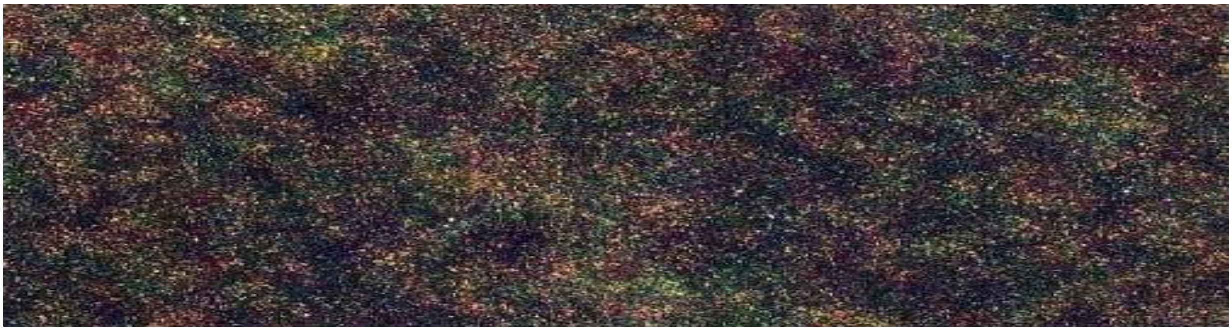


Because we are in a time, and I have in retrospect, tried to understand local emergent-features about that, or then of effective-inertialization, And also By the way of initiating *a first principles* physical perspective, Take a moment as one might to ponder, and/or Stare at these

"Adagio: imagine if you will 'before you' ,some *known* Still, or *re*-imaging of the night sky, where each of the thousands of dots of this-artifact is a projection of an entire galaxy containing billions of stars…, revealed , in a region of space called the Lockman hole, and gifting, by it's disposition, a clear line of sight out into a distance of: what is our fragile-existence in a shared realm *of* universes."

pre-amble… reduce this *found* and *then* modified example, into a few-observations on un*avoidable* interacting aspects, *between certain physically associated* classes of geometrically embedded operational-sub-framings ,

By decorticating **::** a ubiquitous *partial* disconnect effect highlighted by these (*machine re-generated*) -*pictorial*- revisits , and writings-to. , *various foundational* questions on that thing which , 'Anthro-philosophically *speaking or also* (*in some pure abstract sense*)… *functionally speaking'* then arrives and trace manifests *into apparent underlying* geometries–*as*: what are also time(past)-interpretative inducing intrinsic-Colorations. And/or then-in a *features*-parallel, as a relative sub-*perspective*-maths study of [complete effectively-exterior localizations- to labeling-information]. and thus as *a research then just on* mathematical heuristically bound aspects-to-color*, lets return and* at once, by pulling, domain exploring-or-*tending* a few pieces together from the above, for *an example–chase* to-those *contextual* attributes which as a floor seem *,at best,* to push forward post-event Hues , or type. *To start We shall begin our inquiries around* (2) *brief physiological surveys on some of the intricacies associated with the world, in regards to our perspectives and separation*

of cantata> *consider this,* first of all, if: you ,as an *operational* reference via lens and *photo*-retinal-*like* review .: instantiated a moment and gazed-at, or near,the above image: there could have appeared regions, shaded lighter and dark; Allowing *in a loose descriptive and "staccato" detail ,* for

"still a Forcing… or paralleling… of your (witness past) initiated , regional-view, or neighborhood -*of*- *representation* (as-was-or-is-uniform) ,and yet also mixed-*then*-with some privating *interrelated*(*layered neural wave* conditioning *onto* occipital lobe-*like*..)and/or *what are in description also then your***:**<physical *previous* local.space.re-enforced… Encodings>with what seems ,information from, a relatively tinted *and as–well* sometimes almost *pointed-set*, (if so-precieved)↑ or– *what became* (*your* as such: unique dynamically learned apparatus-interior *after* imagings)–And/or *as discussed with-in*: mathematically-abstracted sub-perspective *re-mappings and then state present re-enforcements by-and-on generalized representations of* such – *passed- and also then as it*: *were*… apparently it seems here anthropically internalized visually graphic-objects". (or at least : *on a human-operational surface , it does and did appear ,to be, something of that .*)

– More over… : but now tending , instead towards, your viewer -*joining*-interface… *and/or just*, from with in the *near transfer* ,or, *focus layer* of- an interact*ive* opposite directioning , ie."for *example* features of this viewable page".

if we examine once again the as *"presenting"*-explanations of this imagination:: then each, or at least some of the apparent *pixelated*. *sub-images* are associated, (in their own histories: and/or by specification): to the *complexity of hundreds of thousands* of distinct star-pointings [at the least]. And as such a, stated: and *pictorially-adjoined* interpretive *presentation*, is consistent with also the *technicality* of a local-external-past *sense Breaking* and/or it supports::

a case specific tenacity and distinction of *the Image-Viewer* receiving only a *partialized ensemble of* the initial or *global-tending* (state-informations), by.. an eventual and multifaceted-*physical-appearance here*; and again in staccato: of An almost to an iota *angle*-collapsed enduring-grainess of available information ,and then, an *onto*-(*natural*-objects) *absorbable* energy effect, and then the feature of p*hoto-electric* event homogenization by (this example's implicit potential for)-CCD-devices, Also *could have* participated in: some viewers claim-to suspecting :: ∃(*causally pre-existent- condensed at a distance star systems* encoding *"structural-* content", *which* by uniformity <[*photonically* reported a (state changing associations of those information) in many directions (some or most of which ,relative to a viewer, in those appearances, still in transit) (and *yet as well* also as if) through our particular now shared sample-joining, *channels and/or* –optics]>, Which then afterwards content-wise , regionally existed at some Moment-interval as a mear sample-association-slice *of the potential of that once larger and/or original dynamic-information-ensemble,* where this discusively selected as it were, remaining constituent of light information was then reflected-onto, *re-frozen-in*:or again in-information part, sectionally re-clustered and/or near-field *atomically-coupled;* And as such, it is independent of some Entropy, posited: that the above image (from your or our particular phase-place): is ;by *"a pre-persistent loss of preceivable metric, or many-to-one almost to a point angle-collapsed graininess"; and in constrast also just by "effective frequency-selected and then isotropic projective fractive sampling"; and as well by re-localizing energy-capped or superpositional near-field quantum couplings;* then (is) locally-*irreversible to a full determinacy of such past-existent pre-condensed nascencies* and thus 'this image' locally exists now *with an interpretation of exterior*, and thus in a relative sense, *newly* (quantify- *potentialed*) *or sample averaged* by and as, what becomes ,in its self, just *a* into semblant co-*Domanification,* of *latently* passed-forward- ...then also (naïvely-locally decipherably: only upto some vast regenerative set of equivalent possible Digital-pasts)-as a machine translated–regionally-reproduced seeming-or-effective action of what have become, [now and yet still framal:*'anonymous observables'* from such *nascent-and-secondary-states*], into once more, and as well, again in some *readers*-potential, as what are, and again are, at some relative sub-framal informational distance, only intrinsically descrete *Hued*-[artifacts]) **:**
that is, some of the originating information, -and- knowledge of the exact pathway of transference, is simply not regionally available anymore with-in the information carried by the present color-temperatures or polorizations or quantizations or distributed conduction-band effects of this example,... , and thus A-or-your local framal-precievable past from such *Hued* photonic exterior domain is: reasonably at best then in a sense interpretively intertialized, or ultimately bifurcated or at least past-locally indeterminate. .repeat that >- the non-unique variable multi-featured and entropic ... tail of the photonic arrow....>
(or *then*: *on a physical-operational surface, it does by example after compounding, regionally appear to be something of that .*)

and So; by specializing journeys into the inertial world of symbolically-embedded models: and then by focusing also ,for the purposes of this preamble, just on *A perfect information symmetry-breaking* ,that occurs, at:(at-the collapse) map Similarities, and/or by an additional *leap and meaning conceptualization-to*: *mathematic and algorithmic perception* [then on *O*racally reflected representatives as it were – of locally unbounded-abstract-representations of standard label-analytic point-sources], (both: and first, as a re-exploration into the domain where Algorithmic descrete, and Continuous mathematics,... algebraically meet or embed; or then, and simply as an *aperture to* ,or, *as* an interpretive underlying constraining to the various general aspect boundings of what is meant by any of the possible *and multiple-forms* of partial: domainal pre-information disconnect, That we shall now define as: with or ajoining with the concepts and/or meanings of a generalization of mathematic-'time') ...
that, an example of an Extension into various pure"*infinitesimal-couplings–of distributed topologies and operators*", *as researched by and thru what becomes an operational* technique *of singular numeric partialization* ..then may be motivated and appended with the various philosophies of mathematics And/or its domains:: generating a particular *mixing* or *systematic layering* of algebraic territories**::** one at inception(just in order to provide wide context) ,tied *here, at least then* to a multitude of exterior continuous available *symplectic* analytic geometric fabrics <-,and one in a fashion,-> then on confinements to and/or concrete internal infinitesimal localizations of–[what can also become, then import-trace-*artifacts of "previous"* infinitesimal-projections of distributed-geometric-informations by-and consistent with , operationally filtering and/or partition limiting selected samplings, on-or-from *constant-representative* improved

classes of classic convergent-sequencially-structure bound labeling (and/or what are i*ntertial*) types]: Giving a nice arrowing feature of *folded-in* or *porous* non-standard models, first as an initialization or augmentation to the constructive innate abstract representation of [metrized-point-maps and/or numbers] themselves, and then-and-together *as passed forward now and* into map-futures- as also then sometimes trivially driven or now coupled external -and- geometric *point* internal color-algebraic or forced type-algebraic domains of interest…

But first in order to assist in the parameterization-and-passing of-layerings of these just mentioned hued-domain, and further where as the philosophic difficulties associated with the *mear-existance and uniqueness* of Time (axiomatically or not) and as just hinted at, are then in a small sense, presented, limited and transcended by the preponderance and availability of apparent *clock examples ;* we shall in a wider conversation now want to, Re-characterize or be more specific again, as to what we shall mean here by the terminology: "clock". Or more specifically state what we shall mean here by the terminology " >* Perspective generated clock-able sub-framings" . That is emphasive let us for now; Not research a word-meaning for [time] ; but rather just for available mathematical encoding restriction that might be gleaned from an interpretation just on the word[clock]. As before we begin from a reference limited simply to a viewer-or-reciever of some re-emitted photonic or graphic-like realm (singular-minimalized or not); as also again it is commensurate to the existance-binding of sub-perspectives in general on and into higher order geometries. And so to solidify this outlook

Imagine -or- view -or- Remember some dynamic scene or rooming whose proper local independent progressions inorder to carry ontologic constraint into a-mathematics ,were or are, dominated by some fundamental globalizing Principles(known or off the shelf)which are or were, at least loosely_Metephoric then to the effect of those apparent features of the relativity-principle or more so: the guaranteed ,at a distance, *localized homogenization-of-operation-laws* seemingly perserved by and also as-featured in physics. In addition assume Then (some independent functioning set of domain-cameras$_{(i)}$ each associated with- its own functioning camera-clock$_{(i)}$ by a sufficiently minimally-capable agent$_{(i)}$ all embedded into the same scene and whose one task is to take a partialized perspective$_{(i)}$ [definable-map or more colloquially (a picture-image)]$_{(i,j)}$ of that imagination) such that: it's-clock$_{(i)}$ could be included reasonably as a sub-frame image$_{(i,j)}$ of that now or then potentially *partialized*-representation of such a more globalized imagination.

Where the index (i) associates to the case specific defining prespective$_{(i)}$, and ($j\in\mathbb{R}$) provides for image-layerings. Further simply for convience we restrict the meaning of "functioning clock" only to any independent monotonic function–or- process whose state is or could be recorded into or with the [static-image frames]$_{(i,j)}$ produced by This -or- such a perspective map-or-camera parameterization-time-stamp dynamic.

Claim this is relatively consistent-to or provides a projection from the enviroment of the initial assumption of a viewer, yet representationally Emits as well for the "recorded"-mathematically-concrete-representation and then comparison of multiple possibly Overlapping Sub-framed perspectives.

And so as…

a dirge, from some human compulsion , . . to again , join to that which isn't broken , . . as-in place- recordings of an ongoing attempt , . . . and because time is a great thickener of things -and yet , always still - short . . ↓ . . ↓

and then:

(*wrapping things-up,.. and folding*) into*, or* (*sometimes* with a permission*,* along-side of or then from an outside taking-in) an already ancient philosophy-and-conversation **:** on the toolset of-or-into 'purifying' (symbolic and graphic)-techniques **.**

and as_ ... this journey, of a few *cardinality* howlings into the wind : ... is culled , with a simple and naïve-observation that it seems completely-reasonable "to speak of a faithful-projection of color *onto* -a- visually *subjecti vised* -point · ", but yet or still , somewhat more difficult to speak of a similar pointed-*representation* , for 'locally-emergent' and/or 'distributed-geometric' objects, such as : dimensionally-*simple* piped-triangles △ ,or, in some other *complexity* fractal ings ❄ , _ present (after one more cycle-of-completion), an . . un-ordered , . . *already* existent , . . further generalization to the infinitesimals , . . . –and/or an adjoining of: (standard -And- non-standard analysis). By an

interior color-theory of *abstract* *terminal…(s)*

•

– a Construction of $\mathbb{R}_{\dagger}$
– (an) internal Spectral-carrying-Structure for numbers
– logarithmically contained laminar flows ($\mathbb{R}_{CLF}$)
– real-analytic (domain bounded) color algebras, knitted into geometries
– predictive -Opaqueness and an *up*to type-structuring of frames
– an application to inertial-maps and localized-time(like *representations*)
– a tools section

tagged for now ... with a wild or then whimsical warning paradox, and where as we must .. also touch on this:
mostly as it seems, it *still* remains *remarkably* degenerate, let us just briefly risk , the intensely difficult ,
well-spring of platonic *externalities* . . . , out of the nut-shell: and more, coarsely-or-physically speaking

- "*as ,some, first-and/or-final system* . . . :) -*nothing exists* :- (. . . preserved as- or in bare-potential
then is or *may*-be *associated with any obvious- representative* model *which presents-inconsistency .*
of course quite a bit , in a larger-sense , frees up from that " ! and more so , any sufficiently unleashed -
-operational *in-coherence* - returns then, also- *a climb-into such*) *fully-degenerate neighborhoods* ("

- ☯ ☺

Anyway, various paradoxical-classes , *as* often-is *method-usual* (stratified, domain restricted -or- ignored), start with, a *little* again - *anthropormorhic* – view of territory (as it is: commensurate) - and thus – we take a further re-fining of . . . or a new

1. reconnoitering: with-in ,*a wave-and-saturation* of *in-the*-air-algebraic-approaches and discrete-instantiation, there is *a* simply fascinating, 'sometimes'-*forgotten* < multi-threaded > history on, the science and way to assign a meaning-and-role to "symbolic-numbers". (in *practical aspect*) *numbers have* become -*or- remain* "namings" ; which then *if-sensed* , as abstracted-Domain "*Objectification-counting-localization-or-quotient.ing-,...,-descriptors* ", embody

