If so, its **uniqueness*** is *coupled* with *its **cruciality*** for the *sustenance* of *Earth's equally unique biosphere* as a *whole, including* for the *sustenance* of **h**uman[*oid*] *life here*.

Liquid water rain often *results* when *'**auto**catalytically' growing ice crystals* in *clouds* of below-freezing temperature achieve *sufficient mass* to fall, *and* do fall, *but* through warmer *air layers* that *melt **th**em* back into *liquid water droplets* by the time *they* strike *Earth's surfaces*.

But cloud-*constituting water droplets*, from *surface waters* that *evaporated* -- that were *converted* into *gaseous form*, by the *direct impact* of **Solar** *photons*, or *indirectly*, by *contact* with warmer, *more* agitated *air* **m**olecules, that were *ultimately* warmed, e.g., by **Solar** *photons*; thus *converted* into *water vapor* -- from *solid land and liquid surfaces, and, if* lifted aloft, *due to their* density, lower than that of *their surrounding air, and if* lifted high *enough*, into cool-enough layers of *our atmosphere*, so that *they re-condense*, in such *freezing clouds*, to form *supercooled*, floating, *still liquid water droplets*, have *great trouble freezing* -- *crystallizing, solidifying* -- despite *their* below-*freezing* temperature, into *solid-phase water, on their own*.

*These **super**cooled liquid water droplets* need a *catalyst*, an *"ice nucleating agent"* to *trigger their solidification* -- a *nucleus* for *them* to attach to *and* to *crystallize* around. *Once* such *"ice nucleation" has occurred, further accretion* of *additional ice-crystals* to this *"seed" 'ice nucleus'* is *accelerated, forming* larger-and-larger, heavier-and-heavier, e.g., *snowflakes, until their* critical-*mass*-induced *precipitation begins*.

Ice crystallization is *'acceleratingly' **auto**catalytic* for *further ice crystallization*.

Prevalent ice nucleation agents include sand, volcanic *dust particles, and other dust particles, and salt crystal fragments*, swept up to *cloud levels* by *winds*, volcanic eruption processes, etc.

But *these crystallization agents also crucially include* "*micrometeorites*" [*micrometeoroids*] or *'microites', typically smaller in diameter* than the *width* of a **h**uman *hair* -- *therefore small enough* in *mass **not*** to *burn up* in *Earth's upper atmosphere*. *They rain* down upon the *Earth*, guided in by *Earth's gravity*, from interplanetary space, *adding* an estimated **~10,000** *tons* to *Earth's mass* yearly by the annual *accretion* of *millions* upon *millions* of *these 'microites'*.

And *these often magnetic 'microites' also participate*, as an *enabling cause*, in the "precipitation" of, well, *liquid water precipitation itself!*

The *interaction* of *units* *assigned* to *multiple* *qualitatively distinct*, *ontologically distinct* '*self*-*hybrid*' *ontological categories* of **o**ur '*dialectic of Nature synchronic meta*-*model*'-- the *pre*-**n**uclear *bosonic* "*particles*" of the '⊋**n**' *ontological category*, that are the **Solar photons**, *bathing Earth*'s *surface*, the *atmospheric air*/*wind* **m**olecules, of the '⊋**m**' *ontological category*, *and* the *unbonded atoms* of the '⊋**a**' *ontological category*, *forming*, in *part*, the '*microites*' -- that, *together*, *produce Earth*'s **H₂O** "*rain*" *phenomenon*, have *only recently* been *recognized* as *so doing* by *science* -- *especially* via the role of the **m**olecular/**a**tomic, '⊋**ma**' "*interplanetary grains*" or "*micrometeoroids*".

Thus, *just one* of the *multiple* «*species*» of *what* is *connoted* by the '*hybrid onto*' te*r*m, '''*naming*''' the *ontological category* '''*named*''', by u**s**, '⊋**man**', in that '*meta*-*model*', is the *phenomenon* of *Earth*'s *rains*.

