ISSN: 2834-7706

Research Article

Journal of Mathematical Techniques and Computational Mathematics

Introduction to Section of Dynamic Mathematics: Theory of Singularities of the Type Synthesizing

Oleksandr Danilishyn[1*], Illia Danilishyn[1] and Volodymyr Pasynkov[2]

[1]*Sumy State University, Ukraine*

[2]*PhD of physic-mathematical science, assistant professor of applied mathematics and calculated techniques department of National Metallurgical Academy*

[*]Corresponding Author
Oleksandr Danilishyn, Sumy State University, Ukraine.

Submitted: 2024, Sep 02; **Accepted:** 2024, Sep 24; **Published:** 2024, Oct 04

Citation: Danilishyn, O., Danilishyn, I., Pasynkov, V. (2024). Introduction to Section of Dynamic Mathematics: Theory of Singularities of the Type Synthesizing. *J Math Techniques Comput Math, 3*(10), 01-18.

Abstract
There is a need to develop an instrumental mathematical base for new technologies. The task of the work is to create new approaches for this by introducing new concepts and methods. Our mathematics is unusual for a mathematician, because here the fulcrum is the action, and not the result of the action as in classical mathematics. Therefore, our mathematics is adapted not only to obtain results, but also to directly control actions, which will certainly show its benefits on a fundamentally new type of neural networks with directly parallel calculations, for which it was created. Any action has much greater potential than its result. Significance of the article: in a new qualitatively different approach to the study of complex processes through new mathematical, hierarchical, dynamic structures, in particular those processes that are dealt with by Synergetics. Our approach is not based on deterministic equations that generate self-organization, which is very difficult to study and gives very small results for a very limited class of problems and does not provide the most important thing - the structure of self-organization. We are just starting from the assumed structure of self-organization, since we are interested not so much in the numerical calculation of this as in the structure of self-organization itself, its formation (construction) for the necessary purposes and its management. Our task: to understand the principles of functioning of living energy (living organism, in particular, human, subtle energies), and then using these principles to "construct" artificial living energies (let's call them pseudo-living energies). The possibility of this is clearly demonstrated by the results of the Nobel laureates in physics 2023 Ferenc Kraus and his colleagues Pierre Agostini and Anna Lhuillier by use a short-pulse laser to generate attosecond pulses of light to study the dynamics of electrons in matter. According to our Theory of singularities of the type synthesizing, its action corresponds to singularity $\uparrow I \downarrow_h^q$, which allows one to reach the upper level of subtle energies to manipulate lower levels. In April 2023, we proposed using a short-pulse laser to achieve the desired goals by a directly parallel neural network [1]. We do not set ourselves a global task - to obtain a device of living energy. Stop hiding your head like an ostrich. It's time to make science from the living, not from stone and unite these two branches into a single whole. Although we are also interested in numerical calculations. We then proposed the fundamental development of this directly parallel neural network. In the articles new mathematical structures and operators are constructed through one action - "containment" [2-14]. Here, the construction of new mathematical structures and operators is carried out with generalization to any actions. The significance of our articles is in the formation of the presumptive mathematical structure of subtle energies, this is being done for the first time in science, and the presumptive classification of the mathematical structures of subtle energies for the first time. The experiments of the 2022 Nobel laureates Asle Ahlen, John Clauser, Anton Zeilinger and the experiments in chemistry Nazhipa Valitov eloquently demonstrate that we are right and that these studies are necessary. Be that as it may, we created classes of new mathematical structures, new mathematical singularities, i.e., made a contribution to the development of mathematics.

Keywords: Hierarchical Structure (Dynamic Operator), Rprt-Elements, tRpr- Elements, Self-Structures

1. Singularities as Elements

Degeneration of the usual can lead to singularities. For example:

1. Equivalence of non-equivalent ones can lead to singularities
2. Q^{-1}-action to Q-object ones can lead to singularities
3. Identification ones can lead to singularities
4. By exclusion of equality etc.

2. Main Classes of Singularities

1. Singularities of synthesis. For example: self, |||, ↑|↓ etc
2. Singularities of disintegration (collapse). For example: oself, $(|||)^{-1}$, $(↑|↓)^{-1}$ etc
3. Singularities of disintegration & synthesis. For example: self-oself, etc
4. Subjects of synthesis singularities
5. Subjects of disintegration singularities
6. Subjects of disintegration & synthesis singularities etc.

Remark 1

Subjects of singularities must be singularities of a higher level than their objects. Here under the subject of singularities A we mean that singularity which can apply the singularities of A to itself, create singularities of A, manipulate them, in particular, control them.

Remark 2

It is singularities of class 3) that can "create" types of subtle energy similar to the subtle energies of living organisms, because represent a synthesis of opposite singularities, which act in them as poles that create corresponding fields.

3. Types of Singularities

Let us denote the identification operation by $|||$, the dynamic identification operator by ${}_{C}^{D}It_{B}^{A}$ or $\begin{matrix} D \\ C \\ Subject\ of\ ||| \end{matrix}$ SIprt $\begin{matrix} Subject\ of\ ||| \\ A \\ B \end{matrix}$, where

A|||B&C$(|||)^{-1}$D simultaneously.

Types of singularities associated with identification:

a) by |||, b) by $\begin{matrix} (|||)^{-1} \\ (|||)^{-1} \\ Subject\ of\ (|||)^{-1} \end{matrix}$ SIprt $\begin{matrix} Subject\ of\ ||| \\ ||| \\ ||| \end{matrix}$, (designation d1|||), c) by $\begin{matrix} D \\ C \\ Subject\ of\ ||| \end{matrix}$ SIprt $\begin{matrix} Subject\ of\ ||| \\ A \\ B \end{matrix}$, (designation d2|||), d) (|||) ||| (|||), e) (|||) ||| (↑|↓), g) (|||) ||| (=), q) (|||) ||| (>), k) (|||) ||| (∪), l)(|||) ||| ($\frac{d}{dx}$), h) $\begin{matrix} (|||) - (|||) \\ ||| \\ (|||) \end{matrix}$

$\begin{matrix} A & & B \\ & ||| & \\ & C & \end{matrix}$ gives access to the upper level of A, B, C (objects, actions or subjects) by the 3-connection, the transition or replacement from one to another at the top level or vice versa.

A|||B gives access to the upper level of A, B (objects, actions or subjects), the transition or replacement A to B at the top level or vice versa.

Examples of singularities associated with identification:

1) $|||_A$ = A($|||$), where A is any operator,
2) s($\begin{matrix} rot(\dot{_}) \\ rot(\dot{_}) \end{matrix}X\begin{matrix} -\frac{\partial(\bar{_})}{\partial t} \\ -\gamma + \frac{\partial(\dot{_})}{\partial t} \end{matrix}$)elf is designation of Maxwell equations identification,
3) os($\begin{matrix} rot(\dot{_}) \\ rot(\dot{_}) \end{matrix}X\begin{matrix} -\frac{\partial(\bar{_})}{\partial t} \\ -\gamma + \frac{\partial(\dot{_})}{\partial t} \end{matrix}$)elf is designation of Maxwell equations disidentification,
4) os(Q ||| R)elf- s(A ||| B)elf is designation of the identification A ||| B and disidentification simultaneously,
5) s(Q ||| R)elf = Q ||| R
6) s(Q ||| Q)elf = Q ||| Q
7) os(Q|||R)elf = Q $(|||)^{-1}$R
8) os(Q|||Q)elf = Q $(|||)^{-1}$Q
9) oself |||self
10) oself(oself |||self) - self(oself |||self)
11) os€elf(osμelf |||sφelf) - s£elf(osσelf |||sαelf)
12) identification through inequality: os(Q (|||≥) R)elf- s(A (|||≥) B)elf
13) s(Q (|||≥) R)elf
14) os(Q (|||≥) R)elf
15) oself (|||≥) self
16) oself(oself (|||≥) self) - self(oself (|||≥) self)