* by-this '*registration*': [also *some*-tending* -to *inducement -of- distinguishable- codings -forms*] *(p_adic -or- not) which then is* or are implicit-of , or at the least coding consistent-with , an aliasing for ...such (frame)-adjoined* ("*possibilities*- or- *new recordings" - or-* renormalizations, ... ,) *to or by* '*those*' *apparent* "*system-and-constraints*" *.*

and so *this as poetry,* in a label '*immersive*-context', of trace-*capturing*-[*separate*] -*framings of* discourse: : partly inorder to retain, update ,or, merely fill-in *those* internal-type-capabilities *which* may *remain* or be , *a* vehicle at given *interfaces* ,then is , a concrete-return and *expansion down*-into a *language- passed-* point.(*ing*)- -dimensional(critical or)*then* componet-structure philosophies,as specifically-and-representationally related to:

[name.(ing)-instantiation-potential(s)] ,and/or, the *information-history-inherintly* carried-forward with-in *an* [abstract 'mark.(ings)'-back-ground] by,a sub-class, underpinning ,and, in a sense to be made precise from *with-in* ,then *"descriptive positions"-given by*-or-*over*, *number-constructed alias-spaces and maps*.

further this provides ,as such , from some opposite tenet *↑ ,

a "*method* and *example*" of dressing-or-*writing* external-constraint ,into, point*ed->geometric*-context(s) ; and, by weakening (or making porous) the convention that *isomorphic*-objects are *in-a-way* identical : brings *classic*-definition to [*color*-(*evil*)]-systems or *modulation*-shells as seen by a *partial(ization)*-of-number(s), *where in the end ,of course these examples may then again be embedded in classes* of *identifiers, for other generalized spaces*.

and so, and somewhat as a "review to the literature", the workings begin by *carrying-into "convergent foundations";*

a. in the first section: [a completion now of the "interior"] of a *naming*-conveyer for the *irrational*-real-numbers with a constant-representative↓ (and/or a distributed-overlapping identity–element). *these* representatives then act as a reference for sub–typing the [latent-sequence–(ie.an available-alternate '*labeling*)–*space*'] which

* forms, the underlying *mono*generative{*"infinite" dimensional-unit*}-and/or-*universe* of-each *separating- 'Object* – or-element-or-point': in then {*a* "re-emergent constructive"-contrast }, of the- *1-dimensional* system $\mathbb{R}_{\dagger}$, and also, of the (*externally-algebraically-closed*) hypercomplex systems, which immediately or conjointly follow ...

– with this simple addition: overall directions, may easily progress into, studies of inherent-"descriptive"-*primary*-co-structure(s) *(preserved)* by or with-in these↑ infintesimally-augmented- numbers. specifically given are explorations of:

1) Spectral sets ,and, the existence of *distinct* - sympathetically-coupled [interior-or- labeling *algebras*] .
2) of *ever-present*- ("*down-into*" and "*up-out-of* ") projective 'space ⇔ name-space' interaction schemes .
3) of sequential-type-migrations induced onto the set-of ubiquitous 'logarithmic-scale-inspired' $\mathbb{R}_{(CLF)}$ -defining-functions, and then onto bindings of *eventual*- analytic-color-maps , as a structuring group.
4) and yet of,a "*never the-less*",type *proportioned* infinitesimal_*mathematic*–opacity as *is cardinally-or-locality*-enforced by a *color*istic sense-persistence of *legions of intermediate-appropriate ultra-center(ed)* exclusive-map(s).

and so: with the *latent* detail-journey of this mathematical (*privi-tation*)-*technique* encapsulated ,at hand, and again starting: by-*or*-with a clear *note-of* distinction between ,the *thing-named* and the-*name*, *the long and easy stuff* ...

---

section 1:(first attach-concreteness, in classic foundation, there resides what appears to be "at-least most of ")

2. a Construction of $\mathbb{R}$†: (visited here for a shared-background, and necessary structural *reference-detail*).

So we explore, developments of general pointing-discussions, anew (in early-mid-stream). As maybe said, *on review*, there exists essentially two paths to induce, that which is generically-called, the real-number-system($\mathbb{R}$): ("abstract",and ,what is known as "constructive"). by such (a) *for-layers sufficing acceptance approach*, *unites* as

$\mathbb{R}_a$) *$\mathbb{R}_a$ is defined*: as any mathematic-system, uniquely-characterized or consistent-with also the *potential of a domain*-projection (at bottom) *down* over "*a local* modulation onto some context of a finite notation or inertial name- set* (see 1.*)" by then the 'generalized' external algebraic-binding (and/or- structure rigidizing) properties of what is, ordinarily called or encompassed by the wording, a "*complete-ordered-field* ".

philosophically-then,the language of ('*a potential of-or* '..."*over* sufficiently *definite-abstracted-form*") forces (*by*: *finite, notation and complete*), operational-$\mathbb{R}_a$ –mapp*ing* [artifacts] to become both: -and- appear as: term- accept*ance* Patterns↓; and yet still be independent-of ,and/or,to posses an (interchangeability)–*of that particular "notation" as then-passible or referenced nodings*. in-specific,notice however-else (*or not*)(some as is *know outer* $\mathbb{R}_{eal}$ *-domain-inevitable*) second-order infinite terms-structure is in itself either described, and/or *pointed-to* or "*trailed*", is irrelevant to the rest of the bindings by *C.O.F* driving-characteristic↓ which (*free-up*): to determine and (*upto* some as information known ambience *interpertive*:log-*entropy breakdown-or-seeming counter-structuring-of-objects*), then maintain↑ a possibility of level-constraining $\mathbb{R}_a$ rings in (or- from) ,some else-wise, either *writing*-definite or then locally witnessed *abstract*.

– *and as we will see, otherwise* layered universe domains are *then* admitted. so following a"constructive"-(model)- -approach(which demonstrates such acceptances↑): and since it is *adequate for*, or precisely sufficient-or-

2a. –*descriptive* for the *purpose* at hand, **assume:** some (*small theory of logic and sets*)(see TØ :)

√ 3. further as essentially the same "boot-strapping , *up* "- method is used (twice) ; then for later reference, **generalize common features of these construction(s)** as follows and where as we: merely label *extend*- various *standard* presentation, introduce first a notational-convenience of "$\in$" (representing the membership relation) and then (re-look *after-other such-assumption(s)*), at some generally-available structurally-localizing *blue-print***:**

a. – **assume:** (some "finite notation-set" and a definite projection)*: of $\mathbb{Z}$ - the integers ,and its proper- subset- $\mathbb{N}$, such that n $\in \mathbb{Z}$ (> O) (by 2.a), *over-that-domain*. likewise **assume:** μ*- some arbitrary and sufficiently rich *number-system*, possessing *at-least*, an external-bound ('ordered-field' algebraic structure),and as such an

* absolute-value-metric . then codify a notion of "closeness" by method-defining: a *convergent-sequence* for a μ–number-system, as a sequence-function on $\mathbb{N}$ into μ "f: { . . . , < n , x_n > , . . . }(ie. a set of ordered pairs) such that for any μ-number 'ϵ' > o , there exists a $N \in \mathbb{Z}$, so that for every m,n >N ; then

$$| X_n - X_m | < \epsilon$$ *reserve-and-incorporate here , thus the notation: of the "usual" absolute-value*

– **a relation** p**:** in a set 'X' is called an *equivalence – relation* (in 'X')

if-and-only-if (notated " iff ") p**:** is

– reflexive (iff xpx for each x in 'X')

– symmetric (iff xpy implies ypx)

– transitive (iff xpy and ypz, implies xpz)

it is an induced-feature of equivalence relations , that they partition the sets in which they are defined ,into, a union-of-mutually-disjoint-subsets (see T3) .

b. – next **define** : a 'known'- equivalence - relation , in the set of all μ*-convergent- sequences* CS_μ**:** { . . . , $^{\mu}f$, . . . } , called $\sim\epsilon$**:** such that if (x) and (y) are in CS_μ, then ($x \sim\epsilon\ y$) , " read the sequence –x is ϵ*-equivalent* with the sequence –y " **:** iff for any μ- number 'ϵ' > 0 , there exists an integer N , so that for every n > N

$$\left| X_n - Y_n \right| < \epsilon$$

– **denote :** then a [$\sim\epsilon$ – *equivalence* – class] as the implicit - set of all- { μ*–convergent - sequences* : that are $\sim\epsilon$ – *equivalent* } (ie**.** which are "ϵ – close" ,or, which in this sense, also "approach" each other in μ).

↑

* 4. **utilizing the above generalized – *method*** , we can *construct* (2) faithful-versions of the *real*-number-system. (ie**.** 'as context': one usual-construct $\mathbb{R}_Q$ **,** and then historically: only "just-a-little"- *less-usual* one , eg. $\mathbb{R}_\dagger$).

$\mathbb{R}_Q$) first assume**:** μ is a ' *bottom-up* constructive-model' (and projection)* of the **rational**-number-system $\mathbb{Q}$ (by 2.a)

– then **define :** a real-number as '*the-sum-total* ' of an instance of an [$\sim\epsilon$ – *equivalence* – class] of Q- convergent- sequences . that is ; in the present construction every real-number (r) is a latent *multi*–member "sequence- set" **.**

a. – **name** (and, then again, in *particular-instance* operationally represent) such a real-number-[ ] (see 4.b) with *a reference*(*or potential-reference*)*-to***:** any-one of its *pointed*-set class-members, by writing

$[{}^{Q}f\,]_{RQ}$ or with $[\,X\,]_{RQ}$

note: variations of this naming- form will be freely used in-context in order to impart heuristic -"meaning"

b. claim : with-out proof (as it is widely known, reference **:** set- theory , logic , and T4) that this $\sim\epsilon$ - induced "partitioning" of [convergent – rational – sequences in general] may "in-itself" be algebrized and /or

* re-sistered (*into*) a structurally coherent name-mapping-system($\mathbb{R}_Q$) which is consistent with the underlying support implied for ($\mathbb{R}_a$) ; that is , it is admissible in-general as a number-system, generically then, for $\mathbb{R}$ **.**

– **next :** for any-specific rational-number q in $\mathcal{Q}$, we may define **:** the trivially-convergent sequence-function on $\mathbb{N}$ into $\mathcal{Q}$ ${}^{q}\boldsymbol{f}$: { . . . <n , q> . . . } (ie. at this point , up to absolute-value-equivalence (eg. | $q_1 - q_2$ | = 0) , some endless-sequence of equal q's) as 'a' constant-representative of $[q]_{\mathbb{R}_Q}$ in the system ($\mathbb{R}_Q$) .

---

5. – **and then :** as it will be convenient ,for what follows, to define a *'unique-or-firm'* constant-representative for *every* (rational and irrational) number 'r' ; use exactly the same *generalized*-method to construct the *distributed-real-number-system* ($\mathbb{R}_\dagger$ from) $\mathbb{R}_1$ seen immediately below).

* note **:** again (see 1.a) gaining a "complete-interior" ,is, the motivation for such criptic expansion .

$\mathbb{R}_\dagger$) first solidify a meaning of ($\mathbb{R}_1$) , by attaching and defining a "minimal-admissible-naming-structure" for a (*complete*)-ordered-field $\mathbb{R}_a$ as **:** consisting of a single -(algebraically)-operational- name per element. for example **:** one constructed solely from some *decimal* notational - schema (but with-out an allowable internal-name(representative)-equivalence-class structure of any type)[1] ; as in , and with out explanation here (see: T5) , $\mathbb{R}_1$ = (some) appropriately defined $\mathbb{R}_{\text{radix - fraction - system}}$.

– then assume **:** $\boldsymbol{\mu}$ is a <' *bottom-up* constructive- model and projection (see: T5) '> of a $\mathbb{R}_1$ number-system , and

a. – **define:** a distributed or generalized real-number as an [$\sim\epsilon$ – *equivalence* – class] of $\mathbb{R}_1$ -

* convergent -sequences ... (explicitly *then*: with-out **any-other** isomorphic associations in the "background" allowed)[2] **. . .** the reason for such a *double-"term"alization on* ***the*** object(s) (see: 1,2) of $\mathbb{R}_\dagger$,*in transparency*, will not be 'overtly-brought to light' ,in reference, again until . .(see: 20.) **.**

– **name:** a distributed- real -number then in particular instance (as above in 4.a) with any one of its 'class - members' , $[X.]_{\mathbb{R}\dagger}$ etc.

and finally : for any real-number 'r.' in $\mathbb{R}_1$, define(by $\mathbb{R}_1$-completeness)**:** the convergent-sequence-function on $\mathbb{N}$ into $\mathbb{R}_1$ ${}^{r.}\boldsymbol{f}$: { . . . < n , r. > . . . }(which by T5: is a well-linked endless sequence of unique 'r.'s) as 'the' *constant-representative* of ['r.']$_{\mathbb{R}_\dagger}$ in the system ($\mathbb{R}_\dagger$) (seen immediately below).

b. – **state:** it is also-known that a $\sim\epsilon$ –*induced–"partitioning"* of [all-convergent $\mathbb{R}_1$-sequences] may "itself" be algebrized and re-sistered (see : T4) into the system -$\mathbb{R}_\dagger$, and that : ($\mathbb{R}_\dagger$ is order-isomorphic to $\mathbb{R}_Q$) ie. it is also admissible , give a standard(*GCT*)-proof of that, (utilizing the relation of convergent-sequences to limits in general) , in the *tools -section* **:** (T1).

* *and so* *from-relatively-extant-foundations* *we arrive at*, *an "apparent"* and yet *at once* symbolically-practical,...

6. **notational comment** and then-relook: up to this point ... essentially (4) admissible -(universe/models) for the *real-number-system* have been remembered, re-explored, and then given *descriptive*-definition

$\mathbb{R}_a$ **:** presented explicitly 'with-out' ***biased–***reference to which fine, underlying-"*finite notational -set*" *potentialized* [*element*]-naming-structure is referred-to ,for specific, representational-operands.

$\mathbb{R}_1$ **:** presented or biased-(*explicitly*)-with, a ***single–***name per element -*domain* structure (eg. on some appropriately defined *improved stevin* or classic $\mathcal{R}_{\text{radix - fraction - system}}$).

$\mathbb{R}_{\mathbb{Q}}$**:** structured on $\sim\epsilon-$ *equivalent* projections of **rational**-*naming*-sequences **.**

and $\mathbb{R}_\dagger$ **:** structured on $\sim\epsilon-$ *equivalent*-(*defined* :unassociated) -or- **"term"inalized** $\mathbb{R}_1$-sequences **.**

– this is mentioned since the description has followed a convention *used* through-out , where $\mathbb{R}_{(\star)}$ denotes**:** (not a notational-conglomeration of all-" discussions-of " the "real -number-system") but returns again for *emphasis* to flexibility; as any-abstract "universe of discourse" projected into**:** or operationally-grounded,

* by some-potential-description of "naming-or-dressing-structure(s)";where $\mathbb{R}$ in and of itself, here also will denote then a common ,*and/or*, *non*-gendered amorphic-meaning , for which parenthetically, there are many further order-isomorphic instantiations of $\mathbb{R}_{eal}$ eg**:** discussions based then on *potentialized cuts.(|)*,on *continued-fractions*, on *surreal-subsets* , on *univalent-foundations*, and then those based on nested-intervals in general **:** ie. and as examples, on *least-upper-bounds* and *greatest-lower-bounds*, (to name *a few other journey ings of interest*).