The *category*-*symbol* '⊋**man**' "classifies" [or '*taxonomizes*'] the *phenomenon* of, in *this example*, *microites*-∂*made*-*rain*, by *indicating* the *multiple* '*self*-*hybrid*' *ontological categories*, or '*taxons*', that are *involved* in *this phenomenon*, i.e., the '*self*-*hybrid*' *ontological categories* in which the *causal agents* '''*behind*''' *this phenomenon inhere*.

However, *that represented* as '⊋**man**' is *not* the *only combination* of *active* '*self*-*hybrid*' *ontological category* «*monads*» that *produces rain*.

It *has more recently* been *discovered* that *certain kinds* of *bacteria*, *among them*, the *bacteria* of *category* "*Pseudomonas syringae*", *can also* serve as *nucleation agents*, in *clouds*, for the *formation* of *ice crystals* that *later melt* to *form rain drops*.

The '*hybrid category*' of **o**ur '*dialectical theory of everything presently existent*', *and* of *its* '*synchronic meta*-*model*' of *our cosmos*, that answers to this *other pathway* of *rain causation*, is '⊋**pmn**'.

Its '⊋**p**' *component represents* the *presently*-*existing*, *Earth*-borne '**p**re-*eukaryotic living cells*' that are, e.g., the "*Pseudomonas syringae*" *bacteria*.

Its '⊋**m**' *component represents* the **m**olecules of *air*, *water*, *and enzymatic protein* that are *involved* in this *causal pathway*.

Its '⊋**n**' *component*, *again*, *represents* the '*pre*-**n**uclear particles*", *specifically*, the *photons* of **Solar light**, that *help evaporate water* **m**olecules up to *cloud*-*level* in the *first place*.

Such *bacteria*, *too*, are swept up to *cloud level* by that *photo**ns**-driven evaporation* of *surface liquid water*, *along* *with* *that water*. It is estimated that **~ 2 x 10⁶** *tons* of *such microbes*, *individually* miniscule in *mass*, rise *cloud-ward via* this *evaporation process* on *Earth* *daily**!*

P. *syringae bacteria* have *ina* [*i*ce *n*ucleation-*a*ctive] *genes* that *express* in the *production* of INA [Ice Nucleation-Active] *proteins*, *enzymes* that *catalyze ice formation*, on *Earth*'s *surface*, on, e.g., *plant surfaces*, *and* in the *clouds*, e.g., as *snowflake ice-nuclei*. *These* INA *proteins* do so by translocating, from the *inner bacterial cytoplasm*, to the *outer bacterial membrane* on the *surface* of *each such bacterium*, *where these proteins act* as *nuclei* for *ice formation*.

P. *syringae bacteria*, as *other* «*species*» of *"ice nucleator" microbes*, *live*, e.g., on *surface plants* -- such as on *plants' leaves* -- *as well as* in *clouds*. *Their density* on *leaves* is *typically* **~ 100**,**000** *microbial organisms per centimeter*. *Their ina genes* and *their* INA *proteins result* in *accelerated frost formation* on such *plants*, *including* on *h**uman crop plants*, e.g., *sugar cane crops*, in *air* temperature *ranges* for which such *"frost bite"* would ***not** otherwise develop*. *They thus cause* millions of dollars of *crops damages and losses*. *Perhaps thereby they also render* the *plants' cells "softened up"*, by *freeze-rupture*, *thus rendering their cells more*

accessible to *consumption* by *these bacteria* ['⚘_**pb**']. *Such consumption converts dead and dying plants' biomass* into *bacterial biomass*, *raising their rate* of *self-reproduction* of *their biomass*, *and thus increasing their Darwinian fitness*.

*W*e *further speculate* that *this 'ice crystallization catalysis capability'* of, e.g., *P*. *syringae bacteria*, *may also increase* the *'onto-mass' self-reproductive rate* -- *the Darwinian fitness* -- of *its microbial populations*, by *expanding their ecosphere*, when *P*. *syringae bacteria* fall from the *skies*, in the *rain* that *they helped* to *induce*. *Once cloud-borne*, *they precipitate their own precipitation*, *potentially* into *terrain* that is *new* to *this* «*species*» -- *'new niche-terrain'*.