17) os€elf(osμelf (|||≥) sφelf) - s£elf(osσelf (|||≥) sαelf)
18) os(Q (|||≤) R)elf- s(A (|||≤) B)elf
19) s(Q (|||≤) R)elf
20) os(Q (|||≤) R)elf
21) oself (|||≤) self
22) oself(oself (|||≤) self) - self(oself (|||≤) self)
23) os€elf(osμelf (|||≤) sφelf) - s£elf(osσelf (|||≤) sαelf)
24) os(Q (|||<) R)elf- s(A (|||<) B)elf
25) os(Q (|||<) R)elf- s(A (|||>) B)elf
26) s(Q (|||<) R)elf
27) os(Q (|||<) R)elf
28) oself (|||<) self
29) oself(oself(|||<) self) - self(oself (|||<) self)
30) os€elf(osμelf (|||<) sφelf) - s£elf(osσelf (|||<) sαelf)
31) os(Q(|||>) R)elf- s(A(|||>) B)elf
32) s(Q(|||>) R)elf
33) os(Q(|||>) R)elf
34) oself(|||>) self
35) oself(oself(|||>) self) - self(oself(|||>) self)
36) os€elf(osμelf(|||>) sφelf) - s£elf(osσelf(|||>) sαelf)
37) os(Q (|||<) R)elf- s(A (|||>) B)elf
38) os(Q (|||>) R)elf- s(A (|||<) B)elf
39) os(Q (|||<) R)elf- s(A (|||≥) B)elf
40) os(Q (|||≥) R)elf- s(A (|||>) B)elf
41) os(Q (|||>) R)elf- s(A (|||≤) B)elf
42) os(Q (|||≤) R)elf- s(A (|||>) B)elf
43) oself(oself(|||≥)self) - self(oself (|||<) self)
44) os€elf(osμelf (|||<) sφelf) - s£elf(osσelf (|||≥) sαelf)
45) oself(oself(|||≥)self) - self(oself (|||>) self)
46) os€elf(osμelf (|||>) sφelf) - s£elf(osσelf (|||≥) sαelf)
47) oself(oself(|||≥)self) - self(oself (|||<) self)
48) os€elf(osμelf (|||<) sφelf) - s£elf(osσelf (|||≤) sαelf)
49) os€elf(osμelf (|||>) sφelf) - s£elf(osσelf (|||≤) sαelf)

4) - 49) are generalized by replacing ||| with $|||_A$ in them (watch 1)).

One can try to study and use the identification of any real process in any B. It's allowed to add: A|||B + C|||B → (A+C) |||B, but distributivity may not take place, in the general case (A+C) |||B doesn't give A|||B + C|||B.

Remark 3

Possible manifestations of A|||B: 1) A, 2) B, 3) the equation A = B, 4) g(A, B) in a scalar structure, 5) A → B, 6) etc. For example, one of possible manifestations of type singularity A|||2A for DNA this is DNA division: DNA → 2 DNA. One can also study all kinds of partial manifestations of A|||B. Exits to the upper level and its manifestations can be very different. In particular, A|||A = Srt_A^A, those. there may be different exits to the same singularities. The top level also has its own hierarchy: in particular the identification of all its singularities takes it to a higher level, as does the containment of them within oneself, as well as the rest of their actions with oneself. Singularities can be potential, for example, in the form of a potential singular connection, the activating singularity makes it active. Let us denote the upper level of A by $\overline{A}$, the upper level of P by $\overline{P}$. Then singularity $\overline{A} \to \overline{P}$ is the setting for the transformation of A into P. Partial replacements (transitions) from identification at the upper level as manifestations are possible (in particular, partial replacements of identified characteristics). The singularities that we present can be a 2-interpretation of the corresponding natural ones and through appropriate experimental actions can lead to them. We can conditionally designate our theoretical singularities by $Sprt_A^w$, where w refers to the structures of the space of theoretical science, in particular. mathematics, A refers to objects in these structures, we can conditionally denote natural singularities, corresponding to $Sprt_A^w$ by $Sprt_X^O$, and by X we mean the structures of natural space and by O objects in these structures. Next, we can try to study following singularities $Sprt_A^w$& $Sprt_X^O$: 1) $Sprt_A^w$||| $Sprt_X^O$, 2) $Sprt_{Sprt_X^O}^{Sprt_A^w}$, 3) $Sprt_{Sprt_X^O}^{Sprt_X^O}$, 4) $Sprt_{Sprt_A^w}^{Sprt_X^O}$, 5) $Sprt_{Sprt_A^w}^{Sprt_A^w}$, 6) ${}^{Sprt_X^O}_{Sprt_A^w}Sprt_{Sprt_X^O}^{Sprt_A^w}$, 7) ${}^{Sprt_A^w}_{Sprt_X^O}Sprt_{Sprt_A^w}^{Sprt_X^O}$, 8) ${}^{Sprt_A^w}_{Sprt_X^O}Sprt$, 9) ${}^{Sprt_A^w}_{Sprt_A^w}Sprt_{Sprt_A^w}^{Sprt_A^w}$, , 10) ${}^{Sprt_X^O}_{Sprt_X^O}Sprt_{Sprt_X^O}^{Sprt_X^O}$, 11) ${}^{Sprt_X^O}_{Sprt_X^O}Sprt$, 12) ${}^{Sprt_A^w}_{Sprt_A^w}Sprt$, etc.

Remark 4

A three-level model is possible: $\begin{pmatrix} A|||\mathrm{B} \\ Sprt_B^A \\ A, B \end{pmatrix}$, where the transition from the lower level: A, B to the middle: $Sprt_B^A$ one is possible through the equation $A = B$, the transition from the middle to the upper level is possible through $Sprt_A^A$ or $Sprt_B^B$, the transition from the upper to the middle level is possible through $A|||$A or $B|||$B, the transition from the middle level to the lower one is possible through ${}^{Srt_B^A}_{A}Sprt$.

Remark 4.1

Actually $A|||$B there is an upper level capacity for A, B.

Remark 5

In any structure, connection, task related to the search for the unknown, it is possible by identification to obtain for the upper level of this unknown a singularity that interprets the upper level corresponding to its real image.

Remark 6

All mathematics has so far been reduced to operations with numbers through structures, just like programming (i.e. indirectly through numbers). Here we directly work with structures without taking into account their numerical content.

Remark 6.1

Consider |||-lim($\Delta y(|||)^{-1}\Delta x$) = $||| - \frac{dy}{dx}$

|||-lim($\sum_{i=1}^{\infty} y_i \, \Delta x_i$ = $||| - \int ydx$.

4. Others Types of Singularities

a) 2 → 1, b) 2 → 3, c) A → B for any A, B etc.

Examples:

1) selfA is Srt_A^A
2) oselfA is ${}^{A}_{A}Sprt$
3) (oselfA- selfA) is ${}^{A}_{A}Sprt_A^A$
4) black hole
5) self(black hole)
6) oself(black hole)
7) (oself(black hole)-self(black hole))
8) s2elfA is Srt_A^{selfA}
9) $s\frac{1}{2}$elf is Srt_{selfA}^A
10) sqelfA is $Srt_{q(A)}^A$
11) os2elfA is ${}^{A}_{(A,A)}Sprt$
12) os$\frac{1}{2}$elf is ${}^{selfA}_{A}Sprt$
13) osq()elfA is ${}^{A}_{q(A)}Sprt$, q-any operator,
14) osNelfA is ${}^{A}_{(q_1,\dots,q_N)}Sprt$, q_i= A, i= 1, …, N;
15) sq_1elfA- os$\begin{pmatrix} q_3() \\ q_2() \end{pmatrix}$elfA is ${}^{q_2(A)}_{q_3(A)}Sprt_{q_1(A)}^A$

16) os({ } →)elfA is ${}^{\{\}}_{A}Sprt$

17) self$_g$ A is SCprt$\underset{A}{\overset{A}{g}}$

18) oself$_g$A is $\underset{A}{\overset{A}{g}}$SCprt

19) (oself$_g$A- self$_g$A) is $\underset{A}{\overset{A}{g}}$SCprt$\underset{A}{\overset{A}{g}}$

20) $R_1fQ = \underset{action\ Q}{\overset{action\ Q}{action\ Q)^{-1}}}$Rprt $\underset{action\ Q}{\overset{action\ Q}{action\ Q}}$, Q is any,

21) $R_2fA;Q = \underset{A}{\overset{action\ Q}{(action\ Q)^{-1}}}$Rprt $\underset{action\ Q}{\overset{A}{action\ Q}}$, Q is any,

22) $R_3fA;Q;B = \underset{A}{\overset{B}{(action\ Q)^{-1}}}$Rprt $\underset{B}{\overset{A}{action\ Q}}$, Q is any,

23) $R_4fA;Q = \underset{A}{\overset{A}{(action\ Q)^{-1}}}$Rprt $\underset{A}{\overset{A}{action\ Q}}$, Q is any,