– and so, for and as our return- to these discussions , or as our point-of-departure, we

– notice now '**not**' **-the-abstract-commonality** of all these *dressing*-methods, but *explore instead* an obvious *comrad-nodic* philosophical and/or *constructive* capability-difference... *for such* label extended *"name"*- spaces **.**

Spectral structures (colors) with in numbers **:** (*existence of* : and after that: *algebration*)

7. first , for-robustness , a couple (2) referential preliminaries are given in the tools-section **.** which are

– an initiation in a general but limited way of *partial - algebra* **:** (T2: for selection operators)

– and a rudimentary development of *equivalence - relations* **:** (T3)

* then as emphasis and to keep delineations clear for the development of "*domain layer - mixed - systems*"

denote interior **:** as , and to reference (members , relations , and properties) associated with the overall- -space of convergent-functions "in and of itself ", which then exists as the re-sistered, infinite-dimensional, latent-"collapsed",(*and* it turns out,algebraically distinct) sub-structure of $\mathbb{R}_\dagger$ (see 20 .)(*and systems to follow*)**.**

denote exterior **:** as ,and to mean : potential-instant*iations* of (members, relations,and properties) associated then with some selection of a particular-representational-descriptive-surface ,and/or, a *collection*-of-named pointed-sets (*as it were*) of the 1-dimensional system $\mathbb{R}_\dagger$ (*and systems to follow*) **.**

a. – **and as such**, relative to these discussions, the properties of ($\mathbb{R}_1$) are in-effect **:** then pulled-exterior, and provide both a theoretically-developed and representatively-rigid ,or, uniformly-opaque footing for

* the $\mathbb{R}_\dagger$ sub-domain ... next since and only since, I'm not actually aware of *any-done* and sufficient description **:** maybe simply as, *driven-by* a host of warnings : "on the futility of further-completions"... *never-the-less* prepare such non-exotic domain ... and

Partition the elements of $\mathbb{R}_\dagger$ (ie. . . carry-out ,a refinement , of the above partitioning of CS_{R1})

now combine **:** $\mathbb{R}_\dagger$, equivalence-relations and partial-algebra ; to (briefly as possible ,for what follows) delineate primary disjoint regions and/or an internal-partition-structure into the domain of sequences contained in $\mathbb{R}_\dagger$ **:** [equivalence - classes] **.** clearly a finest *level-of-granularity* provided for by such-partitions **:** then is one generated by some-existence of *identity-selection-operators*, (that is, classes consisting of a single-sequence-each)**.** however this forces the number of different structural-schemes to be unbounded **.** and thus initiating an *eye*-and-*vehicle* towards a particular flavor of application

* b. – begin by initially choosing one which,(maintains- *some* loose attachment to the *properties of order*) ,and . . .

8. first identify: for each r ∈ $\mathbb{R}_\dagger$ a sub-equivalence-class consisting 'solely' of the Constant-representative "C_r" **.** that is, notationally define : the interior-partition **:** (for any- r ∈ $\mathbb{R}_\dagger$ **:** [[C_r] , [. . .]]) ; where this arises essentially by the previous and the (*what could be easier world following extant*) construction of $\mathbb{R}_\dagger$.

"internally" - disconnected:

9. then characterize and codify 'a' concept of internally-disconnected as referenced by such constant-representative(s).

define : a relation on the interior of $\mathbb{R}_\dagger$ called $\sim_d$ **:** such that if (x-and-y) ∈ [$\sim_\epsilon$ - equivalence-class [ ]]$_r$

(ie. if (x, y) are members of some selected (by T2:) interior-partition [. . . [ ] . . .]$_r$) ,
and if (C_r) is the 'constant-representative' of the same [$\sim_\epsilon$ - equivalence]$_r$; then ($x \sim_d y$) **:**

iff **(**

either:

(there implicitly-exists a $N \in \mathbb{Z}$ such that for all $n > N$) then both

$$\left\{ \begin{array}{l} |X_n - C_{rn}| > 0 \\ \quad \text{and} \\ |Y_n - C_{rn}| > 0 \quad \text{hold true} \end{array} \right\}$$

ie. in this sense , both are $n > N$ continuously *Idisconnected* ("internally-disconnected") naming-sequences.

or:

(there implicitly does-not exists a $N \in \mathbb{Z}$ such that for all $n > N$) then either one-of

$$\left\{ \begin{array}{l} |X_n - C_{rn}| > 0 \\ \quad \text{or} \\ |Y_n - C_{rn}| > 0 \quad \text{hold true} \end{array} \right\}$$

ie. neither become continuously *Idisconnected* naming - sequences.

)

method of abstraction:

a. and as such the above , at-essence, is a binary **not-(Exclusive-or)** with the sequential-operands (x, y) first "*descriptively*"-filtered by the *implicit - definite* relation ($|f_n - C_{r_n}| > 0$)($\in \mathbb{R}_1$) **.that is :** since every-sequence (f) in the given domain of interpretation is composed of an "implicit-definite" collection of $f_n \in (f)$ (by 'an' induction hypothesis or Axiom of infinity see 2.a) , **then** (trichotomy ; " for any-pair

(a, b) $\in \mathbb{R}_1$, exactly one-of (a<b , a=b , a>b) holds true "– see T4.1.02) **:** implies "inherently" , and then independent of "*explicit*" examination , that any–(f) can be (by such axiomatic- binding) **:** of "one-and only-one" latent-truth value-type relative to all- ($n>N$) -filterings ;

and thus the terminology and an operational-reliance on *descriptive*-filters (here and in both of the *previously-given* *standard* constructive-models of $\mathbb{R}$ (see 3.) , where as is-usually done **:** divergent-sequences in-total were typed and discarded by non-explicit *rigidizing*- intuition.

and then, the partitioning and re-sistering of "convergent-sequences" into a number-system was

* logically based on a similar [codified-binding of-type] and then on the algebration of such-(type-pointers-[themselves]) (see T4), rather than , by *some*-"at essence"-"unresolvable"-representations . and so →

b. – state : ($\sim_d$) is an equivalence-relation , prove ::

– reflexivity **:** is then immediate by a not-(exclusive-or) comparative-structuring , and the implicit-definite property of the deriving-filters on the domain.

– assume ($x \sim_d y$) **:** then by the "commutativity" of standard-interpretation(s) of the logical-(*AND* and *OR*)-relations , with in the (not-XOR) itself , it follows that ($y \sim_d x$) ; which shows symmetry **.**

– assume ($x \sim_d y$) and ($x \sim_d z$) **:** then either (there implicitly exists a common $N_1 \in \mathbb{Z}$ such that for all $n > N_1$, then both $|X_n - C_{r_n}| > 0$ and $|Y_n - C_{r_n}| > 0$ hold true) .OR. (there does-not exist an integer $N_1^{\sim}$ so that for all $n > N_1^{\sim}$, then either one-of the (x, y)-filters hold true). likewise **:** a similar statement may be crafted for the ($x \sim_d z$) assumption utilizing (a $N_2 \in \mathbb{Z}$ notation and the non-existent integer description $N_2^{\sim}$) . and so as the above filterings are implicit-definite on (x) , (y) and (z) , the assumptions are as such latently--bonded by(y)and claim: either(there implicitly exists an integer $N = \max(N_1, N_2)$ (see 27.c) such that for for all $n > N$, then together $|X_n - C_{r_n}| > 0$, $|Y_n - C_{r_n}| > 0$ and $|Z_n - C_{r_n}| > 0$ all-hold true). .OR. (there implicitly does-not-exist a $N^{\sim} \in \mathbb{Z}$ such that for all $n > N^{\sim}$, any of the (x, y or z)-filters hold true). and so it naturally follows that ($x \sim_d z$) , which gives transivity.

thus: as ($\sim_d$) is defined on interior-partition elements **:** there exists 'a' *type-descriptive* re-partitioning such that (for any-$r \in \mathbb{R}_\dagger$: $[\,[C_r],[D^{\sim}],[d]\,]_e$) .

c. – where the global-qualifier $[\ \ ]_e$ arrives as a syntactic derivation of (" iff there exists an integer 'N' such that for every (. . .) > N ") , and is read as eventual .

- [D~] temporarily denotes : (not) eventual-*Idisconnected* sequences "*in-general*" .
- [C_r] : an always-*Iconnected* singleton (ie. $|C_{r_n} - C_{r_n}| = 0$, for all $n \in \mathbb{N}$).
- and [d] : eventual-*Idisconnected*-sequences , which comprise, as such, both strictly *Idisconnected*-sequences and sequences which, in this sense, may-'*initially*' contain members equal-to ,or, internally-connected with C_r .

continuing *a usual path* . . .

ei - monotonic :

10. next **define :** a sequence-function on $\mathbb{N}$ into $\mathbb{R}_1$ f: { . . . < n , f_n > . . . } as "eventual-*Imonotonically*--increasing" iff there exists a $N \in \mathbb{Z}$, such that for all m,n > N

$$f_m \geqslant f_n \quad \text{whenever } m > n$$

"eventual-*Imonotonically*-decreasing" iff there exists a $N \in \mathbb{Z}$, such that for all m,n > N

$$f_m \leqslant f_n \quad \text{whenever } m > n$$

and "eventual-*Imonotonic*" (sometimes **denoted:** as ***ei*-monotonic**) when a sequence is either *ei*-monotonically (increasing or decreasing) :

- **thus** it follows again, as the above sub-filters are (see T4.1.02) obviously implicit-definite by trichotomy, that any-(f) $\in [\sim_\epsilon$ - equivalence $]_{\mathbb{R}_\dagger}$ is latently ei-*monotonic* (or not) ; and that a "not-(exclusive-or)-equivalence-relation" may be constructed and then demonstrated (see 9.) on those filters .
  and as such ,

  define: an equivalence-relation on the interior of $\mathbb{R}_\dagger$ called $\sim_m$: such that if ,
  (x-and-y) $\in [\sim_\epsilon$ - equivalence-class [ ] $]_r$ then ($x \sim_m y$) :

  iff **(**
  either:
  x and y are both *ei*-monotonic**.**
  or:
  neither x or y is *ei*-monotonic**.**
).

then : as ($\sim_m$) is defined on interior-partition elements ; there exists a sub-filter codified- . . .

-descriptive-repartitioning of naming-type such that (for any-r $\in \mathbb{R}_\dagger$: [[₵~~m~~], [d~~m~~], [C_r], [dM], [C] $]_e$) .

- where [C_r] : is trivially *ei*-monotonic (ie. for-all m,n $C_{rm} = C_{rn}$).
- [d~~m~~] denotes : *ei*-disconnected sequences , which are **not**-*ei*-monotonic .
- [dM] : *ei*-disconnected sequences , which are *ei*-monotonic .
- [₵~~m~~] : (**not**)-*ei*-disconnected sequences , which are **not**-*ei*-monotonic ; that is in "conclusion" ,

sequences which never fully-Idisconnect or fully-Iconnect to C_r (see T6.10.1) .

– and [C] **:** (not)-*ei*-disconnected sequences , which **are** *ei*-monotonic ; that is sequences which "must" -eventually-completely-Iconnect to C_r (see T6.10.2) .

<u>side - equivalence</u>:

11. – **and finally** and *without pause*, such a rudimentry interior-partitioning may fully-characterize 'some'-intuitive conceptualizations of side-equivalence as follows **:**

a. **define :** a relation on the interior of $\mathbb{R}_\dagger$ <u>called $\sim_\uparrow$</u> **:** such that if (x-and-y)$\in[\sim_\epsilon$ - equivalence-class [ ]$]_r$ where ***neither*** (x or y) are constant-representatives , and if C_r is the 'constant-representative' of the same $[\sim_\epsilon$ - equivalence-class$]_r$; then ($x \sim_\uparrow y$) **:**

iff **(**

either:

(there implicitly-exists a $N \in \underline{\mathbb{Z}}$ such that for all $n > N$) then both

$$\begin{cases} (X_n - C_{rn}) \leqslant 0 \\ \quad \text{and} \\ (Y_n - C_{rn}) \leqslant 0 \quad \text{hold true} \end{cases}\Bigg\}$$

or:

(there implicitly does-<u>not</u> exists a $N \in \underline{\mathbb{Z}}$ such that for all $n > N$) then either one-of

$$\begin{cases} (X_n - C_{rn}) \leqslant 0 \\ \quad \text{or} \\ (Y_n - C_{rn}) \leqslant 0 \quad \text{hold true} \end{cases}\Bigg\}$$

)

state : it is immediate (again) by implicit-definite construction that ($\sim_\uparrow$) is an equivalence-relation **.**

thus : as ($\sim_\uparrow$) is defined on interior-partition elements ; there exists ; a type-repartitioning such that

* (for any-r $\in \mathbb{R}_\dagger$**:** [[₵$_{\text{m}}$↑] [₵$_{\text{m}}$ (osc,↓)] [d$_{\text{m}}$↑] [d$_{\text{m}}$ (osc,↓)] **;** [dM↑] [C↑] [$\underline{C_r}$] [C↓] [dM↓] $]_e$)

where **:** the interior-partitions are notationally-denoted and grouped

. . . . (non)-*ei*-monotonic on the Left **;** and *ei*-monotonic on the Right **.**

addressing the (*ei*-monotonic)-partitions first ; give (**<u>one - last</u>**) overview **.**

– ($\sim_\uparrow$)-(by 11.a) is then "undefined" for any-and-all I-monotonic-Iconnected-singletons [**...**[C_r] **...**]

– further for any-r $\in \mathbb{R}_\dagger$**:**[and any-$f \in$ [C] (see 10.)] then $f \neq C_r$, thus there exists . . . for any-$f \in$ [C] a sequence-dependent minimum integer 'N_{min}' and a larger-integer 'N^{max}' ($f_n = C_{rn}$ for all $n \geqslant N^{max}$) ; such that (by *ei*-monotonicity) then for-all ($n \geqslant N_{min}$ but $< N^{max}$) exclusively-either ;

($f_n - C_{rn}$) < 0 ; in which case $f \in [C\uparrow]$
- or -
($f_n - C_{rn}$) > 0 ; in which case $f \in [C\downarrow]$

– next for any-r $\in \mathbb{R}_{\dagger}$: [and any-$f \in$ [dM] (see 10.)] there exists a sequence-dependent integer 'N' such that for all $n > N$, (again by *ei*-monotonicity) exclusively-either :

($f_n - C_{rn}$) < 0 ; in which case $f \in [dM\uparrow]$
- or -
($f_n - C_{rn}$) > 0 ; in which case $f \in [dM\downarrow]$

then addressing the (non-*ei*-monotonic)-partitions

– [$d\cancel{m}\uparrow$] denotes : *ei*-disconnected , non-*ei*-monotonic sequences , which (by the filter ($f_n - C_{rn}$) $\leqslant$ 0) are strictly 'less-than or equal-to' (C_r)

– [$₵\cancel{m}\uparrow$] : non-*ei*-disconnected , non-*ei*-monotonic sequences, which (again by ($f_n - C_{rn}$) $\leqslant$ 0) are strictly 'less-than or equal-to' (C_r)

b. – and [$d\cancel{m}$ (osc,$\downarrow$)] , [$₵\cancel{m}$ (osc,$\downarrow$)] : comprise sequences which may be repartitioned by these "*named*" sub-type components through a (new)-filter ($f_n - C_{rn}$) $\geqslant$ 0 derived not-(exclusive-or)--equivalence-relation : ($\sim_{\downarrow}$) and is left ,after such excesses, to the reader.