It is estimated that, *planet-wide*, **~ 92** *quadrillion* [**10¹⁵**] *gallons* of *water evaporate* from *Earth*'s *surfaces each year*, *and* that a *water vapor "standing army"* of **~ 25 × 10¹⁵** [**~ 25** million billion] *pounds* of *water* **m**olecules occupies *Earth*'s *skies* at *all* times. Were *it* to *precipitate* as *liquid water all* at *once*, *it could* cover the *Earth*'s *surfaces* with a *full inch*, +, of *water worldwide*.

The *clouds* of *water vapor* that *float* in *those skies contain as much as* **~ 100**,**000** *microbes per cubic meter*.

The **h**uman body is **~ 60%** *liquid water*. The **h**uman brain is **~ 70%** *liquid water*. The **h**uman lungs are **~ 90%** *liquid water*. [Of course, the *"hot air"* that **h**uman bodies also generate also contains water vapor* -- of *more "mass"* with *some than* with *others*]. The *surface-waters-replenishing rains generated* by *both* '⚘_**pmn**'

and '⚘_**man**' are *crucial* to the *reproduction* of the *pre-**h**uman**/exo-**h**uman life* of the *landed noosphere-biosphere* of *Earth*, *as well as that of i*ts **h**umanity.

In *terms* of the *undergirding gene*ric $_NQ$ *arithmetic for dialectic*, the *'category-symbol'* that *includes* the *bacteria*-catalyzed *ice*-*formation* pathway to *rain*, '⚲$_{pmn}$', *corresponds* to the *generic* '*meta*-*numeral*' of *ordinal* *number* **25**, '⊥$_{25}$', *while* the *'category-symbol'* for the '*microites'*-catalyzed ice-*formation pathway* to *rain*, '⚲$_{man}$', *corresponds* to the *generic* '*meta*-*numeral*' of *ordinal number* **13**, '⊥$_{13}$'.

These two distinct causes of "*the same*" *phenomenon* of *liquid water rain*, as *represented* in **o***ur* '*dialectic of Nature* *syn*chronic *meta*-*model*', are *far apart* in *their combinatoric complexity* -- namely, are **25 – 13 = 12** *units* of *complexity apart* -- *if we use* the *immanent*, '*cardinal* metric' of *complexity embedded* in the *undergirding gene*ric *dialectical arithmetic*.

Yet they converge in *difficult-to-distinguish specific variants* of "*the same*" *gen*eral *phenomenon*: *rain*.

These two examples of '*ontological hybrid*ization' thus point up the *nuanced subtleties involved* in *solving* for the *potential meaning* of *categorially-combinatoric*, '*hybrid/dialectical syn*thesis' *algebraic terms*, *that* are of *initially un*known meaning, like '⚲$_{man}$' *and* '⚲$_{pmn}$'. "*The same*" *gene*ric *phenomenon can* have *ontologically disparate specific causes*, that *each seemingly produce* "*that same*" [*general*] *effect*. The "*differentia speci*fica", the *qualitative differences*, *distinguishing* those *disparate* «*speci*es» of *causes*, *and their disparate* «*speci*es» of *results*, *can* be *essentially in*discernible for the *naked* **h***uman sensorium* -- *if it is unaided* by *complex instrumental extensions*. Even then, *careful research* is *needed* to *discern them*, *and* the *different causes and effects may **not*** be *recognized* for *protracted periods* -- even for *millennia*.

In Nature at large, *these two causes* of *rains*, *and perhaps others as well*, *operate* in a "*mixed mode*", *all* "*jumbled*" *together*. *Were* **h***uman*[*oid*] *laboratory experiments* to "*isolate*" *these causes* into *separate* "*pure*" *forms*, then *these forms would* become '⚲$_{hman}$ ⊢→ ⊥$_{269}$' *and* '⚲$_{hpmn}$ ⊢→ ⊥$_{281}$', ***not just*** '⚲$_{man}$ ⊢→ ⊥$_{13}$' *and* '⚲$_{pmn}$ ⊢→ ⊥$_{25}$'.

For ***more background about*** these *two* '*co*-*causes*' of *rain*, *see* the Youtube video with the following URL: https://www.youtube.com/watch?v=Uu3kSIQaRxc , for the episode of the Weather Channel's series "Secrets of the Earth", entitled "Rain" [original air date **23MAY2013**].