24) $RfA;Q;a = \underset{strA}{\overset{a}{(action\ Q)^{-1}}}$Rprt $\underset{a}{\overset{strA}{action\ Q}}$, Q is any,

$a \subset$ A and structure of A acts Q to a and acts Q out from a simultaneously,

25) $R_6fa;Q;A = \underset{a}{\overset{StrA}{(action\ Q)^{-1}}}$Dprt $\underset{StrA}{\overset{a}{action\ Q}}$, Q is any,

$a \subset$ A and acts Q to structure of A and acts Q out from structure of A simultaneously,

26) $\underset{B}{\overset{B}{(action\ Q)^{-1}}}$Rprt $\underset{B}{\overset{A}{action\ Q}}$, Q is any,

27) Rprt $\underset{A}{\overset{A}{action\ Q}}$,

28) $R_7fA;Q;a =$ Rprt $\underset{a}{\overset{strA}{action\ Q}}$, Q is any,

$a \subset$ A and structure of A acts Q to a,

29) $R_8fa;Q;A =$ Rprt $\underset{strA}{\overset{a}{action\ Q}}$, Q is any,

$a \subset$ A and acts Q to structure of A,

30) Rprt $\underset{action\ Q}{\overset{action\ Q}{action\ Q}}$, Q is any,

31) Rprt $\underset{action\ Q}{\overset{A}{action\ Q}}$, Q is any,

32) $\underset{D}{\overset{D}{(action\ Q)^{-1}}}$Rprt, Q is any,

33) $R_9fd;Q;D = \underset{d}{\overset{strD}{(action\ Q)^{-1}}}$Rprt, Q is any,

$d \subset$ D and d acts Q out from structure of D,

34) $R_{10} f D; Q; d = \underset{strD}{\overset{d}{(action\ Q)^{-1}}}$Rprt, Q is any,

$d \subset$ D and structure of D acts Q out from d,

35) $\underset{D}{\overset{action\ Q}{(action\ Q)^{-1}}}$Rprt, Q is any,

36) $\underset{action\ Q}{\overset{action\ Q}{(action\ Q)^{-1}}}$Rprt, Q is any,

37) $S2prt_A^A$= (selfA, selfA)

38) SC2prt$\underset{A}{\overset{A}{g}}$ = (self $_g$ A, self $_g$ A)

39) $\underset{A}{\overset{A}{g}}$SC2prt = $\binom{\text{oself}_g A}{\text{oself}_g A}$

40) SCNprt$\underset{A}{\overset{A}{g}}$ = (q_1, …, q_N), q_i= self$_g$A, i= 1, …, N.

41) $\underset{A}{\overset{A}{g}}$SCNprt = $\begin{pmatrix} q_1 \\ \cdots \\ q_N \end{pmatrix}$, q_i= self$_g$A, i= 1, …, N.

42) $SNprt_A^A$= (q_1, …, q_N), q_i= selfA, i= 1, …, N.

43) self($Sprt_B^A$)= $St_{Sprt_B^A}^{Sprt_B^A}$

44) Q(${}_A^A Sprt_A^A$), Q-any operator

45) SO([-1,1]) = S_∞^+ = (↑ I $\downarrow_{-1}^{1}$) corresponds to sin∞

46) SO([1,-1]) = S_∞^- = (↓ I $\uparrow_{-1}^{1}$) corresponds to sin(-∞)

47) SO([-∞,∞]) = T_∞^+ = (↑ I $\downarrow_{-\infty}^{\infty}$) corresponds to tg∞

48) SO([∞,-∞]) = T_∞^- = (↓ I $\uparrow_{-\infty}^{\infty}$) corresponds to tg(-∞)

don't confuse with values of these functions. Such elements can be summarized. For example: aS_∞^++bS_∞^-=(a-b)$S_\infty^+ = (b-a)\, S_\infty^-$.

49) The operator $(Q_1S(A))^2$ increases self-level for A: it transforms Self-A= f_1SA to self^{2}A, $(Q_1S(A))^n \to$ self^{n}A, $e^{Q_1 S(A)} \to e^{\text{self}}A$.

50) Os(self())elfA = A

We will give only one interpretation of the following singularities out of many possible options:

1) $s\frac{3}{2}$elf is $Srt_{selfA}^{self^{\frac{3}{2}}A}$

2) os$\frac{3}{2}$elf is ${}_{(A,A,A)}^{selfA}Sprt$

3) $s\frac{m}{n}$elf

4) $os\frac{m}{n}$elf

5) os$\frac{m}{n}$elf- s$\frac{k}{l}$elf

6) s((3→2))elf -

7) s((3→2) |||)elf

8) os((2→3))elf

9) os((2→3) |||)elf

10) os((m→n) |||)elf

11) s((α →q) |||)elf

12) s((A→R) |||)elf

13) os((A→R) |||)elf

14) s((m→n) |||)elf

15) os((α →q) |||)elf

16) s((m→n) |||)elf - os((m→n) |||)elf

17) (2→3) ||| (3→2)

18) (2→3) ↑|↓ (3→2)

19) etc.

Let us introduce a measure of singularity μ_{si}, which sets the maximum level of singularity as 1, and the minimum, i.e., regularity, as 0. Then, in particular, for binary relations: μ_{si} = 1 for A|||B, $Sprt_x^{A,B}$ (x - point), μ_{si} = 2/3 for Drt $\begin{matrix} Q \\ Q \\ Q \end{matrix}$, μ_{si} = 1/2 for A|||A, $Sprt_A^A$

5. Singularities Algebra

You can define operations for the same type singularities and study their algebras. But our task for now is limited to considering certain types of singularities presumably corresponding to certain types of subtle energy.

Let us introduce the following notations: A*B= $Sprt_B^A$, A^2 = Self A =Srt_A^A, $A^{\frac{3}{2}}$ = Drt $\begin{matrix} A \\ A \\ A \end{matrix}$ = self$f^{\frac{3}{2}}$ (A), A^3 = $Self^2$A, …,$A^{\frac{3n}{2}}$ = Drt $\begin{matrix} A^n \\ A^n \\ A^n \end{matrix}$ = self$f^{\frac{3n}{2}}$ (A), A^{n+1} = $Self^n$A, self$f^{\min(n,m)}$(A) ϵ $Srt_{A^m}^{A^n}$ = self$f^{\frac{n}{m}}$ (A), self$f^{\min(n,m,k)}$(A) ϵ Drt $\begin{matrix} A^n \\ A^m \\ A^k \end{matrix}$ = self$f^{\frac{n+m+k}{2k}}$ (A), … etc.

There is no commutativity here: A*B ≠ B*A. We can consider operator functions: $e^A = 1 + \frac{A}{1!} + \frac{A^2}{2!} + \frac{A^3}{3!} + \cdots$, $(A+B)^n = \sum_{k=0}^{n} \binom{n}{k} A^k B^{n-k}$, $(1+A)^n = 1 + \frac{Ax}{1!} + \frac{n(n-1)A^2}{2!} + \cdots$, etc.

You can consider a more "hard" option: A*B=$PSprt_B^A$, where $PSprt_B^A$ – operator, containing A in every element of B, A^2 = PSelf A =$PSrt_A^A$, A^3 = $PSelf^2$A, …, A^{n+1} = $PSelf^n$A, PSelf$f^{\min(n,m)}$(A) ϵ $PSrt_{A^m}^{A^n}$ = PSelf$f^{\frac{n}{m}}$ (A), …etc. There is no commutativity here: A*B ≠ B*A. We can consider operator functions: $e^A = 1 + \frac{A}{1!} + \frac{A^2}{2!} + \frac{A^3}{3!} + \cdots$, $(A+B)^n = \sum_{k=0}^{n} \binom{n}{k} A^k B^{n-k}$, $(1+A)^n = 1 + \frac{Ax}{1!} + \frac{n(n-1)A^2}{2!} + \cdots$, etc.

Let's introduce $\sqrt{self}$ as the result of the decision of the equation Srt_x^x = self, that is x = $\sqrt{self}$, $\sqrt[3]{self}$ as the result of the decision of the equation Dprt $\begin{matrix} x \\ x \\ x \end{matrix}$ = self, that is x = $\sqrt[3]{self}$, $\sqrt[n]{\text{self}^m}$ as the result of the decision of the equation $x^{\frac{n}{m}}$ = self, self$^{\alpha}$ as the result of the decision of the equation $x^{\frac{1}{\alpha}}$ = self, where α is any number, in particular, a negative number etc. The following equality is true:

self$^{-\alpha}$(self$^{\alpha}G$) =self$^{\alpha}$(self$^{-\alpha}G$) = G (*),

you can, for example, specify self$^{-\alpha}$ by definition through (*).