… *again note: we get all this for free , by simply completing the interior with a constant representative* *ie.* …

* **conclusion :**

12. thus as 'a' *descriptive methodology* can now be *excessively* apparent , augment further interpretation-and/or-notation : **in conclusion**, there exist ordered-defining-lists of ((partial-algebraic set-restrictions) and (equivalence-relations)) such that for *every-potential* [$\sim_{\epsilon}$ - equivalence-class]$_r$: identity-selection-operator ($I_{r\dagger} \rightarrow [\ \ ]_r$) , there also exists an implicit-and-latent set of ***interior-alternate-name-type selection-operators*** { S_i } such that ;

$$I_{r\dagger} \rightarrow [\, S_{no} + (S_{dM\uparrow} + S_{d\cancel{m}\uparrow} + S_{C\uparrow} + S_{Cr} + S_{C\downarrow} + S_{d\cancel{m}\downarrow} + S_{dM\downarrow}) \,]_r \qquad \text{(exhaustive)}$$

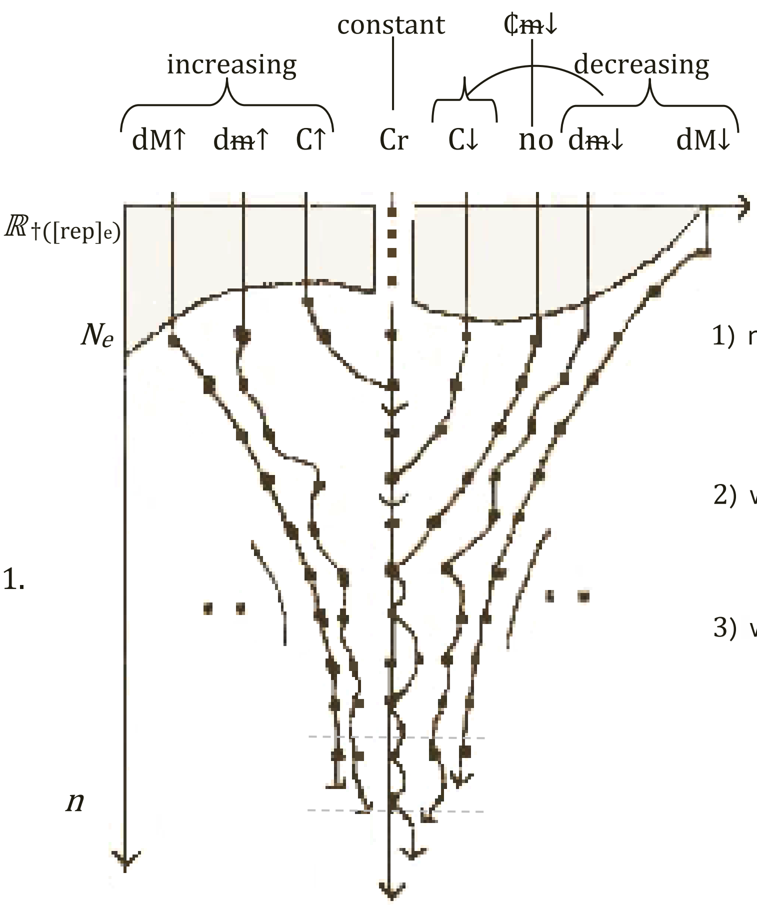
where: $S_{no} = (S_{d\cancel{m}(osc)} + S_{₵\cancel{m}(osc)} + S_{₵\cancel{m}\uparrow} + S_{₵\cancel{m}\downarrow})$ . . . (*near-oscillative*)

$S_i^n = S_i$ for any indice(i)(. . . *eg.* $d_{M\uparrow}$ . . .) (idempotent)

$S_i S_j = \varnothing$ for any indice (i $\neq$ j) (disjoint selective) and as such **:** these operators define : a spectral - set on the interior of $\mathbb{R}_{\dagger}$, where, "at this point" , there exist (8) disjoint-subsets and/or "**colors**" (thus preserving notational-graphic-approaches) which sub-characterize {not-some} but all the interior-(*'potential'*)-sequences of the members of $\mathbb{R}_{\dagger}$ **:** $[\ \ ]_{\mathbf{r}}$ **.**

13. that is**:** *we initialize conversations with* (1) state of near-oscillative , (3) states of increasing , (1) constant state, and (3) states of decreasing ;**visualized** here by the example of a *binding-and-sampling* *of-and-by* *a* graph **:**

fig 1.



1) note **:** the n-axis is inverted to highlight the "sense" of a number-internal "downward"-or-compressive support

2) where **:** a single-hypothetic-sequence is presented from each representative-sub-region-or-color from some $r \in \mathbb{R}_{\dagger}$, for

3) which **:** this graphically demonstrates each color as non-empty (eg. and/or various constructions based on $K_n \cdot (1/n)$, with $K_n \in \mathbb{R}_1$ and appropriately bounded)

and so latent coarse-interior-structures or [(colors)] have now ,[by part][ition], been easily demonstrated .

further we might as well, in such *a standard analytic* interpretively-*vacuous-swamp*, breath a normal sigh of...so-what. yet**:** after some reflection and/or a *pause*, ask what, our initial and then *structurally-finite-addition* would bring... to (those *things* which in some historical past were called indivisibles) ... ie. -and/or- fall into if we were to ...

14. provide such decompositions first-then, with an **innate - algebra** . denoted here as **:**

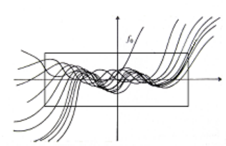
A) one which is confined-strictly- sympathetic or *immediate* relative to the algebration systematically implied by $\mathbb{R}_a$ as a (*complete-ordered-field*) ; and ,as such , one which

* maintains ,in this sense, the whole external discussion of instantiated analysis , but

B) one which also then maps colors-into-colors with-out ,again, otherwise explicit-dependency on the *underlying* defining-sequences of a color**.**that is in contrast to specific-(sometimes impossible) -proof(s) of representative-membership , this **appears**, as an exploitation of the generalized uniform driving forces and various layerings-and-modulations of type-algebras onto a study of $\mathbb{R}_{\dagger}$ - *admissible* point-internal name-*instantiation*-characteristic . where subjectively and as our *fascination here* .. then in private exposition : "it is noted as a feature ,and, (*as will be made precise*), that quite a bit of spectral-structure carries through ,*in-the*-limit series-transformations, . . . completely intact."

(and where , afterward as extended, and then *eventually*)

C) applied-apriori to: the *bi*-directional *partially-opaque*-[non-totally-sympathetic *1-to*-many]-*coupling*(*s*) for and between the (internal-and-external) algebraic-domain, as systems *passed*-or-punch through point-singularities consistent-with or under the interpretation of, relative path-dependence. (that is, in-a-sense "*appear to*" do something ,while, still maintaining partial-structural-binding).



Section or part two : . . . and so, as is well known, we might have begun here . . .

ALGEBRAIC MAPS

d. *first some notes (on the typsetting or) on the-various-style(s) for a presentation of these muses: which then, in some sense are -or- will be cursed, simply as an Ouroboros-reflection↓ of this moment itself. let me explain ... the process "of this passage", and in fact for the whole document, is just a daily-or-ritualized return to a yet-lengthening tail.*

if in doubt, write , what one would honestly like to say, and let tomorrows present improve-it or wash-it away.

if a conversation or a transitory-perspective seems beautifully-accurate, imprint it now, before its lost forever.

if in research, some philosophy seems better, use it, change it, dissolve it into solutions, and/or poisons ...

nothing is given endless referencial-credit anyway.

there are days *that it seems better to scan through these thoughts* : and so this *document*-or-juncture *may* reflect that.

* days *where certain features, seem spread across the discussion, and may be pulled together by type↕-high-lighting. there are* passages *and words with many possible ,mornings of interpretation, there is art , humour, overview, cheating, malipulation, fear, boredem, truth, things which are categorically rentlessly-wrong, passion, admiration, confliction, place holders, inconsistency, faithful work from within a trade, happiness, and of course still much much more, and then many more asides. " driving this, is an outsiders attempt to beg-an-enforcement to simplicity ,and , ... then..*

to bring an aspect of mathematics towards a physical-bind, not some attempt to mathematically describe physics".

finally at any point: these muses are inertial, and yet never finished, and thus have a unique- imprinted-life of their own, and with out any regret invariably will fade unfinished *into what is a colorfull past. and so,in this somewhat human sense, then un-tethered and whole-heartedly encouraged, let us again explore and modify the art work and scenery together _ but certaintly ,let s,not agree to easily, "after such a fleating-circle↑ ",on what is-or-was necessarily...an (obvious perspective) ... or an interesting work .. or an then*

" *what's in a name ; that which . . .*
tends to hide ,easily, in the open,
often, should be avoided,
at times, isre all yh a rdt os e e ,
especially when ergodically coiled ,
as fresh air , or the ,
the wonderfully-invalid puzzle of
nature as a sub-category of nothing . "

– ☺

further ; what is a philosophy based on (axioms and/or rules of formation) other than a pure potentialized tool and symptom for descriptive runaway. that is the very strength of mathematics to explicitly *detach* from the surroundings (by *notationally* "describing" apriori-features and then layers of pointers into abstract universes or notations) ; → is on the other hand , a weakness :

as such virtual-domains are profoundly unrestricted in room and scope , (allowing for the simplicity of original insight and journey to be long forgotten in a fathomless exotic dream world of *ornate - "truth"*) → thus effectively shrouding from clear view all-that-is axiomatically-separate or on the opposite-side of some complexity-surface ; and → "which" very still , and somehow-*persistently*, seems-again right under the anthropormorhic nose .

(by example) such apriori-methods have been fraught with misguided beginnings where the tinniest inclusion of misconception ,or, (un)intentional lack of restriction (has) propped up a millenniums long-(dark) forest of that which is limited or just mystically-wrong**.** and it was not until the recent-polyfurcation of disciplines and the freedom brought on by what became popularly and generically known as " the scientific method " ,and, then again in strong-contrast dropping the un-testable assumption that "parallel lines never meet" that *at-least* a true axiomatic-method could take hold and flourish.

that is, and where in-part, mathematics now has become a kernel of the physical-sciences without any physics in it at all . and as such exists , by toil and chance , unfettered (except by an arbitrary selection of primitive-notions and pointers to abstracted objects with-in layers of type-and-association): as deep , exquisitely predictive to a diverse scene of application , ornate-potent , <u>and</u> yet like all things in *reality-and-instantiation* as bound to a past. that is the very description-or-initiation of an abstract-mathematics restricts the apparent potential-or- *near term* of its representable-space(s), and it is the measure of just such preferential *time*-like-*restrictions*, that is the algebra(s) of internal-form , which are exposed in the following section(s) .

later,*when the step of* multiple-frame couplings are induced ("by ,a look at, *renormalized*-or-lockstep collapse"), then keeping track of such sub-domains becomes unavoidable, but for now, may be viewed as**:** a simple stuctural-detail-trailing-curiosity, beneath a porous surface of isomorphism and (hobbled) prior-art. first though :: non-exoctic infinitesimal-*pointing*-spaces, where the "*notation medium is the message*" , and where (for tricks ,.. triffles and form) **: ...** we return as such: to the mundane underlying (*objectively-bound, descriptive philosophies*) or the *work* at hand.

assume the previous defines : a "*primary*"-code-pallet , and some re-combination (ie. $[C_r]$ $[₵_{m}\downarrow]$) defines : an amalgam ,and, re-combining all the internal-elements defines : a *total*-amalgam (ie. $[TA]_r$).

15. then contained in the tools-section are (standard) referential-preliminaries which delineate operations between [total-amalgams] and as such present a coarse internal-algebration implied by $\mathbb{R}a$: (T4)

with such features assumed available , and as essential-review , **define :** the interior algebraic-system of sequences ,as usual, to be (**term-by-term**) . that is for example: if some arbitrary binary-operation (★) is given , where (f and g) are sequences , then

$$f \star g \quad \text{implies} \quad (f \star g)_n = f_n \star g_n \qquad \text{for all} \quad n \in \underline{\mathbb{N}}$$

and (re)-evoke such a structurally-localized system ,now, then into a study of internal-representative- -migrations of [*underlying –constricted to- color* type] . . . and as such first complete a few useful . . .

constructive details (pertaining now ,in-particular *groundwork*, only to " *the elements*" of $\mathbb{R}_\dagger$)

----

similarity

16.a – re-examine the definition of a "*convergent-sequence*" given in (T4.4.a)(. . ." for all $n > N$, then, $|f_n - X| < \epsilon$ " . . .) ; which offsets each ($f_n \in \mathbb{R}_1$) of the sequence (f) by a constant 'X'$\in \mathbb{R}_1$, and which there and as such defines a "*null-sequence*" .

that is : for *any*-$f \in [\ \ ]_{X\neq 0}$ (where $[\ \ ] \in \mathbb{R}_\dagger$) , there is generated by such definition an exactly-similar (convergent-sequence) ${}^{\emptyset}f \in [\ \ ]_{X=0}$ denoted by the sequence-equation ${}^{\emptyset}f = (\{f_{n\in\underline{N}}\} - [C_r]_{X\neq 0})$ where for all-n $C_{rn} = X$;

and (likewise) *any* -${}^{\emptyset}f' \in [\ \ ]_{X=0}$ generates an exactly-similar (convergent-sequence) $f' \in [\ \ ]_{X\neq 0}$ denoted by the sequence-equation $f' = (\{ {}^{\emptyset}f'_{n\in\underline{N}} \} + [C_r]_{X\neq 0})$ where again for all-n $C_{rn} = X$.

thus by the overall *symmetry-and-transivity* of the above , it **follows that :**

* (any- $[\sim_\epsilon$ - equivalence-class $]_{\mathbb{R}+}$ is "*exactly-similar*" or essentially-identical ,except for offset, to every-other-$[\sim_\epsilon$ - equivalence-class $]_{\mathbb{R}\dagger}$) .

* – ***comment*** : again this is not the case for $\mathbb{R}_Q$ (which doesn't posses a *complete* interior-structure) .

symmetry

b. – further (every - $[\sim_\epsilon$ - equivalence-class $]_{\mathbb{R}\dagger}$ is symmetric around its constant-representative)

prove: for any $f \in [\ \ ]_{X=0}$ **then** $(-f) \in [\ \ ]_{X=0}$ (by T4.2.c) , and thus (by the similarity of $[\sim_\epsilon$ - equivalence-classes $]$ 16.a) the claim follows .

separable

c. – the (defining-sequences) for any two distinct "$\sim_\epsilon$-equivalence-classes" $[\ ]_X$ and $[\ ]_Y \in \mathbb{R}_\dagger$ eventually-separate . . → **prove:** (utilizing that $\mathbb{R}_\dagger$ is constructed from $\mathbb{R}_1$)

assume: $X > Y$ and $X - Y = 2\epsilon$ (where then (2ϵ) is a positive-"constant"- *and* - (ϵ, X, Y) $\in \mathbb{R}_1$).

thus for (any $\sim_\epsilon$ - sequences f_X , and C_r) $\in [\ ]_X$ where then ($C_{rn} = X$ for all n)

there exists (by 3.b) an integer N such that for all $n>N$ then $|f_{Xn} - X| < \epsilon$;

that is (for all - $f_X \in [\ ]_X$ "eventually" $X - \epsilon < (f_X) < X + \epsilon$ holds) .

likewise for $[\ ]_Y$, then (for all - $f_Y \in [\ ]_Y$ "eventually" $Y - \epsilon < (f_Y) < Y + \epsilon$ holds) .

however: by assumption ($X = 2\epsilon + Y$) so ($X - \epsilon = Y + \epsilon$),

thus it follows implicitly that every - f_Y is *separated-by the eventual-relation*(s)

" $(f_Y) < Y + \epsilon < (f_X)$ " from **all**- f_X .

and so by a similar argument for $Y > X$;

$[\ ]_X$ and $[\ ]_Y$ separate in $\mathbb{R}_1$ (as well as being disjoint (see: T3) in $\mathbb{R}_\dagger$)

* – **note:** relative to an exterior-context of the-global-structuring of $\mathbb{R}_\dagger$ [its points] as such necessarily appear topologically "**closed** ". regardless , it then follows that :

sundries (*and at times* useful ϵ- uniformly-bounded-representations)

d. – for any-$\epsilon > 0$ ($\in \mathbb{R}_1$) and any-(f) $\in$ [*color*-(*or amalgam*)]$_r$ ($\in \mathbb{R}_\dagger$) , there latently exists (by 3.a) a ("minimum-unique"-sequence-dependent integer N_ϵ) $\in \mathbb{Z}$: such that the $f_n \in (f)$ may be then considered implicitly re-indexed (by $\breve{n} = n - N_\epsilon$): such that for all - ($\breve{m}$, $\breve{n}$) > 0 then $|f_{(\breve{n})} - f_{(\breve{m})}| < \epsilon$.

that is the collection of (all)-such-identically and latently re-indexed (f) sequences: (f_ϵ) $\in$ [some color]$_r$ ($\in \mathbb{R}_\dagger$) ,

if all those: ($\breve{n}$) are-then *considered* restricted from $\mathbb{Z}$ to $\mathbb{N}$:
implicitly defines a recasting of that color to a ϵ- uniformly-bounded-representation (. . . " $[\![\ ]\!]$ " . . .) which by definition "*captures*" all - (f) $\in$ [the color(amalgam)]$_r$ ($\in \mathbb{R}_\dagger$) .

e. – **and as such** , a $[\ ]_X \in \mathbb{R}_\dagger$ is called *positive*: iff a $\epsilon > 0$ ($\in \mathbb{R}_1$) may be shown (see T6.16.e) to exist such that there exists ϵ- uniformly-bounded-representation(s) of $[\ ]_X$ and $[\ ]_{Cr=0}$ such that strictly $[\![\ ]\!]_{Cr=0} < [\![\ ]\!]_X$; that is for (any-and-all ${}^{\varnothing}f_{(\breve{n})} \in$ (the ${}^{\varnothing}f_\epsilon$) $\in [\![\ ]\!]_{Cr=0}$)

and (any-and-all $g_{(\breve{m})} \in$ (the g_ϵ) $\in [\![\ ]\!]_X$) **then** ${}^{\varnothing}f_{(\breve{n})} < g_{(\breve{m})}$

(where of course in-application such proofs relie again at essence on 16.c) .

f. – **likewise** , a $[\ ]_X \in \mathbb{R}_\dagger$ is called *negative*: iff there exists some $\epsilon > 0$($\in \mathbb{R}_1$) such that there exist (see T6.16.f) ϵ- uniformly-bounded-representation(s) such that strictly $[\![\ ]\!]_X < [\![\ ]\!]_{Cr=0}$ (again by 16.c).

↑ _ _ _ _ _ _ _ _ _

17. – <u>then focusing</u> ,again, in on the thread of discussion , that beneath the "closed"-surface of <u>any</u>-point lies some and yet benign potential (coiled up in a virtual partition-*name*-space) **:** establish and *begin* an exploration of the coupled algebraic-maps with in 1-dimensional ***mixed-layer-space***(s) (see 20.) as initiated by $(\mathbb{R}_\dagger)^{(1)}$ **.** along the way , both ***side-algebras*** and a **(*)-*relative-internal-metric*** will emerge, allowing for an **(*)-*interior-calculus,*** and confirming the appearance of ornateness ; which (of course) ,as is usual, and as it: is-compulsive , will also then be built upon (see: 14.d)**.**

<u>an internal-naming scheme</u> (the-first iteration) that is, and

a. – where, the $f_n \in f\ (\in [C_r]_{\mathbb{R}_\dagger})$ (ie. the various "f_n" of an equivalence-class for some C_r) , are rewritten with-respect or in-reference to " C_r " itself ; as

$\underline{f_n = C_{r_n} \mp {}^*f_n}$ sometimes written: +/-

– where **:** all $({}^*f_n \in \mathbb{R}_1)$ are understood $\geqslant 0$;

b. – the($\mp {}^*f_n$ thus *associated*) with any-$f \in [C_r]_{\mathbb{R}_\dagger}$ (by 16.a) necessarily exist and form a *null-sequence***.**

c. – the **interpretation** of " $\mp$ " is context-dependent , but at times for conciseness is (written as ($\mp$) or as (+/-)) and**:** implies (2)-distinct sequence-*formulas* ,which, (by T4.1.M3) distribute over parenthesis) ; **ie.**

d. – (**+/-**)(${}^*f_{1n} + {}^*f_{2n}$) denotes for example *some* (C'_{r_n}) - *offsets* (${}^*f_{1n} + {}^*f_{2n}$) and ($- {}^*f_{1n} - {}^*f_{2n}$) , which when taken over $n \in \underline{\mathbb{N}}$ (by 17.b and T4.3 "the addition of *null-sequences*") define in and of themselves, *null-sequence*(s) , and as such define-sequences which remain "in" $[C'_r]_{\mathbb{R}_\dagger}$ (by T4.5) .

<u>multiplication</u>**:** (by any "*positive*"- constant-representative) *preserves color*

18.a – and then, in order to tend towards making specific an exploration of a color-algebra , **state that :** multiplying each element of the 'external-real-line' by a common-positive-factor (> 0), causes a uniform relative change or "lensing" of the absolute-value-metric equal to the common factor (eg. $|ca - cb| = |c(a - b)| = |c||a - b|$ by T1.*theorem*.1.1. II) **.**

thus for all-interior supportive ($f_n \in f\ (\in [C_r]_{\mathbb{R}_+}$) rewritten as $(f_n = C_{r_n} \mp {}^*f_n)\ (\in \mathbb{R}_1)$ (see 7.a) ,

it follows that $\underline{|c|f_n = (\,|c|C_{r_n}\,) \mp (\,|c|{}^*f_n\,)}$ (by T4.1.M3)

and as such : term-by-term multiplying a representative $f \in [C_r]_{\mathbb{R}_\dagger}$ "in some particular-instance" by then some positive-constant- $|C|_r$ -representative , causes in effect a uniform-lensing of the $({}^*f_n$ relative-to) the constant-representative then of $[\ \ ]_{|c|C_r}$ **.**

b. – where (by T4.2.c) **:** the $\mp$ ($|c|{}^*f_n$) define a null-sequence , and thus (by T4.5) define a $[\ \ ]_{|c|C_r}$ "contained" - lensing **.**

c. – and where $\mp |c|{}^*f_n$ *preserves color* , briefly substantiate this claim .

– first , since : each of the equivalence-relations involved in the above partitioning of $\mathbb{R}_\dagger$ are based on descriptive e-filters on sequence(s) with respect to some member-element relative-ordering . eg: the $f \in [\ \ ]_{\mathbb{R}\dagger}$ are partitioned (at essence) by the eventual-innate-validity (or-not) of the "forms" :

1. – $|f_n - C_{rn}| > 0$ with in the *ei*-disconnected-filter ; which here then may rewritten as : $|(C_{rn} \mp {}^*f_n) - C_{rn}| > 0$, (ie. $|\mp {}^*f_n| > 0$) .

2. – ($f_m \geqslant f_n$ .or. $f_m \leqslant f_n$) with-in the *ei*-monotonic-filter ; which then may be rewritten as : ($\mp {}^*f_m \geqslant \mp {}^*f_n$) or ($\mp {}^*f_m \leqslant \mp {}^*f_n$) .

3. – $(f_n - C_{rn}) \leqslant 0$ with-in the "↑"- side-filter ; rewritten as : $(\mp {}^*f_n) \leqslant 0$

4. – $(f_n - C_{rn}) \geqslant 0$ with-in the "↓"- side-filter ; rewritten as : $(\mp {}^*f_n) \geqslant 0$

5. – and [. . .[Cr] . . .] may be rewritten such that the associated ${}^*f_n = 0$, for all $n \in \underline{\mathbb{N}}$ (ie. in one sense , all are identity - ordered) .

then : each "color"-is-forced , and is 'some' [relative order-type of $({}^*f_n)$]$_e$ implicitly . that is , either as a relation-type to zero ,or, between $({}^*f_m , {}^*f_n)$.

d. – thus since : (T4.1.M(1-5) and T4.1.E(1-3) derive various-similar *multiplicative-theorem* , such as : " $x \leqslant y$ **implies for** $0 < c$, that $cx \leqslant cy$ " ,**<u>and</u>** , " $x > 0$ **implies for** $c > 0$, that $cx > 0$ " . . .) , **then** for-any $(f_m , f_n) \in f\ (\in \mathbb{R}_\dagger)$ it follows that all-the (f)-internal-member-order-relationships are preserved in and through the binary-operation(s) of $|C|_r f$.

– and then or again , since the $|c|f_n \in (|C|_r f)$ may be rewritten as $|c|f_n = (|c|C_{rn}) \mp (|c|{}^*f_n)$, and $\{\mp {}^*f_n\}$ defines an associated "null-sequence" (see 17.b) , then $\{\mp {}^*f_n\}$ <u>and</u> $\{\mp |c|{}^*f_n\}$ (by 18.b , 18.C.(1-5) , and the immediately above 18.d) : are members , in and of themselves , of the same [relative-order-type] -or- [color (amalgam)]$_{x=0}$; and as such , the claim essentially (by 16.a) follows . . (ie. stated contextually here as

* $|C_r|$ [. . .[color]. . .]$_{r.}$ = [. . .[color] . . .]$_{|Cr|\,r.}$) .

* e. – <u>note</u> : therefore it also follows that , the collection of **<u>all</u> - <u>positive</u>-constant-representatives** , may be claimed as (contained-in or *at least* equal-to) the [(multiplicative)-spectral-identity-class] (notated : "$e_{i\otimes}$") associated with this over-all *re-sistered* distributed internal-domain of $\mathbb{R}_\dagger$.

19. – addition: (by any constant-representative) *preserves color*

recast the $f_n \in f$ ($\in [\mathrm{Cr}]_{\mathbb{R}\dagger}$) by or with $\mathrm{Cr}_n \mp {}^*f_n$, and 'any-term' of some otherwise general constant--representative by or with $\mathrm{Crg}_n \mp 0$ (both $\in \mathbb{R}_1$) . thus it is immediate : that

$$(\mathrm{Cr}_n \mp {}^*f_n) + (\mathrm{Crg}_n \mp 0) = (\mathrm{Cr}_n + \mathrm{Crg}_n) \mp {}^*f_n$$

and besides-offset when taken over $n \in \mathbb{N}$, that addition by constant-representatives (by 18.c.(1-5)) preserves color ,which, then in a fashion similar to the above derives the

* a. – statement : that the collection of **all- constant-representatives** , is (contained-in or equal-to) the [(additive)-spectral-identity-class] (notated : "$e_{i\oplus}$") associated with this over-all distributed internal-domain of $\mathbb{R}_\dagger$.

and that : ($\mathbf{e}_{i\otimes}$ and $\mathbf{e}_{i\oplus}$) as such at least partially-overlap .

* 20. – some overviews on ($e_{i\otimes} \cap e_{i\oplus}$) overlap . . . "*or the crux of the matter" .*

examine [zero] the additive-identity-element for the 1-dimensional exterior ring of $(\mathbb{R}_\dagger)^{(1)}$ (ie. "0" + [any-number] = [any-number]); its "interior" however, (by : the existence of 1-1 maps between sequences-and-series) is a ***very general*** infinite-dimensional re-sistered space with-out any representative restriction impressed on it other-than the **∈-(0)-convergent-equivalence** of its member sequences(see 5.b)

further (for emphasis, by 16.c-e) ∈-uniformly-bounded-representations of $[\![\ ]\!]_0$ and $[\![\ ]\!]_1$ may be shown to exist; such that they are "completely-disjoint or separate " in $\mathbb{R}_1$; **and thus :** as "one" is the exterior multiplicative-identity-element ($1 \cdot r = r$) for the real-number-system ; it is apparently-immediate: that the current spectral-decomposition of the interior of $\mathbb{R}_\dagger$ (by : overlap) then shall represent the existence of an algebraically-distinct , sympathetically (see 14.A , 15.)-coupled-system , which is latent (by : the order-isomorphism of $\mathbb{R}_\dagger$ to $\mathbb{R}$) or effectively-ubiquitous or in 'a' genetic-background of (all-$\mathbb{R}$), **and as such** intrinsic to its *hypercomplex*-closures (*eg*. the *complex*-numbers $\mathbb{C}$,...and *etal*.) ,and thus and finally then as, coupled to all representations (or point-associated representations) which *by nature* are functionally and/or concretely-constructed on or over($\mathbb{R}$, $\mathbb{C}$ ..)..(unless again 'term'ally-restricted ,as in $\mathbb{R}_1$, now formally see:T.5)

a. – and it is ,at essence, this "coupling" and non-trivial distinctness of (algebra and dimension) which inspires and forces the layer-description "*mixed-domain*", ie. as: an infinite-dimension exists in a continuous-and-invariant mix or coupling with-and-to *any-such* finite-dimension(s) .

– and, then again, it is the partial-overlapping(see: 21.a) of ($e_{i\otimes}$ and $e_{i\oplus}$) which will-in-hindsight give interior-color-algebra (among its' many-other properties) also a < '*meta-stable*, *A-symmetric*' > time-like feel, regardless . . . then examine,

$(-1)_c$ rotation:

21. – state multiplication by (-1) re-orders the external-real-line reflectively around the origin: thus for any- $f \in [\ ]_{\mathbb{R}\dagger}$; it follows naturally for $(-1)(f)$; when "(-1)" is considered as the constant- $(-1)_c$ -representative and where the $f_n \in (f)$ may be rewritten "$f_n = Cr_n$ +/- $*f_n$" ; that such multiplication internally generates $\underline{(-1)f_n = (-Cr_n)\ -/+\ *f_n}$ relative to (f) (ie. at essence: +/- → -/+). and thus, as the "side"-filters of (18.c.3 & 4) may be thought of as (-1)-"symmetric-duals" of each other : it also follows that $(-1)_c$('any' - $f \in [$*some-color*$]_{Cr}$) (see T6.21) maps into 'a' symmetric-color-dual . and as such (and with-out *"much adieu"* here) a claim may be easily generalized to an external-perspective represented for notational-emphasis by:

$$(-1)_{C_r}[\ldots[\,color\,]\ldots]_{r.} = [\ldots[\,roloc\,]\ldots]_{-r.}\ ) \ .$$

* a. – **and where :** this as such establishes the "partial"-overlap claim made above, since there exist $(f \notin \{Cr\})$.

side - addition :

22. with these (three) initiating features of color-algebra assumed in-hand , begin a discussion of side-addition (note: and then an extension to side-multiplication), starting with the following definition(s).