The following equality is true:

self$^{\beta}$(self$^{\alpha}G$) =self$^{\alpha}$(self$^{\beta}G$) = self$^{\alpha+\beta}G$ $\forall \alpha, \beta$. In this way one can introduce self-level space. The following operation may take place: q↑|↓q + ${}_A^ASprt_A^A = {}_{A+q}^{A+q}Sprt_{A+q}^{A+q}$.

Similar algebras can be constructed for other singularities, in particular, for oself, ↑|↓, |||, partial self-type singularities etc. For example A|||(|||)B = A $(|||)^2$B, $(|||)^{\alpha}$ as the result of the decision of the equation $x^{\frac{1}{\alpha}}$ = |||. $(|||)^{\alpha}$ * $(|||)^{\frac{1}{\alpha}}$ = $(|||)^{\frac{1}{\alpha}}$ * $(|||)^{\alpha}$ = ||| etc.

6. α – Singularities

1) sαelf is self$^{\alpha}$

2) osαelf is (oself)$^{\alpha}$

3) osαelf- sμelf

4) qselfA is $Srt_{q(A)}^A$

5) α - black hole

6) α - self- black hole

7) α - oself- black hole

8) α–(oself-self)-black hole
9) α - os({ } →)elf
10) α - oφs({ } →)elf
11) α - ||| = $(|||)^{\alpha}$
12) α - os(Q |||R)elf- s(A |||B)elf
13) α - s(Q |||R)elf
14) α - os(Q |||R)elf
15) α - (|||≥) = $(|||\geq)^{\alpha}$
16) α - os(Q (|||≥) R)elf- s(A (|||≥) B)elf
17) α - s(Q (|||≥) R)elf
18) α - os(Q (|||≥) R)elf
19) α - (|||≤) = $(|||\leq)^{\alpha}$
20) α - os(Q (|||≤) R)elf- s(A (|||≤) B)elf
21) α - s(Q (|||≤) R)elf
22) α - os(Q (|||≤) R)elf
23) α - (|||<) = $(|||<)^{\alpha}$
24) α - os(Q(|||<) R)elf- s(A(|||<) B)elf
25) α - s(Q(|||<) R)elf
26) α - os(Q(|||<) R)elf
27) α - (|||>) = $(|||>)^{\alpha}$
28) α - os(Q(|||>) R)elf- s(A(|||>) B)elf
29) α - s(Q(|||>) R)elf
30) α - os(Q(|||>) R)elf
31) α - os(Q(|||<) R)elf- s(A(|||>) B)elf
32) α - os(Q(|||>) R)elf- s(A(|||<) B)elf
33) α - os(Q(|||<) R)elf- s(A(|||≥) B)elf
34) α - os(Q(|||≥) R)elf- s(A(|||<) B)elf
35) α - os(Q(|||<) R)elf- s(A(|||≤) B)elf
36) α - os(Q(|||≤) R)elf- s(A(|||<) B)elf
37) α - os(Q(|||≤) R)elf- s(A(|||≥) B)elf
38) α - os(Q(|||≥) R)elf- s(A(|||≤) B)elf etc.

7. Structural Singularities

1) Cos2elfA is ${}_{(A,A)}^{A}Cprt$
2) Cs2elfA is Crt_{A}^{selfA}
3) $\mathrm{Cs2elf}_g\mathrm{A}$ = CC2prt $\begin{matrix}\mathrm{self}_g\ \mathrm{A}\\ g\\ A\end{matrix}$
4) $Cos2\mathrm{elf}_g\mathrm{A} = \begin{matrix}A\\ g\\ (A,A\end{matrix}$ CCprt
5) SCNprt$\begin{matrix}A\\ g\\ A\end{matrix}$ = (q_1, …, q_N), q_i= self_gA, i= 1, …, N.
6) $\begin{matrix}A\\ g\\ A\end{matrix}$SCNprt = $\begin{pmatrix}q_1\\ \cdots\\ q_N\end{pmatrix}$, q_i= self_gA, i= 1, …, N.
7)
8) Cs$\frac{1}{2}$elf is Crt_{selfA}^{A}

9) CsqelfA is $Crt^{A}_{q(A)}$

10) Cosq()elfA is ${}_{q(A)}^{A}Cprt$, q-any operator,

11) CosNelfA is ${}_{(q_1,\dots,q_N)}^{A}Cprt$, q_i= A, i= 1, …, N;

12) (CoselfA- CselfA) is ${}_{A}^{A}Cprt^{A}_{A}$

13) Csq_1elfA- Cos$\begin{pmatrix} q_3() \\ q_2() \end{pmatrix}$elfA is ${}_{q_3(A)}^{q_2(A)}Cprt^{A}_{q_1(A)}$ etc.

8. Other Types of Singular Operations

1) self∪ is self-unification sign,

2) self∩ is self-intersection sign

3) $\begin{matrix} (\cup)^{-1} & & \cup \\ (\cup)^{-1} & \text{Rprt} & \cup \\ (\cup)^{-1} & & \cup \end{matrix}$ is Rprt$_1$-unification sign

4) $\begin{matrix} \cup & & \cup \\ \cup & \text{Rprt} & \cup \\ \cup & & \cup \end{matrix}$ is Rprt$_2$-unification sign

5) $\begin{matrix} \cup & & \cup \\ (\cup)^{-1} & \text{Rprt} & \cup \\ \cup & & \cup \end{matrix}$ is Rprt-unification sign

6) $\begin{matrix} (\cup)^{-1} & & (\cup)^{-1} \\ (\cup)^{-1} & \text{Rprt} & (\cup)^{-1} \\ (\cup)^{-1} & & (\cup)^{-1} \end{matrix}$ is Rprt$_3$-unification sign

7) self∧ is self-logical multiplication sign

8) self∨ is self-logical addition sign

9) $\begin{matrix} V & & \wedge \\ V & \text{Rprt} & \wedge \\ V & & \wedge \end{matrix}$ is Rprt$_1$- logical sign

10) $\begin{matrix} \wedge & & \wedge \\ \wedge & \text{Rprt} & \wedge \\ \wedge & & \wedge \end{matrix}$ is Rprt$_2$-logical multiplication sign

11) ($\begin{matrix} V & & V \\ V & \text{Rprt} & V \\ V & & V \end{matrix}$ is Rprt$_2$-logical addition sign

12) etc.

In fact, the classification of singularities determines the classification of outputs from our 2-world to other levels in the 2-interpretation. Science is 2-interpretation and 2-classification. In principle, there can be nothing else, and that's not bad either.

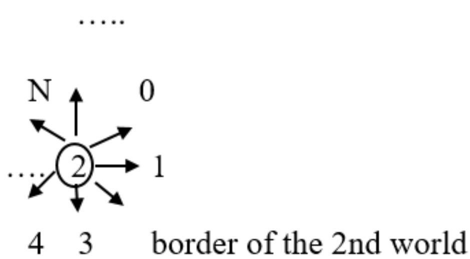


Figure 1: (2⟶ i)-connections, I = 0, 1, 2, …, N, …

Remark 7

Function δ(x) is actually a functional of singularity $\uparrow \mathrm{I} \downarrow_0^\infty$.

Remark 8

All singularities can act as program operators in a special type of programming - singular programming.

Remark 9

The identification of all singularities can be considered as the new higher-level singularity.

Remark 10
You can set norms for the same type singularities and study their topologies.

9. Singularities within Singularities

Increasing the level of singularity in the internal singular parts in singularities, in particular, for microwave alternating current, corresponding to the upper level through the identification of the corresponding Maxwell equations.