– (2) sequences $(x),(y) \in \mathbb{R}\dagger$ are called "left"-side-equivalent : iff each is selected by 'an' amalgam-operator

a. $S_{LS} = S_{dM\uparrow} + S_{d\cancel{m}\uparrow} + S_{\cancel{c}\cancel{m}\uparrow} + S_{C\uparrow} + (S_{Cr})$ (note: the inclusion of $[S_{Cr}] \subseteq e_{i\oplus}$)

that is or alternatively stated : there exist $N_x , N_y \in \underline{Z}$ such that for all $n > (N_x$ or $N_y)$, then (x) or (y) may be completely-represented from there on by some form : $\underline{C(r_n)\ -\ *f(n)}$.

– **likewise** (2) sequences $(x),(y) \in \mathbb{R}\dagger$ are called "right"-side-equivalent : iff each is selected by 'an' amalgam-operator

b. $S_{RS} = S_{dM\downarrow} + S_{d\cancel{m}\downarrow} + S_{\cancel{c}\cancel{m}\downarrow} + S_{C\downarrow} + (S_{Cr})$ (again note: $[S_{Cr}] \subseteq e_{i\oplus}$)

that is or alternatively stated : there exist $N_x , N_y \in \underline{Z}$ such that for all $n > (N_x$ or $N_y)$, then (x) or (y) may be completely-represented from there on by some form : $\underline{C(r_n)\ +\ *f(n)}$.

c. addition of (LS/RS)-same-side-equivalent(coloration) sequences , derives the easily-apparent-referencial rule: for all $(r_1 , r_2) \in \mathbb{R}\dagger$

$$[[LS]\ldots]_{r1} + [[LS]\ldots]_{r2} \Rrightarrow [[LS]\ldots]_{r1+r2}$$

$$[\ldots[RS]]_{r1} + [\ldots[RS]]_{r2} \Rrightarrow [\ldots[RS]]_{r1+r2}$$

prove: assume (f_1 , f_2) are (LS/RS-same-side-equivalent naming sequences) where the ($f_{1n} \in f_1 \in [C_r]_{r1}$, and $f_{2n} \in f_2 \in [C_r]_{r2}$) $\in \mathbb{R}_1$ are rewritten as ($f_{1n} = C_{r1n} \mp {}^*f_{1n}$,and, $f_{2n} = C_{r2n} \mp {}^*f_{2n}$) respectively . then "both" sequences (in unison) may be represented (note: the inclusion of S_{Cr}) by at least one common side form $(C_{(rn)} - {}^*f_{(n)})$ or $(C_{(rn)} + f_{(n)})$: exclusively , and so $(f_1 + f_2)$ may eventually be represented by

$$(C_{r1n} (\mp) {}^*f_{1n}) + (C_{r2n} (\mp) {}^*f_{2n})$$

where here : (by 17.c) "(∓)" represents a notational combination of the (2) forms (ie. read high or Low)

d. $$= (C_{r1n} + C_{r2n}) (\mp) ({}^*f_{1n} + {}^*f_{2n})$$

and , where as (17.a defines all ${}^*f_{(n)} \geqslant 0$) ,and, (T4.1.a4 implies that for $({}^*f_{1n} , {}^*f_{2n}) \geqslant 0$) , that $0 \leqslant {}^*f_{1n} \leqslant ({}^*f_{1n} + {}^*f_{2n}) = {}^*f'_n$) ,and, (by 17.d "the addition of null-sequences" implies that ${}^*f'_n$, when taken over $n \in \mathbb{N}$, defines after algebraic-substitution of $(C_{r1n} + C_{r2n})$, strict-($[\ \ ]_{r1+r2}$)-internal-offsets): then $(f_1 + f_2)$ may eventually be represented by the "same"-one sufficient-form $(C_{(r1+r2)n} - {}^*f'_n)$ or $(C_{(r1+r2)n} + {}^*f'_n)$ as (f_1 , f_2) themselves , and the claim .

* – more generally , since $\{ [S_{Cr}]_r \} \subseteq e_{i\oplus}$ (by 19.a) , **and** each C_r then is such an identity-element sufficient ; it follows also by a (C_r)-anti-symmetric (see 16.b) lack of additive-inverses [ie. *e*-not ($-({}^*f_n)$: for ${}^*f_n \neq 0$)], that side-equivalent-sequences (in and of themselves) form an internal-spectral semi-group (or stable- -descriptive-shell structure) which "algebraically"-projects-and-(preserves) information (via "semi-*group*"-stability) across the background of ,or, the distributed sub-domain of $(\mathbb{R})_\dagger$.

note : the ("⇛") is a notational contraction , and simply represents *here* a mixed-domain map which is externally-equivalent (ie. =) ,and, internally into_ *in a loose but then sufficiently appropriate sense* (ie. →) .

color – dominance

23. – continuing with ground-work : exam color-dominance associated with a re-finement of the addition of (LS/RS-same-side-equivalent sequences). consider the partial LS/RS-operators descriptively selecting either 'ei-*disconnected* or (not)- ei-*disconnected* ' naming-sequences .

1. $S_{LS(d)} = S_{dM\uparrow} + S_{d\cancel{m}\uparrow}$; $S_{LS(C)} = S_{¢\cancel{m}\uparrow} + S_{C\uparrow} + S_{Cr}$
2. $S_{RS(d)} = S_{dM\downarrow} + S_{d\cancel{m}\downarrow}$; $S_{RS(C)} = S_{¢\cancel{m}\downarrow} + S_{C\downarrow} + S_{Cr}$

that is (by: 9. and 18.c.1 "ei-*disconnected* ") ,for any-$f \in [\ldots[\ \ ]_{S_{LS/RS(d)}} \ldots]_r$ there exists a $N_d \in \mathbb{Z}$, such that for all-$n > N_d$, the (f: associated) : ${}^*f_{(d)n} > 0$. and similarly (at least then , simply by 17.a) , for any-$f \in [\ldots[\ \ ]_{S_{LS/RS(C)}} \ldots]_r$ the (f: associated) : ${}^*f_{(C)n} \geqslant 0$. and as such, it is immediate that →

a. – <u>$S_{LS/RS(d)}$ dominates $S_{LS/RS(C)}$</u> that is, since the addition of such LS/RS-same-side-equivalent sequences, may be eventually-completely-represented by 'one' of the exclusive-form(s): $(C_{(C)}r_n + C_{(d)}r_n)(\mp)(*f_{(C)n} + *f_{(d)n})$ (by 22.d) then $0 \leqslant *f_{(C)n}$ implies eventually (by T4.1.a4) that $\underline{0 < *f_{(d)n} \leqslant (*f_{(C)n} + *f_{(d)n})}$ holds , and thus the final-form is also *Idisconnected* .

similarly:

b. – the addition of (2) $S_{LS/RS(d)}$-same-side-equivalent sequences $(f_{1(d)}, f_{2(d)}) \in \mathbb{R}_{\dagger}$ also necessarily map into $[\ldots[\quad]_{S_{LS/RS(d)}}\ldots]_{r_1[d]+r_2[d]}$; where a proof is almost identical to the immediately above (23.a) (except for with a replacement of : "$0 < *f_{1(d)}$ implies after (addition) that $\underline{0 < *f_{2(d)n} < (*f_{1(d)n} + *f_{2(d)n})}$ eventually-holds ") .

* <u>more abstractly</u> the above (ie. 23.b) demonstrates the existence of an additive side-dominant (stable-shell structure):

1. – which *interestingly* doesn't contain members selected-by S_{Cr} . and
2. – which as such, <u>*necessarily*</u> exhibits [convergent-"*lensing*"] ; that is for any $(*f_n, *g_n) > 0$, then,$(*f_n + *g_n)$ is greater-than either-of : $(*f_n$ ***or*** $*g_n)$(note: *frame-opaqueness* will be tied to this later).
3. – and which, at least simply by features brought into view by the "otherwise-general" descriptive-binding of non-monotonic naming-sequences to:$[S_{LS/RS(d)}]$,while *still* forcing such side-lensings, "preserves-the-possibility" of a diverse-class of the other type-migrations (seen below). and as such, does not lay-hold or make completely-<u>rigid</u> future-instantiation (then) with-in this presently more coarsely-confined yet-stable ($S_{LS/RS(d)}$: into)-domain .

– (ie. and as a note: thus making more explicit the wording "shell") .

<u>monotonic - side - addition</u>

24. – and next claim: adding (two) same-side (LS/RS)-*ei*-monotonic-naming-sequences produces <u>another</u> (of the) same-side (LS/RS)-*ei*-monotonic-sequence(s).

prove: first in a fashion similar to (17.c) , utilize a notational combination "($\gtreqless$)" to denote (2) distinct exclusive sequence-formulas (ie. for the "LS . . <u>or</u> . . RS" case). and,

then assume: f , g are same-side (LS/RS)-*ei*-monotonic sequence(s) ,
thus (by 10. and "eventual") there exist integers N (=max(N_f , N_g)) such that for all <u>fixed</u> m,n > N then

1. $f_m \ (\gtreqless)\ f_n$ whenever m>n ;
2. $g_m \ (\gtreqless)\ g_n$ " "

however since (by T4.1.a(1-4) and T4.1.E(1-3)) : " $x \geqslant y$ implies $x+z \geqslant y+z$ "
and: " $x \leqslant y$ implies $x+z \leqslant y+z$ "

it follows then that **:**

1. $\underline{f_m + g_n}$ $(\gtreqless)$ $(f_n + g_n)$ where here (choose the fixed) **:** $g_n = z$
2. $(g_m + f_m)$ $(\gtreqless)$ $\underline{g_n + f_m}$ and here (choose the fixed) **:** $f_m = z$

and therefore (by T4.1.a2) it is immediate that $(f_m + g_m)(\gtreqless)(f_n + g_n)$ in general whenever $(m>n) > N$, and as such the claim **.**

therefore it also follows **:** (by 23.b)

a. – that $\underline{[\,...\,[\quad]_{S_{LS/RS(d)M}}\,...\,]_{r_1} + [\,...\,[\quad]_{S_{LS/RS(d)M}}\,...\,]_{r_2} \Rightarrow [\,...\,[\quad]_{S_{LS/RS(d)M}}\,...\,]_{r_1+r_2}}$

and (by 23.a)

b. – that $\underline{[\,...\,[\quad]_{S_{LS/RS(C)M}}\,...\,]_{r_1} + [\,...\,[\quad]_{S_{LS/RS(d)M}}\,...\,]_{r_2} \Rightarrow [\,...\,[\quad]_{S_{LS/RS(d)M}}\,...\,]_{r_1+r_2}}$

– **where** as would be expected , the (C)-*ei*-monotonic LS/RS-selection operators are **:**

$$S_{LS(C)} = S_{C\uparrow} + S_{Cr}$$

$$S_{RS(C)} = S_{C\downarrow} + S_{Cr}$$

in their-notationally uncombined form(s) **.**

*** 25.** <u>comment:</u> (as, an *injective* pre-amble to the color-properties of *power series and sequencial expansions*)

again restate , whether or not information other than color for the immediately above (24.b) (ie. $r_{[CM]}$, $r_{[dM]}$) $\in [\quad]_{\mathbb{R}\dagger}$ is apparent (or in-application may be recovered), then is irrelevant to "this" mapping; which still latently may, carry-"forward" ,regardless, as simply into an otherwise opaque $[\,...\,[\quad]_{S_{LS/RS(d)M}}\,...\,]_{r_{[CM]}+r_{[dM]}}$ **: and there in**, by this *externally* $(\mathbb{R}_a)$-imposed dormancy or rigidity , lies <u>for example</u> , potential $(\mathbb{R}_1, ..)$-point-*samplings* of the various-sets of possible-functions which may be embedded in or characterize particular geometries (or associated-geometries); **constructing** [elements] which are reflective-of ,or, residual-to**:** (type-classings) -of- (path approaches "now lets say") under "apparent"-**forcing** , and then, mix-embed or <u>bind</u> such [objects] into environments of different-characteristic,**producing** <u>completely-local-intertial-regions</u> whose interiors(in this sense) representationally mimic "potential -past(s)-of " the sampled-space , while preserving the exterior-structural-binding or a fabric of the cross-embedded <mixed-into> domain **.** (that is, develop and maintain a possibility of point-binding- -or-site projecting mathematic-structure by and through some initial *internal* driven-"restriction" of-and-to and-upto- some interpretively robust –and then- fabric separable-and/or-discrete-*ized* history-or-coloration(s) and -or- then by . . . representative-supportive colored (name or n-tupled name)-spaces) **.**

continuing with such *eventual-discussions*, and laying further necessary referential-groundwork . . .

(non)-monotonic-side-addition :

26. – now examine (in general) and (in more-extended constructive-detail , as it is here that (*)relative - internal-metric(s)) *first* appear), the algebraically-defocusing family of *partially*-unstable-mappings :

$$[\,.\,.\,.\,[\quad]_{SLS/RS(d)\cancel{m}}\,.\,.\,.\,]_{r1} + [\,.\,.\,.\,[\quad]_{SLS/RS(d)\cancel{m}}\,.\,.\,.\,]_{r2}$$

– first prove: (for any-$f_1 \in [\,.\,.\,.\,[\quad]_{SLS/RS(d)\cancel{m}}\,.\,.\,.\,]_{r1}$ that such an interior-shell allows-for :

(and so , there latently-exists) a same-side companion

$f_2 \in [\,.\,.\,.\,[\quad]_{SLS/RS(d)\cancel{m}}\,.\,.\,.\,]_{r2}$ such that

$(f_1 + f_2) \in [\,.\,.\,.\,[\quad]_{SLS/RS(d)M}\,.\,.\,.\,]_{r1+r2}$ ($\in \mathbb{R}_\dagger$: and which is also of-the-same-side)

) .

to facilitate this observation introduce the utility and concept of an implicitly-constructed . . .

a. – "step-function sheath" as follows ; begin by defining an implicit-set on a relationship between (2) integer- pointers and any-epsilon : → and thus if *presented*-with some (other-wise unconfined) (LS/RS)-side-selectable naming-sequence (f)$\in \mathbb{R}_\dagger$,

– there is brought into adjoined-existence (by definition 22.a,b) a minimal eventual-integer ($\underline{N_S}$) such that (f) *could*-or-may be represented from there on , by one of the exclusive-side-form(s) "$C_{(rn)}$ ($\mp$) $*f_{(n)}$" , (ie. and again , either as ($C_{(rn)} + *f_{(n)}$) .or. as ($C_{(rn)} - *f_{(n)}$))

(**and**) next for the same (f) :

– there is also brought into latent-existence then (by 17.a and 3.b "the convergence of [f ,Cr] ", for any (epsilon)$\epsilon > 0$ ($\in \mathbb{R}_1$)): a ($\underline{N_\epsilon}$) $\in \underline{\mathbb{Z}}$ so that for-all $n > N_\epsilon$, the f-associated : ($*f_n < \epsilon$) .

and as such identify a (outer-sheath generating) f-distinguished and (implicit) sub-set $\{*f_n\}_{(os)} \subseteq \{*f_n\}$ by the criteria that :

– for ($n > N_S$) if (**then**) :

each ($*f_n > 0$)($\in \mathbb{R}_1$) , is in and of itself considered as a 'ϵ' ,

and

if for some $*f_{("n")}$, (ie. the n) which indexes $*f$, also innately :

("n" = N_ϵ for that 'ϵ'=$*f_{"n"}$)

– **then** such ($*f_n$ are) $\in \{*f_n\}_{(os)}$

* – note: the description of $\{{}^*f_n\}_{(os)}$ then in-general relies on an implicit-definite philosophy(see 9.a) , which (far from being an annoyance), *later*- also drives an underlying mechanism of pathologic-opaqueness ,and allows-and-provides-for [relative virtual "local-ness"] with in partially-sympathetic multi-frame-couplings.