10. Partial Self-Type Singularities

Consider a third type of capacity in itself. For example, based on $Srt_x^{\{a\}}$, where $\{a\} = (a_1, a_2, \ldots, a_n)$, i.e. n - elements at one point, we can consider the capacity $S_3 f$ in itself with m elements from {a}, m<n, which is formed according to the form:

$w_{mn} = (m, (n,1))$ (1)

that is, the structure $Srt_x^{\{a\}}$ contains only m elements. Form (1) can be generalized into the following forms:

$$w^1_{m,n,k} = \left(k, \left(\begin{matrix}(n_1, 1)\\ (\ldots)\\ (n_m, 1)\end{matrix}\right)\right) \quad (1.1)$$

or

$$w^2_{m,n,k} = \left(k, \left(l, \begin{matrix}(n_1)\\ (\ldots)\\ (n_m)\end{matrix}\right)\right) \quad (1.2)$$

$$w^3_{m,n,k,l} = Q\left(\left(\begin{matrix}d_1\\ \ldots\\ d_l\end{matrix}\right), \left(\begin{matrix}(n_1, 1)\\ (\ldots)\\ (n_m, 1)\end{matrix}\right)\right) \quad (1.3),$$

where Q(x, y) – any operator, which makes a match between set $\left(\begin{matrix}d_1\\ \ldots\\ d_l\end{matrix}\right)$ and set $\left(\begin{matrix}(n_1, 1)\\ (\ldots)\\ (n_m, 1)\end{matrix}\right)$ or

$$w^4_{m,m_1,n_1,m_2,n_2,m_3,n_3} = (m, ((m_1, n_1), ((m_2, n_2), (m_3, n_3)))) \quad (1.4),$$

or

(Q, R) (1.5),

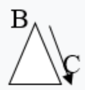
where Q – any, R – any structure, R could be anything can be anything, not just structure. In this case, (1.5) can be used as another type of transformation from Q to R. Capacities in themselves of the third type can be formed for any other structure, not necessarily Srt, only by necessarily reducing the number of elements in the structure, in particular, using form

$w_{m_1 \cdots m_n} = (m_1, (m_2, (\ldots (m_n, 1) \ldots)))$ (2)

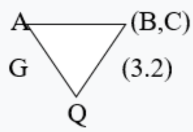
Structures more complex than $S_3 f$ can be introduced. For example, through the forms that generalizes (1):

$w_{ABC} = (A, (B, C))$ (3)

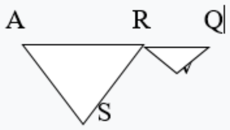
where A is compressed (fits) in C in the compression fuzzy structure B in C ; or

$w_{ABC} = A$ 

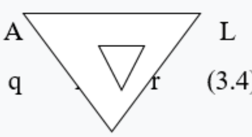
(3.1)



(3.2)



(3.3)



(3.4)

or through the more general form that generalizes (2):

$w_{A_1 A_2 \ldots A_n C} = (A_1, (A_2, (\ldots (A_n, C) \ldots)))$ (4)

and corresponding generalizations of (4) on (3.1) - (3.4), etc.

(3), (4) are represented through the usual 2-bond. Science is the discipline of 2-connections, since everything in science is carried out through 2-connected logic, quantum logic is also a projection of 3-connected logic onto 2-connected logic. (3.1) - (3.4) schematically interpret the formation of capacity in itself through a pseudo 3-connected form with a 2-connected form [15].

Competing Interest

There are no competing interests. All sections of the article are executed jointly.

Funding

There were no sources of funding for writing the article.

Authors' Contributions

The contribution of the authors is the same, we will not separate.

Acknowledgements

We are grateful to our academic supervisor scientific director: Volodymyr Pasynkov- PhD of physic-mathematical science, assistant professor of applied mathematics and calculated techniques department of "National Metallurgical Academy" (Ukraine) for guidance and assistance in writing this article.

References

1. Danilishyn, O., & Danilishyn, I. (2024). Fuzzy Dynamic Fuzzy Sets. Variable Fuzzy Hierarchical Dynamic Fuzzy Structures (Models, Operators) for Dynamic, Singular, Hierarchical Fuzzy Sets. FUZZY PROGRAM OPERATORS ffSprt, fftprS, ffS1epr, ffSeprt1. *J Math Techniques Comput Math, 3*(4), 1-37.
2. Oleksandr, D., & Illia, D. (2023). Dynamical Sets Theory: S2t-Elements and Their Applications. *J Math Techniques Compu t Math, 2*(12), 479-498.
3. Danilishyn, I., & Danilishyn, O. (2023). Dynamic Sets Set and Some of Their Applications to Neuroscience. *Networks Set New Advances in Brain & Critical Care, 4*(2), 66-81.
4. Danilishyn, O., & Danilishyn, I. (2023). Dynamic Sets S1et and Some of their Applications in Physics. *Science Set Journal of Physics, 25*, 1-11.
5. Danilishyn, I., & Danilishyn, O. Advances in Neurology and Neuroscience.
6. Danilishyn, I., & Danilishyn, O. (2023). Program Operators SIT, tS, S1e, Set1. *J Sen Net Data Comm, 3*(1), 138-143.
7. Danilishyn, I., Danilishyn, O., & Pasynkov, V. (2023). THE USAGE OF SIT-ELEMENTS FOR NETWORKS. *Collection of scientific papers «ΛΌΓΟΣ»*, (March 31, 2023; Zurich, Switzerland), 129-134.
8. Danilishyn, I., & Danilishyn, O. (2023). VARIABLE HIERARCHICAL DYNAMICAL STRUCTURES (MODELS) FOR DYNAMIC, SINGULAR, HIERARCHICAL SETS AND THE PROBLEM OF COLD THERMONUCLEAR FUSION. *Collection of scientific papers «SCIENTIA»* 113-119.
9. Danilishyn I. V. Danilishyn O.V. SET1 – ELEMENTS. INTERNATIONAL SCIENTIFIC JOURNAL GRAIL OF SCIENCE № 28 June, 2023 with the proceedings of the: Correspondence International Scientific and Practical Conference SCIENCE IN MOTION: CLASSIC AND MODERN TOOLS AND METHODS IN SCIENTIFIC INVESTIGATIONS held on June 9 th, 2023 by NGO European Scientific Platform (Vinnytsia, Ukraine) LLC International Centre Corporative Management (Vienna, Austria), pp. 239-254.
10. Danilishyn, I., Danilishyn, O., & Pasynkov, V. (2023). DYNAMICAL SIT-ELEMENTS. *Collection of scientific papers «ΛΌΓΟΣ»*, (March 31, 2023; Zurich, Switzerland), 116-118.
11. Danilishyn, I., Danilishyn, O., & Pasynkov, V. (2023). SOME APPLICATIONS OF SIT-ELEMENTS TO SETS THEORY AND OTHERS. *Collection of scientific papers «ΛΌΓΟΣ»,* (May 26, 2023; Boston, USA), 166-171.
12. Danilishyn I.V. Danilishyn O.V. SOME APPLICATIONS OF SIT- ELEMENTS TO CONTINUAL VALUED LOGIC AND OTHERS. Features of the development of modern science in the pandemic's era: a collection of scientific papers «SCIENTIA» with Proceedings of the IV International Scientific and Theoretical Conference, May 19, 2023. Berlin, Federal Republic of Germany: European Scientific Platform, pp.79-84.
13. Danilishin, O., & Danilishin, I. (2023). Dynamic Sets Theory: Sit-elements and Their Applications.
14. Danilishyn, O., & Danilishyn, I. (2024). Introduction to Section of Dynamic Mathematics: Dynamic Sets Theory: Parallel Sprt-Elements and their Applications. *J Math Techniques Comput Math, 3*(5), 01-27.
15. Danilishin, O., Danilishin, I. (2024). Intrtoduction to Dynamic Operators: Rprt-Elements and Their Applications. Rprt-Networks. Variable Fuzzy Hierarchical Dynamic Fuzzy Structures (Models, Operators) for Dynamic, Singular, Hierarchical Fuzzy Sets. Fuzzy Program Operators fRprt, ftprR, ffR1epr, ffReprt1. *Journal of Mathematical Techniques Computational Mathematics, 3*(9), 1-26.

Appendix 1

Objects of physics and chemistry have an energy structure, which can be tried to be represented in the form of a hierarchical energy structure: the upper level of subtle self-energy and the lower level, which is manifested in the form of objectivity. Ordinary types of energy are manifestations of a lower level from these structures.

If we represent an amorphous body with a mathematical structure of self-object $Sprt_{A_0+E_s}^{A_0+E_s}$, where $Sprt_{A_0}^{A_0}$ - level of objectivity of an amorphous object, ($Sprt_{A_0+E_s}^{A_0}$+ $Sprt_{A_0}^{A_0+E_s}$) - the energy of connections between the level of subtle energy $Sprt_{E_s}^{E_s}$ and the level of objectivity.