1. – returning: $\{\ \ \}_{(os)}$ then is confined strict-monotonic , since by very definition : for any $\underline{m > n}$, if $({}^*f_m, {}^*f_n) \in \{\ \ \}_{(os)}$, then (by the above epsilon-confinement) : $\{{}^*f_m < {}^*f_n\}_{(os)}$.

b. – **further** and under tighter-constraints (for any-$f \in [\ldots[\ \ ]_{SLS/RS(d)\cancel{m}} \ldots]_r$), $\{{}^*f_n\}_{(os)}$ then is :

1. – non-empty , prove : much as before , but with a few additional focusing details ,
there inherently are associated with such side-bound disconnected-(f) ,
some $\underline{N_s, N_d} \in \underline{\mathbb{Z}}$ such that for all $n > N_{sd}\big(= \max(N_s, N$ (see: 27.c)$\big)$, then the rest of the f:associated ${}^*f_n$ (are both non- C_r-oscillatory , and are (>0)) ;
also
again (by "convergence") for any $\epsilon>0$ ($\in \mathbb{R}_1$) there is a $N_\epsilon \in \underline{\mathbb{Z}}$
such that for all $n>N_\epsilon$, ${}^*f_n < \epsilon$;
and
then as well (by T1.theorem(1.7)) and thus essentially (see 7.a) by the "*density*"-properties of the $\mathbb{R}_1$-system) , for (any ${}^*f'_n > 0$) " *in general* ")
there can be described : some-ϵ' ($\in \mathbb{R}_1$) so that $\underline{{}^*f'_n > \epsilon' > . \ \ldots > 0}$.

("now descriptively-generate the existence-of- a particular-'*pattern*-of' finite-packet(s) with-in these (f)").

2. – and so , for any-'such' *ei*-disconnected-(non)-monotonic-side-bound set $\{{}^*f_n\}$
and then again for each (${}^*f_{"n"} \in \{{}^*f_n\}$) such that :

$n =$ any ($N_{min} > N_{sd}$)

there obviously ,and, implicitly-(eventually)-exists some equal-or-larger $(N_{\epsilon'})^{max}$
satisfying both : that,

there "is-or-maybe chosen" some $(\epsilon') < {}^*f_{N_{min}}$ such that for all
$n > (N_{\epsilon'})^{max}$, then ${}^*f_n < \epsilon'$;

and

$(N_{\epsilon'})^{max}$ - generates as such , a finite-set (or "packet") of $({}^*f_n) > \epsilon'$,
indexed by and between $N_{min} \leqslant \{{}^*f_{"n"}\}_{\epsilon'} \leqslant (N_{\epsilon'})^{max}$

– **from** a discussion of any of these *incrementally*-large finite-$\{\text{sets}\}_{\epsilon'}$ the non-emptiness of $\{{}^*f_n\}_{(os)}$ may be demonstrated: first with-in any potential-instantiation of 'a' $\{{}^*f_n\}_{\epsilon'}$ there necessarily-resides 'a': disjoint (ref: the points of $\mathbb{R}_1$ are separable) sub-set ($\subseteq$ "$\{{}^*f_n\}_{\epsilon'}$") , defined by the $\max_1$("$\{f_n\}_{\epsilon'}$"),

for a precise description of a binary-"max"-function (see: 27.c),which may then be generalized to-here.
(note: this set may not be a singleton) , and thus from that set ; consider the unique-member represented or *pointed-to* simply and intuitively by the ordered-filterings :

$$*f_{\bar{n}} = (\ \max_1 (" \{*f\max_2(n)\}_{\epsilon'} ")\ )$$

clearly such a member meets the criteria : since , first of all, its the last-member of { equal ($*f_{(n>N_{sd})}$) in general } which are <u>still</u>**:** greater-than or equal-to (that is notationally)($\geqslant *f_{\bar{n}} > \epsilon' >$ (all-$*f_{(n>N_{\epsilon'})}$)) ; and thus, by being a maximum of some chosen " $\{*f_n\}_{\epsilon'}$ " , then for all <u>$n > \bar{n}$</u> : $*f_n < *f_{\bar{n}}$) , and the assertion of non-emptiness .

3. – **further** the (implicit)-existent {set}$\subset \underline{N}$ which then indexes any-such $\{*f_n\}_{(os)}$ is necessarily <u>continuous-and-"gappy"</u> : this follows first by the otherwise arbitrary definition of N_{min} above (see 26.b.2 ie. <u>any</u>) ; and then again as otherwise $\{*f_n\}$ itself , would be eventually-(strict)-monotonic (see 26.a-b) which (by assumption) its not .

4. – <u>**and at last**</u> bind the above to a notation : that is : (by the well-ordered properties of $\underline{N}$) (ref: order-theory) any potential-instantiation of such an indexing {set}$\subset \underline{N}$ contains a unique-minimum member (m_1) .
   and
   thus {itself} may be tacitly considered indexed by the sequence-function on $\underline{N}$ into $\underline{N}$ $^m f : \{ \ldots < p , m_p > \ldots \}$ such that (m_p = (the p^{th} : (n)) indexing $\{*f_n\}_{(os)}$)
   and
   so $\{m_p\}$ arises then simply as a contiguous ordering for : latently-naming the $n \in \{*f_{"n"}\}_{(os)}$

c. – as such it is now possible to **define** a "*non-tight-fitting*" : (outer)f-associated step-function-sheath(s) for (<u>any-f</u>) $\in [\ \ldots [\quad]_{SLS/RS(d)\cancel{m}} \ldots]_r$ by the sequence-function(s) ($\in \mathbb{R}_1$)

" $^{(OS)}f_n = C_{(r_n)}\ (\mp)\ *\underline{O}_n$ " such that :

$$*\underline{O}_n = \begin{cases} \text{for } n < m_1 \text{ then} \\ \quad *\underline{O}_n = *f_n \qquad \ldots \text{ie. } \{*\underline{O}_n\} \text{ is identical or intersecting with } \{*f_n\} \text{ below } (m_1) \\ \text{for } m_1 = n \leqslant (m_2+1) \\ \quad *\underline{O}_n = (*f_{m_1}) + \delta \qquad \ldots \text{ie. } *\underline{O}_n > *f_n \text{ where } \delta > 0 (\in \mathbb{R}_1) \\ \text{for } p > 2 \text{ and for } (N_p)_{min} < n \leqslant (N_p)^{max} \\ \qquad \text{such that } ((N_p)_{min} = m_{(p-1)} + 1) < n \leqslant ((N_p)^{max} = m_p + 1) \text{ then} \\ \quad *\underline{O}_n = *f_{m(p-1)} \end{cases}$$

1.

. . . ie. inconculsion (see 26.d . .below) an appropriate sympathetic latent construction exists, giving a $n \geqslant m_1$ (in general) : $\{{}^*f_n\}_{(os)}$ generated and confined step-monotonic , (non)-f-intersecting, sheathing-sequence of (f) , such that from <u>there-on</u> all ${}^*\underline{O}_n > {}^*f_n$.

* <u>reverse-engineered and generalized from</u> , and thus inspired-and-demonstrated here by some .. and <u>notice now</u> the (to-be exploited) -localized-region ,(as such), then of a visually-sufficient graph :

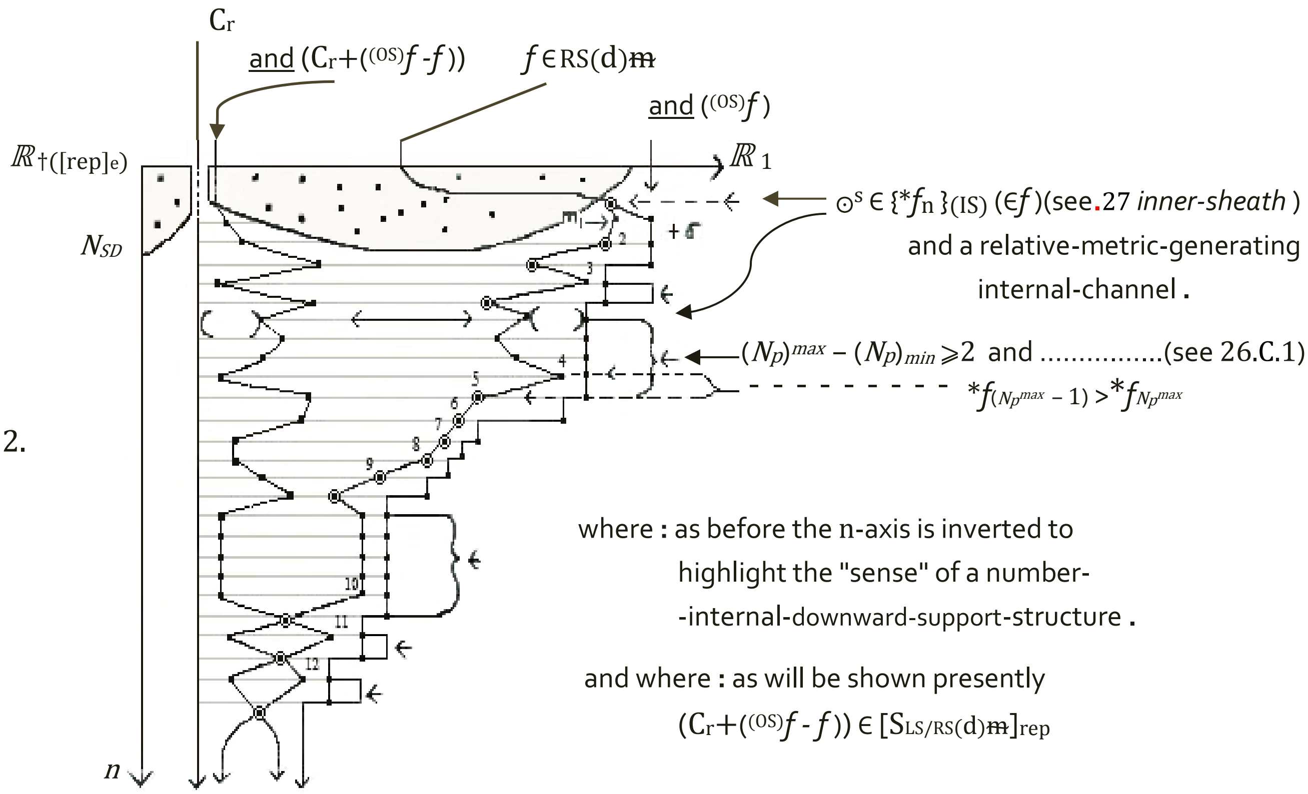


fig 2.

where : as before the n-axis is inverted to highlight the "sense" of a number- -internal-downward-support-structure .

and where : as will be shown presently $(C_r + ({}^{(OS)}f - f)) \in [S_{LS/RS(d)\cancel{m}}]_{rep}$

d. – first for completeness affirm the convergence-of at that ${}^{(OS)}f \in S_{LS/RS(d)M}$

– <u>convergence</u> follows: since as each member of the associated sequence ($\{{}^*\underline{O}_n\}$ for $n > (m_2+1)$) is a member of $\{{}^*f_n\}_{(os)}$ $(\in \{{}^*f_n\})$: then a convergence-relation may be constructed for ($\{{}^*\underline{O}_n\}$ or any re-arrangement of $\{{}^*\underline{O}_n\}$) from the $\{{}^*f_n\}$-($\in$)-relationship itself (see T4.appendix.1,2) .

– <u>$\in S_{LS/RS(d)M}$</u> follows : since (for $n \geqslant m_1 > N_{Sd}$) , ${}^{(OS)}f$ is from there on (<u>by</u> order-preserving sympathetic-construction from $\{{}^*f_n\}_{(os)}$) "<u>monotonic</u> " : which then implicitly negates (Cr-oscillations) and forces ${}^{(OS)}f$ as "(f)"-same-side<u>(LS/RS)</u> .

further: **first** since for p>2 and for all $n > m_{(p-1)}$; then **all** ${}^*f_n < {}^*f_{m(p-1)}$ (by the definition of $\{\ \ \}_{(os)}$)
and : next since eventually every region of identical $\{{}^*\underline{O}_n = {}^*f_{m(p-1)}\}$ (see 26.c.1 def : of $(N_p)_{min}$) are defined such that all- $n > (m_{(p-1)} + 1)$;

then : it follows that eventually all $*\underline{O}_n > *f_n > 0$, and so ${}^{(OS)}f$ is necessarily ei-*disconnected* .

– and thus the assertion(s) .

e. – now claim : the convergence-of and that ($C_{(r_n)}$ ($\mp$) $\{*\underline{O}_n - *f_n\}$) $\in$ [$S_{LS/RS(d)}\cancel{m}$]rep : however where as obviously , both $\{*\underline{O}_n\}$ and $\{*f_n\}$ are (by definition) *null-sequences* , and where as both the convergence-of and then that $\{(*\underline{O}_n - *f_n)\} \in S_{LS/RS(d)}$ are (see above 26.d) similarly immediate ,

simply show $\{(*\underline{O}_n - *f_n)\}$ as (ei-non-monotonic) : thus

– for any of the $((N_p)_{min},(N_p)^{max})$-bounded regions for (f , ${}^{(OS)}f$) determined above (see 26.c.1) by $p>2$ and $((N_p)^{max} - (N_p)_{min} \geqslant 2)$ then: (by the visually-sufficient (fig 2.) and its generalization(s)(26.a-c)) $((*f_{(N_p{}^{max}-1)} \in \{*f_n\}_{(os)} > *f_{N_p{}^{max}}))$ that is $(-*f_{N_p{}^{max}}) > (-(*f_{(N_p{}^{max}-1)})$ (by $\in \mathbb{R}_1$) , and as such , as (by 26.c.1) $*\underline{O}_{N_p{}^{max}} = *\underline{O}_{(N_p{}^{max}-1)}$ then after addition $(*\underline{O}_{N_p{}^{max}} - *f_{N_p{}^{max}}) > (*\underline{O}_{(N_p{}^{max}-1)} - *f_{(N_p{}^{max}-1)})$

– however since the $\{*f_n\}_{(os)}$ for all-$f \in [S_{LS/RS(d)}\cancel{m}]$ are 'gappy'- continuous (by 26.b.3) , there continuously-exist such ($(N_p)_{min}$, $(N_p)^{max}$)-bounded local-disturbances in-the-stream of these sequence(s) ;

and thus there does-(not)-exist a $N^{\sim} \in \mathrm{Z}$ such that for all-(m>n) > $N^{\sim}$ then $(*\underline{O}_m - *f_m) \leqslant (*\underline{O}_n - *f_n)$. that is , it follows and expands more generally that $({}^{(OS)}f - f)$ is (e-non-monotonic)

1. – and (by 16.a) that an exactly-similar sequence exists in every member of r ∈ $\mathbb{R}_\dagger$

* f. – and therefore it also arises that : for any-$f_1 \in [\,...\,[\quad]_{S_{LS/RS(d)}\cancel{m}}\,...\,]_{r1}$ there implicitly exists an associated $\{*\underline{O}_{2n} - *f_{2n}\} \in [\,...\,[\quad]_{S_{LS/RS(d)}\cancel{m}}\,...\,]_{r2}$ such that $\{f_{1n} + (C_{2rn} + ({}^{(OS)}f_{2n} - f_{2n}))\} \in [\,...\,[\quad]_{S_{LS/RS(d)M}}\,...\,]_{r1+r2}$

– which of course (*remember-now*) is what was originally meant to be shown (see. 26) .