Thus, one can try to conventionally represent the mathematical model of the energy structure of an amorphous object as a hierarchical dynamic operator

$$\begin{matrix} Sprt_{E_s}^{E_s} \\ (Sprt_{A_0+E_s}^{A_0} + Sprt_{A_0}^{A_0+E_s}) \\ Sprt_{A_0}^{A_0} \end{matrix} \quad (1^*).$$

In particular, the magnetic field and spin belong to the second level in (1*).

The next level of objectivity responds to a crystal. We represent a crystal with a mathematical structure

$$Sprt_{Sprt_{A_0+E_s}^{A_0+E_s}}^{Sprt_{A_0+E_s}^{A_0+E_s}} \quad (2^*).$$

Thus, one can try to conventionally represent the mathematical model of the energy structure of a crystal as a hierarchical dynamic operator (2*). The next level of objectivity responds to a living crystal, for example, the bone of a living organism, a nail, viruses, DNA, RNA and etc. When there is no nutrient medium and energy, it behaves like a crystal: ${}^{Sprt_{\{\}}^{\{\}}}_{Sprt_{\{\}}^{\{\}}}Sprt^{Sprt_{A_0+E_s}^{A_0+E_s}}_{Sprt_{A_0+E_s}^{A_0+E_s}}$, a nutrient medium appears and the necessary energy: ${}^{Sprt_{B_0+E_q}^{B_0+E_q}}_{Sprt_{B_0+E_q}^{B_0+E_q}}Sprt^{Sprt_{B_0+E_q}^{B_0+E_q}}_{Sprt_{B_0+E_q}^{B_0+E_q}}$, its structure is transformed into a mathematical structure ${}^{Sprt_{B_0+E_q}^{B_0+E_q}}_{Sprt_{B_0+E_q}^{B_0+E_q}}Sprt^{Sprt_{A_0+E_s+B_0+E_q}^{A_0+E_s+B_0+E_q}}_{Sprt_{A_0+E_{s+B_0+E_q}}^{A_0+E_s+B_0+E_q}}$. The division of DNA into two DNAs after sufficient accumulation of bases and energy - this minimal division into only two duplicates corresponds to the law of conservation of living energy and minimization of the entropy of the system.

Next comes the level of living organisms: ${}^{{}^{Sprt_{A_0+E_s}^{A_0+E_s}}_{Sprt_{A_0+E_s}^{A_0+E_s}}Sprt^{Sprt_{A_0+E_s}^{A_0+E_s}}_{Sprt_{A_0+E_s}^{A_0+E_s}}}_{{}^{Sprt_{A_0+E_s}^{A_0+E_s}}_{Sprt_{A_0+E_s}^{A_0+E_s}}Sprt^{Sprt_{A_0+E_s}^{A_0+E_s}}_{Sprt_{A_0+E_s}^{A_0+E_s}}} Sprt ^{{}^{Sprt_{A_0+E_s}^{A_0+E_s}}_{Sprt_{A_0+E_s}^{A_0+E_s}}Sprt^{Sprt_{A_0+E_s}^{A_0+E_s}}_{Sprt_{A_0+E_s}^{A_0+E_s}}}_{{}^{Sprt_{A_0+E_s}^{A_0+E_s}}_{Sprt_{A_0+E_s}^{A_0+E_s}}Sprt^{Sprt_{A_0+E_s}^{A_0+E_s}}_{Sprt_{A_0+E_s}^{A_0+E_s}}}$. Next comes the level of Globe, where the role of living cells (molecules in the case of a crystal) is played by living organisms. Next comes the level of Universe, where the role of living cells (molecules in the case of a crystal) is played by planets inhabited by living beings. You can try to represent these levels through more complex mathematical models, there are options for going beyond the level of objectivity for objects with energy structures of a sufficiently high level, but this is already material for subsequent publications.

Remark 11

Hypothesis 1

Considering (1*), we can assume that access to the upper level can be achieved through $Sprt_{Sprt_{A_0}^{A_0}}^{Sprt_{A_0}^{A_0}}$, and access to the middle level can be achieved through $Sprt_{A_0+Sprt_{A_0}^{A_0}}^{A_0} + Sprt_{A_0}^{A_0+Sprt_{A_0}^{A_0}}$.

${}_{A(t)}^{A(t)}Sprt$ will be called dynamic anti-capacity from oneself. For example, “white hole” in physics is such simple anti-capacity. The concepts of “white hole” and “black hole” were formulated by the physicists based on the subject of physics –the usual energies level. Mathematics allows you to deeply find and formulate the concept of singular points in the Universe based on the levels of more subtle energies. The experiments of the 2022 Nobel laureates Asle Ahlen, John Clauser, Anton Zeilinger and the experiments in chemistry Nazhipa Valitov correspond to the concept of the Universe as a capacity in itself as the element. They experimented with connections for elements of the microworld, and since here the connections are self-connections, then when the object component of self-connections is removed, its higher level remains, which was manifested in their experiments. The electron spin belongs to the second level - above the level of objectivity. The energy of self-containment in itself is closed on itself.

Remark 12

From the point of view of our theory of dynamic operators and sets, we can interpret the energy effect of a thermonuclear reaction as the result of the "collapse" of two self-objects: for example,1) ${}_2^3He$, ${}_2^3He$ and the formation of one self-object ${}_2^4He$, 2) ${}_2^3He$, ${}_1^2H$ and the formation of one self-object ${}_2^4He$. As a result, the energy of the collapse of the lost part of the self is released.

Remark 13

To gain access to object transformation, just go to the level lS=$\frac{2}{\pi}arctg(1+\mathcal{E})$, Ɛ may be quite small.

Examples of transformation:

1) $Sprt_q^q \rightarrow Sprt_{St_q^q}^{St_q^q} \rightarrow Sprt_{St_c^b}^{St_c^b}$

2) $Sprt_q^q \rightarrow S_3f(self(q)) \rightarrow Sprt_r^r$

This is a rather conditional interpretation, because in fact, the lS of the "vessel" (energy cocoon) of the object may turn out to be greater than $\frac{2}{\pi}arctg(1)$. This is taken for initiation: we build a theory of this, starting from this stage of interpretation. After experiments, the next stage may begin.

Self A =$Sprt_A^A$ can be transformed into any D if µl(D) = µl ($Sprt_A^A$), µl(x) - level measure of self for x, in particular, into $Sprt_A^{any\ C}$ or $Sprt_{any\ C}^A$, and also an object R into any object Q or any energy U. The transformations of this type will be called stransformations. Self^N A can transform itself into any D if N ≥2; to realize this we need an even larger quantity N.

Example of a parallel-serial program statement

$$Sprt_{for\ w\ Sprt_{Sprt_J^{if\ C}}^{Sprt_E^{af:=}}}^{if\ \{g\}Sprt_{Sprt_A^R}^{s:=Sprt^C_{Sprt_A^Q}}}$$

Each self-field can automatically rebuild the self-program to the desired.

Self^N- OS and is designed for such transformations, and it itself can be transformed at N≥1, or it itself can be transformed at N ≥2.

Remark 14

Hypothesis 2

Equations for real processes in a non-trivial form can be used to fully or partially interpret the self-level of the process, replacing the equal signs with identification signs, and solutions to these equations as a manifestation of this level on the level of objectivity and ordinary energies. That is, equations for real processes serve as a definition of the self-level of the process, the definition of self-values (self-characteristics) of the process through the identification sign, i.e. they are defined (expressed) through themselves. In particular, forms (1) - (4) from [13] can be used as forms of identification. Each such singularity creates its own field, the process, the object etc. Much more effective than science for working with these singularities will be special Dynamic programming, which we are currently working on to create. Identification at the lower levels of a hierarchical dynamic structure of type (1) will lead to the upper level. You can also try to use it for full or partial interpretation of the self-level of chemical reactions, but here there will be a trivial identification and determination of the self-level will be much simpler. For example, a type w ≡ 2w singularity at the top level of the structure of a mathematical simplified model of DNA generates a field for DNA division. A rather complex type of singularity at the upper level of the structure of a simplified mathematical model generates an electromagnetic field through identification in Maxwell's equations. The same applies to real problems: identifying the conditions of the problems with their request will give the singularity of the upper level of the problems. It is clear that the upper-level singularity corresponds not only to one object, process, task, etc., but also to a whole class of those corresponding to this singularity. The upper level is the identification of everything that is there, by definition. The upper level of objectivity (i.e., the boundary of objectivity) is the identification of all objects. The necessary manifestations of the upper level on the lower ones can be carried out through the appropriate settings in the upper level. Then it is quite possible, through the use of dynamic programming in the required activation (via microwave with minimum amplitude and maximum frequency, ultraviolet), to transfer S_{mnSt} to the boundary of objectivity to perform the desired task, in particular, for the necessary transformation, the necessary action etc. Using the work of 2023 Nobel Prize winners in physics Ferenc Kraus and his colleagues Pierre Agostini and Anna Lhuillier, their experimental methods of generating attosecond pulses of light to study the dynamics of electrons in matter, we will attempt to carry out the experimental part of our work as soon as we receive a specially equipped laboratory and funding. It is clear that the upper-level singularity corresponds not only to one object, process, task, etc., but also to a whole class of those corresponding to this singularity. Therefore, in particular, a transition to other elements of this class is possible.

Hypothesis 3

The upper level is the identification of everything that is there, by definition.

The level that is below the lower level of objects is the level of their ordinary emanations from them - the level of ordinary energies. In particular for mathematical objects - equations, these are their solutions. For any mathematical object, one can give definitions of its singular generalizations, and not only for mathematical ones, in particular, all real objects and processes have an upper (singular) level.

Remark 15

So far we have used all sorts of (algebraic) structures to interpret some simplified processes and their results. Unfortunately, sometimes their great complexity is not entirely justified, so here we will try to interpret them through geometric constructions.

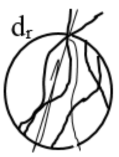


Figure 1: We will try to interpret the energy of a living organism. The ellipse represents a cross-section of the energy cocoon of a living organism, d_r is the assembly point on it, curved lines inside and outside are the energy fibers of the Universe, r-the position of the assemblage point dr on the energy cocoon of a living organism.

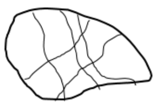


Figure 2: we will try to interpret the energy of a non-living object. Shape border represents a cross-section of the energy cocoon of a non-living object, the curved lines are the energy fibers of the Universe enclosed in the cocoon of the object. In particular, string theory considers an elementary particle as a "string," although in our opinion it is more natural to consider an elementary particle as a manifestation of a "string," an energy fiber of the Universe. Energy cocoons are not structures of our object world; they are structures of energy space, the manifestation of which is our object world. For example, it is quite possible to try to interpret the nucleus of an atom as a manifestation of the intersection of such fibers, which are actually incubators of protons and neutrons that make up the nucleus of an atom, and the nucleus of a cell of a living organism as a manifestation of the intersection of such fibers, which are actually incubators of chromosomes with DNA. For example, (Fig.3) it is to try to interpret an atom ${}^4_2He$ as the cocoon with two layers of self-capacity in the form of orbitals that surround the intersection of energy fibers - incubators of protons and neutrons.

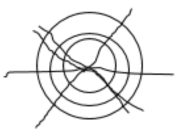


Figure 3:

Let's consider the vector of energy levels of a non-living object A:

$$\begin{pmatrix} subtle\ energy\ of\ the\ upper\ level\ object\ A(decignation - \widehat{\overline{A}}) \\ subtle\ energy\ of\ a\ mid-level\ object\ A(decignation - \overline{A}) \\ the\ raw\ energy\ of\ an\ object\ A -\ its\ objectivity(decignation - A) \\ ordinary\ energy\ exhibited\ by\ an\ object\ A(decignation - \underline{A} \end{pmatrix}$$

Remark 15.1

Our object world is a manifestation of the space of self-capacities (the space of subtle energies), the space of self-capacities is a manifestation of the space of self-containments etc. The self-capacity is the element of the SAMO level, but can partially manifest the corresponding parts of its content at lower levels, for example object level, in the corresponding "structures". For example, $\widehat{\overline{A}}$ is capacity for $\overline{A}$, $\overline{A}$ is capacity for A, A is capacity for $\underline{A}$. The magnetic field is able to pass through ordinary objects and is therefore a mid-level element.

Remark 15.2

Subtle energy can manifest itself in the form of: 1) objectivity, 2) ordinary energies, 3) information. Using neural networks of the SmnSprt-type, it is possible to organize a S-Internet, where instead of exchanging information, an exchange of subtle energies will take place.

Remark 15.3

Elementary particles are on the border of objectivity, therefore the uncertainty relation and also the possibility of manipulating them to achieve the desired goals (even unrelated to them), using either: 1) an ultra-short-pulse laser, or 2) a collider by SmnSprt etc.

Fuzzy Singularities of the Type Synthesizing

Similar, it is possible to consider the singularities by specifying fuzziness measures for the elements of their structures based on the above singularities. As an example, let us consider fuzzy partial singularities of the type synthesizing: consider a third type of fuzzy fcapacity in itself. For example, based on $ffSprt\mu^{\tilde{x}}_{q}$, where $\tilde{x}=(x_1|\mu_{\tilde{x}}(x_1), x_2|\mu_{\tilde{x}}(x_2)|, \ldots, x_n|\mu_{\tilde{x}}(x_n)|)$ i.e. n - elements at one point, we can consider the fuzzy fcapacity $ffS_3f\mu$ in itself with m elements from $\tilde{x}$, m<n, which is formed according to the form (1), that is, the structure $ffSprt\mu^{\tilde{x}}_{q}$ contains only m elements. Form (1) can be generalized into the following forms (1.1) – (1.5).

Fuzzy fcapacities in themselves of the third type can be formed for any other structure, not necessarily ffSprt, only by necessarily reducing the number of elements in the structure, in particular, using form (2).

Structures more complex than ffS_3f can be introduced. For example, through a forms that generalizes (3), where A is fuzzy compressed (fuzzy fits) in C in the fuzzy compression fuzzy structure B in C (i.e. in the fuzzy structure $ffSprt\mu^{B}_{C}$); or (3.1) - (3.4) or through the more general form (4) and corresponding generalizations of (4) on (3.1) - (3.4), etc. (3.1) - (3.4) schematically interpret the fuzzy formation of fuzzy capacity in itself through a pseudo 3-connected form with a 2-connected form.

Remark 16

Fuzzy self, in particular, according to a fuzzy form- fuzzy analogue of the form of type (1):

$(1\boldsymbol{|}\,\mu_1, (2|\,\mu_2, 1\boldsymbol{|}\,\mu_3\,)), (4^*)$

μ_i (i=1,2,3)– the fuzziness of the indicated positions. For example

1) fuzzy forming from element with fuzziness μ in the form {2,1}: $(1\boldsymbol{|}\,\mu, (2, 1\,))$

2) fuzzy forming from element in the form {2,1} with fuzziness μ: $(1, (2, 1)\boldsymbol{|}\,\mu\,)$

1) fuzzy formation of partial self in the form (1) with fuzziness μ: $(1, (2, 1))\boldsymbol{|}\mu$

2) It is also possible to generalize the other remaining forms (1) – (4) to fuzzy forms etc.

Appendix 2

We consider measure for the level of self - LS, the values of which are transformed into a segment [0,1] through the function arctg: $lS=\frac{2}{\pi}arctgLS$.

0 corresponds to "no self", and 1 corresponds to the "self$^{\infty}$".

Let an object A from the class of objects B. The measure lS (A) is a unique real function defined on B that satisfies three conditions (axioms selfhood)

1) lS (A) ≥ 0 for any object A from B
2) lS (A) = 1 for self$^{\infty}$ object A
3) lS ($A_1 \cup A_2 \cup \ldots$) = lS (A_1) + lS (A_2) + … for any finite or infinite sequence of pairwise inconsistent objects A_1, A_2, …

From axioms 1), 2), 3) it follows that $0 \leq lS(A) \leq 1$, in particular, if O is an impossible object, then lS (O) =0. It is important to note that t equalities lS (A) = 1 or lS (A) = 0 do not imply whether A is an self object or an impossible object. Let us introduce axiom 4: the measure f dependent A, B lS(A*B) = lS(A)* lS(B/A)= lS (B)* lS (A/B), where lS (B/A)- conditional self of B at A, lS (A/B) - conditional self of A at B. T measure lS(A/B) undefined if lS(A/B).