* 27. an aside : *and then remarshalling.*

before completing the addition of opaquely-chosen $S_{LS/RS(d)}\cancel{m}$, another *cursory-and-brief* diversion : (where as since) essentially all the as-demonstrated-book-work and philosophy is done , it would be an absolute shame,at this juncture, not to (*at-least*) introduce (then for later ,utility ,of discussion) ... →

the notion of a "channel" , and take by-example an initial foray into the idea of an internal-metric .

* behind the scenes of this presentation there has *always been* a guiding precept to do nothing except for to gain a simple-description-and-tools |*from with-in extant-capabilities*| , for carrying-and-imprinting (in a most general way) the craft-of (notation and geometry) "onto" the *available naming*-structure(s)- -and/or-*bound*aries(s) of "the conceptualization" of a point, (thus-shedding a 'st*ill-worn' open/closed noose*)

however considering , that the over-all (state of the art) ,as it were, is intimately and (so-and-forever) tied to ,and, a subtle carry-forward : of a descriptive premising (and maintenance) of abstracted construction(s) of the rope (in *our-and-a* globally-historic sense) and then its proper-sub-classification(s) (the compass and then (the ruler)) ,and, that "much" of the notationalization of those construction(s) was and is rooted in dimensionally- "purifying "-relation(s) of size as *initially*-notated by the rational-form, then :

attempting such a task (on first go-around) would be unnecessarily risky-and-obtuse with out some conceptualization (first) of a loosed-internal-measure . (and where ,as such, (an appropriate-and-practical rooting) for the (now presently more)-generalized-descriptive-and/or-categoric method(s) will have been.. set forth) : introduce the notion of a

a. inner-sheath :

briefly, as the methods and philosophies are almost-identicle to the immediately above (see: 26.) , then (for any f-associated $\{*f_n\} \in [\,...\,[\quad]_{SLS/RS(d)\cancel{m}}\,...\,]_r$,an implicit generating sub-set $\{*f_n\}_{(IS)} \subset \{*f_n\}$ may be identified by a ("blue-sky")criteria for $n > N_{Sd}$ (that is we may look up to the:26.b.1 eventual-boundary)

first pre-define: $*f_{(N_{Sd}+1)}$ (as a member of) $\{*f_n\}_{(IS)}$ (note again see: fig 2.)

next: **for** $n > (N_{Sd}+1)$

if (some $*f_{"n"} \in \{*f_n\}$ is) $<$ { all $*f_n$ such that $(N_{Sd}+1) \leqslant n < "n"$ } ,

then $*f_{"n"} \in \{*f_n\}_{(IS)}$ (ie. all such-members exist as *"temporary"* $*f_{n>N_{Sd}}$ -minima)

– further and again , the members of $\{*f_n\}_{(IS)}$ may be contiguously ordered by the descriptive notational convenience of $*f_{m_p}$ such that (m_p = (the p^{th} : (n)) indexing $\{*f_n\}_{(IS)}$)(see 26.b.4, ie.here $m_1 = (N_{Sd}+1)$, ...); **and** in particular the characteristics of (non-empty, strict-monotonic, continuous-gappy,and ei-disconnected) may be demonstrated (see T6.22.a) for any f-associated $(\{*f_n\}_{(IS)} \subseteq \{*f_n\}) \in [\,...\,[\quad]_{SLS/RS(d)\cancel{m}}\,...\,]_r$

– that is and for example then look at the $\odot^s \in f$ in (see fig 2.)

b. – and as such, much as before define: a (non-tight-fitting) (inner) f-associated step-function-sheath(s) for any-$f \in [\,...\,[\quad]_{SLS/RS(d)\cancel{m}}\,...\,]_r$ by the sequence-function(s) ($\in \mathbb{R}_1$)

" $^{(IS)}f_n = C_{(r_n)}\,(\mp)\; *\underline{I}_n$ " such that :

$$*I_n = \begin{cases} \text{for } n \leqslant N_{Sd} & \text{... ie.}\{*\underline{I}_n\} \text{ is identical or intersecting with } \{*f_n\} \text{ upto-and-until} \\ \quad *\underline{I}_n = *f_n & \quad \text{the } N_{Sd}\text{ - boundary. where after for (} p \in \mathbb{N}\text{) and } n \geqslant m_{p=1}\text{ , then} \\ \text{for } m_p \leqslant n < m_{(p+1)} & \text{... that is: any } f \in S_{LS/RS(d)\cancel{m}} \text{ generates an inner-sheathing function,} \\ \quad *\underline{I}_n = *f\,m_{(p+1)} & \quad \text{by a } \textit{latent}\text{-construction based-on : a localized backwards-offset} \\ & \quad \text{and appropriate-finite-repetition of the members of } \{*f_n\}_{(IS)}\,. \end{cases}$$

→ where (f) then separates its' inner-and-outer sheaths , since eventually by implicit-construction for all sufficiently-large $n \in \mathbb{N}$: ($0 < {}^*I_n < {}^*f_n < {}^*O_n$) ,**and**, so the (inner-and-outer) sheaths form a disconnected channel around (f) which further ,in and of itself, is ei-*disconnected* as a whole from C_r . thus demonstrating-again the somewhat *as-usual* counter-intuitive "roominess" with-in for example , *this* representative-model or (dressing -and/or- naming)-structure **:** of *abstract-geometric* "*point*(*s*)" **.**

Begin a process of making *such a* 'concept of *bounded*-color flexibility' more precise **.** examine a (max represenative)relative relation, which is defined

'at least' for any "(a,b)⩾0 but not-*both* (a,b)=0" by**:**

c. – $$d^*(a,b) = \frac{|a-b|}{max_{rep}(a,b)} \quad \begin{cases} \text{where for } a \neq b & max_{rep}(a,b) = \dfrac{\big|(a-b)+|a-b|\big|}{2|a-b|}\,a + \dfrac{\big|(b-a)+|a-b|\big|}{2|a-b|}\,b \\ \text{and for } a=b & max_{rep}(a,b) = (\text{either 'a' .or. 'b'}) \end{cases}$$

further, for-all (a,b,c) ⩾0 ,{ if 'at most' one-member of the triad=0 };

then **:** $d^*(a,b)$ becomes a standard-metric relation under

the axiomization or restraint- criteria,

A1. $d^*(a,b) \geqslant 0$;
A2. $d^*(a,b) = 0$ iff $a=b$;
A3. $d^*(a,b) = d^*(b,a)$;
A4. $d^*(a,c) \leqslant d^*(a,b) + d^*(b,c)$ **.**

where all must hold -true.

that the first three properties (ie. A.1-3) hold: is obvious,
there are (6)cases ,based on the orderings of (a,b,c) , for the fourth (A4.) ; similar 'proof-grammars' may be paired as below. for which (A4.) is first simplified by an instantiation relative to the particular axiomization-and-ordering ;and then *only-one* of the 'similar-grammars' is presented (for conciseness)**:**

a⩽b⩽c ……… $\frac{c-a}{c} \leqslant \frac{b-a}{b} + \frac{c-b}{c}$ *becomes* $\frac{b-a}{c} \leqslant \frac{b-a}{b}$ $\quad (but\ c \geqslant b\ \ and\ (b-a) \geqslant 0)$

a⩽c⩽b

b⩽a⩽c ……… $\frac{c-a}{c} \leqslant \frac{a-b}{a} + \frac{c-b}{c}$ *becomes* $\frac{b-a}{c} \leqslant \frac{a-b}{a}$ $\quad (\ but\ left\ is \leqslant 0\ \ ; while\ right\ is \geqslant 0.)$

b⩽c⩽a

c⩽a⩽b ……… $$\begin{cases} \frac{a-c}{a} \leqslant \frac{b-a}{b} + \frac{b-c}{b} = 2 - \frac{(a+c)}{b} & (then\ mult.\ both\ sides\ by\ "ba"\ )\ \text{giving} \ldots > \\ ba - bc \leqslant 2ba - ca - a^2 & (\ and\ then,\ after\ rearrangement\ ) \ldots > \\ b(a+c) \geqslant a(a+c) & (\ but\ \ b \geqslant a\ ),\ and\ (a+c)\ may\ be\ canceled). \end{cases}$$

c⩽b⩽a

- *let-s now* take care of the: intended interpretation and motivation underlying the notation $max_{rep}(a,b)$, augmented here: as a restriction to stability | (for addition by zero with-in the absolute-value braces) |. ... by-example notice: if we simply-*initialize* (a=5) and (b=3) ; then under *one-possible* interpretation

$$d^*(a,b) = \frac{|a-b|}{max_{rep}(a,b)} \Rightarrow \frac{|5-3|}{5} \text{ or then } \Rightarrow \frac{|5-3+(1-1)|}{max_{rep}(a,b)} \ldots \Rightarrow \frac{|4-2|}{4} \ldots\Rightarrow \ldots |1| \ldots$$

which ,at-once *fascinating*, is restricted here by and< *with-in the-scope* of "max_{rep}" > to fix (a ,and, b) as constants. that is: view max_{rep} *then* as an injective sample-and-hold in the denominator , *such-that* d*(a,b) becomes: notationally-concise(d).. and sufficient to that (*intuitive*)- description,.. ..the "equals-sign" makes sense,.. and: d*(a,b) is as such in-the-short term stabilized . and then

d. depictions of channel-width(s) [internally] defined by : *commonly-indexed*- members of the above inner/outer-sheaths ,and, d*(a,b) ; persist strictly larger than zero ,and, less than one: where (less than one) arrives,from inner-sheathing existing as *ei-disconnected* ,and, (greater than zero) from local separation provided by (f_n) (again see. 26). _*this*, in effect produces a visual-interpretation which may, easily be *extended into*,a *collapsing- punctured- series* (*of occupied 1/2disks*), with referencing shifted to, or *of*-essence
* *folded-in* and compared-with an outer-converging sheath-horizon,instead of some *ultimate*-convergence as gifted by a constant-*representative* , (thus giving one perspective, example and/or visual *domain* for a non-degenerate (*)internal-metric).

* 28. – recall (again see 26.) that we are in a process of examining and/or then showing

$$[\ldots[\quad]_{SLS/RS(d)\cancel{m}}\ldots]_{r1} + [\ldots[\quad]_{SLS/RS(d)\cancel{m}}\ldots]_{r2}$$

as-and-to-be: "an algebraically-defocusing family of *partially*-unstable-*internal-type*-mappings", and

as such prove: (for any-$f_1 \in [\ldots[\quad]_{SLS/RS(d)\cancel{m}}\ldots]_{r1}$ that such a [coarsely bound] descriptive interior-shell provides-for: the choice of (and so , there latently-exists) a same-side *color-preserving* companion

$f_2 \in [\ldots[\quad]_{SLS/RS(d)\cancel{m}}\ldots]_{r2}$ such that

$(f_1+f_2) \in [\ldots[\quad]_{SLS/RS(d)\cancel{m}}\ldots]_{r1+r2}$ ($\in \mathbb{R}_{\dagger}$: and which is also of-the-same-side)

) . ⇡

the proof is obvious:

first since: we have assumed $f_1 \in [\ldots[\quad]_{SLS/RS(d)\cancel{m}}\ldots]_{r1}$, rewritten here (by 17.a) as ($f_1 = C_{r1} \mp {}^*f_1$);
we may then: describe(by 16.a) an exactly-similar sequence ($f_2 = C_{r2} \mp {}^*f_1$) $\in [\ldots[\quad]_{SLS/RS(d)\cancel{m}}\ldots]_{r2}$
such that , in effect, besides *constant-representative offsetting* , $^*f_1$ is added to itself; that is then,
since { for-all 'r.'$\in \mathbb{R}_1$ | (r. + r. = (2)r.) },*essentially from the properties of a (complete,ordered,field* see 2.) ,and so
by (term-by-term substitution see: 15. , and the above), then $(f_1+f_2) = (C_{r1}+C_{r2}) \mp C_{r(2.)}{}^*f_1$ where
$C_{r(2.)}$ is,as such, a sequencially derived and then forced *positive*-constant-representive.
next by(18.e), since

$C_{r(2.)} \in e_{i\otimes}$ <ie. is of the (multiplicitive)-spectral-identity-class for the "over-all" *distributed-internal-* domain >:
and as ($C_{r1+}C_{r2}$) is simply the root-and/or-trunking (as it were) to the offset-foliation provided by ($\mp C_{r(2.)}{*f_1}$)
the result ..follows.

* a. then notice:this event,is *completely*-independent of underlying type.that is: under the current spectralizaton

every-$*f \in e_{i\oplus(*f)}$ (ie… is-of the (additive)-spectral-identity-class associated-with that "particular" $*f$)

restate this again: in effect "addings of [(*exactly-similar*)-name-element(s)] to themselves preserves color…"

b. finally : as sequencial addition is algebraically-localized by defining it to be term-by-term(again see: 15.);
then the commutative-(and other)-properties of such binary-additions pass through uneffected into the internal-domain. and as such both, here and in the previous (see:26. et pre alibi.), ordering(s) of operands is irrelevant then to the-discussions for such families of mappings,

and as : in both the cases:(26. and 28.)

(LS/RS same-side *ness*) follows simply-then and-again from (22.c) *same*-side-addition ,

.and.

(d) and/or ei-*disconnected iness* from (23.) color-dominance ,

c. then: by the immediately above (28.) ,and/or, by a demonstration of an existence of both-cases…it follows that ,with-in the courseness of our descriptive-binding , the *partially*-unstable claim
(ie. a potential loss of (any specific)- *monotic- spectralization*) may be *robustly* represented-
-and- notationalized here then as;

$$[\ldots[\ \ ]_{S_{LS/RS(d)}\cancel{m}}\ldots]_{r_1} + [\ldots[\ \ ]_{S_{LS/RS(d)}\cancel{m}}\ldots]_{r_2} \Rightarrow [\ldots[\ \ ]_{S_{LS/RS(d)}}\ldots]_{r_1+r_2}$$