Then for joint A, B: lS (A+B)= lS (A)+ lS (B)- lS (A*B)+ lS(D), D- self from A*B, lSS(x)- the value for $(\text{self})^2$ from x; for dependent A, lS(A*B) = lS(A)* lS(B/A)= lS (B)* lS (A/B), where lS (B/A)- conditional self of B at A, lS (A/B)- conditional self of A at B. Adding measures self of inconsistent A,B: lS(A+B)= lS(A)+ lS(B). The formula of complete self: lS(A)=$\sum_{k=1}^{n} lS(B_k) * lS(A/B_k)$, $B_1,B_2,..,B_n$-full basis grou $\sum_{k=1}^{n} lS(B_k)$=1("self").

Sprt-lS for set A={$A_1,A_2,\ldots,A_n$}: $St_x^{\{lS(A_1),lS(A_2),\ldots,lS(A_n)\}}$[1], $Sprt_x^{\{lS(A_1),lS(A_2),\ldots,lS(A_n)\}}$- Sprt- lS for it. It is possible to consider the self S_3A [1] wi m elements from A, at m<n, which is formed by the form (1) [1], that is, only m elements from A are located in the structure $Sprt_x^A$. The same f self $S_3\{ lS(A_1), lS(A_2), \ldots, lS(A_n)$: $Sprt_x^{\{lS(A1),lS(A2),\ldots,lS(An)\}}$.

Dynamical containments of oneself of the third type can be formed for any other structure, not necessarily Sprt, only through the obligato reduction in the number of continual elements in the structure. In particular, using the form from the forms (1.1) – (4) [1].

Structures more complex than $S_3\mu S(t)$ can be introduced.

Consider the Following Characteristics

LM(X)= $\sum_{i=1}^{n} x_i\, ls_i$, $ls_i = lS(X=x_i)$, i=1,2, …, n, x_i – a state of X at time t_i; properties:

1) LM(C) = C, C – const
2) LM(CX) = CLM(X)
3) $LM(X_1+ X_2) = LM(X_1) + LM(X_2)$
4) $LM(X_1* X_2) = LM(X_1) * LM(X_2)$

$LD(X) = LM((X- LM(X))^2)$, $LD(X) = LM(X^2)- (LM(X))^2$

Properties

1) LD(C) = 0
2) LD(CX) = CLD(X)
3) $LD(X_1+ X_2) = LD(X_1) + LD(X_2)$

$L\sigma(X) = \sqrt{LD(X)}$

$L\alpha_k(X) = LM(X^k)= \sum_{i=1}^{n} x_i^k\, ls_i$

$L\mu_k(X) = LM((X- LM(X))^k)$.

Function of self for estimating the unknown parameter α of the state distribution X: a) in a discrete case $L(x_1,x_2, \ldots, x_n, \alpha) = ls(x_1, \alpha)\, ls(x_2, \alpha)$ $ls(x_n, \alpha)$, where $ls(x_k, \alpha) = lS(X=x_k)$

b) in an absolutely continuous case $L(x_1,x_2, \ldots, x_n, \alpha) = f(x_1, \alpha)\, f(x_2, \alpha) \ldots f(x_n, \alpha)$, where f(x, α) – a density of the state distribution X.

Ltropy of the self-levels distribution for x

$$LH(x) = \begin{cases} LM\left(log_2 \frac{1}{lS(x)}\right) = -\sum_x lS(x) log_2 lS(x), \\ LM(log_2 \frac{1}{\varphi lS(x)} = -\int_{-\infty}^{\infty} \varphi lS(x) log_2 \varphi lS(x) dx \end{cases}$$

LH(x) is the measure of no self for value x.

Remark 17

Similarly, you can set measure for the level of self-type for other partial self-type singularities, for example, partial identification - $l_{|||}$ of identification.

Appendix 3

We consider measure of self: μS(Q), which gives a numerical value for the self of the Q from the interval [0,1], where 0 corresponds to "no self", and 1 corresponds to the "self". Let an object A from the class of objects B. The measure μS (A) is a unique real function defined on B that satisfies three conditions (axioms of selfhood)

4) μS (A) ≥ 0 for any object A from B

5) μS (A) = 1 for self-object A

6) μS ($A_1 \cup A_2 \cup$ ...) = μS (A_1) + μS (A_2) + … for any finite or infinite sequence of pairwise inconsistent objects A_1, A_2, …

From axioms 1), 2), 3) it follows that 0 ≤ μS (A) ≤ 1, in particular, if O is an impossible object, then μS (O) =0. It is important to note that the equalities μS (A) = 1 or μS (A) = 0 do not imply whether A is self-object or an impossible object. Let us introduce axiom 4: the measure for dependent A, B μS(A*B) = μS(A)* μS(B/A) = μS (B)* μS (A/B), where μS (B/A)- conditional self of B at A, μS (A/B) - conditional self of A at B. The measure μS(A/B) undefined if μS(A/B).

Then for joint A, B: μS (A+B) = μS (A)+ μS (B)- μS (A*B) + μSS(D), D-

self- from A*B, μSS(x)- the value of $(self)^2$ from x; for dependent A, B: μS(A*B) = μS(A)* μS(B/A) = μS (B)* μS (A/B), where μS (B/A)- conditional self of B at A, μS (A/B)- conditional self of A at B. Adding measures of self of inconsistent A,B: μS(A+B)= μS(A)+ μS(B). The formula of complete self: μS(A)=$\sum_{k=1}^{n} \mu S(B_k) * \mu S(A/B_k)$, B_1, B_2, ..., B_n-full basis group: $\sum_{k=1}^{n} \mu S(B_k)$=1(“self”).

Sprt-μS for set A={A_1,A_2,…,A_n}: $Sprt_x^{\{\mu S(A_1),\mu S(A_2),\dots,\mu S(A_n)\}}$, $Sprt_x^{\{\mu S(A_1),\mu S(A_2),\dots,\mu S(A_n)\}}$- Sprt- μS for it. It is possible to consider the self S_3A with m elements from A, at m<n, which is formed by the form (1), that is, only m elements from A are located in the structure $Sprt_x^A$. The same for self $S_3\{\mu S(A_1), \mu S(A_2), \dots, \mu S(A_n)$).

Dynamical containments of oneself of the third type can be formed for any other structure, not necessarily Sprt, only through the obligatory reduction in the number of continual elements in the structure. In particular, using the form from the forms (1.1) – (4) [1]. Structures more complex than S_3μS(t) can be introduced.

Consider the Following Characteristics

SM(X)= $\sum_{i=1}^{n} x_i \, \mu s_i$, μs_i = μS(X=x_i), i=1,2, …, n, x_i – a state of X at time t_i; properties:

5) SM(C) = C, C – const

6) SM(CX) = CSM(X)

7) SM(X_1+ X_2) = SM(X_1) + SM(X_2)

8) SM(X_1* X_2) = SM(X_1) * SM(X_2)

SD(X) = SM($(X- SM(X))^2$), SD(X) = SM(X^2)- $(SM(X))^2$

Properties

4) SD(C) = 0

5) SD(CX) = CSD(X)

6) SD(X_1+ X_2) = SD(X_1) + SD(X_2)

Sσ(X) = $\sqrt{SD(X)}$

Sα_k(X) = SM(X^k)= $\sum_{i=1}^{n} x_i^k \, \mu s_i$

Sμ_k(X) = SM($(X- SM(X))^k$).

Function of self for estimating the unknown parameter α of the state distribution X: a) in a discrete case L(x_1,x_2, …, x_n, α) = μs((x_1, α) μs((x_2, α)… μs((x_n, α), where μs((x_k, α) = μS(X=x_k)

b) in an absolutely continuous case L(x_1,x_2, …, x_n, α) = f((x_1, α) f((x_2, α)… f((x_n, α), where f((x, α) – a density of the state distribution X.

Stropy of the self-levels distribution for x

$$SH(x) = \{ \begin{matrix} SM\left(log_2 \frac{1}{\mu S(x)}\right) = -\sum_x \mu S(x) log_2 \mu S(x), \\ SM(log_2 \frac{1}{\varphi\, \mu S(x)} = -\int_{-\infty}^{\infty} \varphi\, \mu S(x) log_2 \varphi\, \mu S(x) dx \end{matrix}$$

SH(x) is the measure of no self for value x.

Remark 18

Similarly, you can set measure of self-type for other partial self-type singularities, for example, partial identification - $\mu_{|||}$ of the identification.