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Dynamical Sets Theory: S^2t-Elements and Their Applications

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Abstract
The purpose of the article is to create new constructive mathematical objects for new technologies, in particular for a fundamentally new type of neural network with parallel computing, and not with the usual parallel computing through sequential computing.

Keywords: Dynamical Set, S^2t -Elements, Capacity.

1. Introduction

There is a need to develop an instrumental mathematical base for new technologies. The task of the work is to develop new approaches for this through the introduction of new concepts and methods.
We consider expression

${}_{D}^{C}S^2t_B^A$ (*)

where A is contained into B, D is expelled from C. If A, B, D, C are taken in the capacities of sets with the next operations: the addition of S^2t – elements:

${}_{D_1}^{C_1}S^2t_{B_1}^{A_1} + {}_{D_1}^{C_1}S^2t_{B_1}^{A_2} = {}_{D_1}^{C_1}S^2t_{B_1}^{A_1\cup A_2}$ $(*_1)$,

${}_{D_1}^{C_1}S^2t_{B_1}^{A_1} + {}_{D_1}^{C_1}S^2t_{B_2}^{A_1} = {}_{D_1}^{C_1}S^2t_{B_1\cup B_2}^{A_1}$ $(*_2)$,

${}_{D_1}^{C_1}S^2t_{B_1}^{A_1} + {}_{D_1}^{C_2}S^2t_{B_1}^{A_1} = {}_{D_1}^{C_1\cup C_2}S^2t_{B_1}^{A_1}$ $(*_3)$,

${}_{D_1}^{C_1}S^2t_{B_1}^{A_1} + {}_{D_2}^{C_1}S^2t_{B_1}^{A_1} = {}_{D_1\cup D_2}^{C_1}S^2t_{B_1}^{A_1}$ $(*_4)$,

multiplication of S^2t – elements:

${}_{D_1}^{C_1}S^2t_{B_1}^{A_1} * {}_{D_1}^{C_1}S^2t_{B_1}^{A_2} = {}_{D_1}^{C_1}S^2t_{B_1}^{A_1\cap A_2}$ $(*_5)$,

${}_{D_1}^{C_1}S^2t_{B_1}^{A_1} * {}_{D_1}^{C_1}S^2t_{B_2}^{A_1} = {}_{D_1}^{C_1}S^2t_{B_1\cap B_2}^{A_1}$ $(*_6)$,

${}_{D_1}^{C_1}S^2t_{B_1}^{A_1} * {}_{D_1}^{C_2}S^2t_{B_1}^{A_1} = {}_{D_1}^{C_1\cap C_2}S^2t_{B_1}^{A_1}$ $(*_7)$,

${}_{D_1}^{C_1}S^2t_{B_1}^{A_1} * {}_{D_2}^{C_1}S^2t_{B_1}^{A_1} = {}_{D_1\cap D_2}^{C_1}S^2t_{B_1}^{A_1}$ $(*_8)$,

then we shall call (*) the dynamical hierarchical set S^2t. Necessity of (*) arise for processes description in networks. Threshold element S^2t --${}_{\{qy\}}^{b}S^2t(t)_b^{\{ax\}}$, b- artificial neurons of type S^2t (designation - mnS^2t), $x=(x_1, x_{2,\dots,}x_n)$ – source signals values, $a=(a_1,a_2,\dots,a_n)$ – S^2t -synapses weights, and output signals values. May be considered more simple variant of dynamical hierarchical set

$S^2t_B^A$ (**)

where the set A is contained into the set B, or

${}_{A}^{B}S^2t$ (***)

A is expelled from B.

We consider the measure of external influence on b: μ**(${}_{D}^{b}S^2t(t)_{b}^{A}$)=$\frac{\mu(A)}{\mu(D)}$, where μ(A), μ(D) –usual measures of sets A, D. Our constructive approach to set theory differs from the construction of constructive sets by A .Mostowski [9]: we construct completely different types of constructive sets.

We construct new mathematical objects constructively without formalism. The formalism by its contradiction may destroy this theory in accordance with Gödel's theorem on the incompleteness of any formal theory

. But in next article we give back theory formalism properly: axioms and theorems proof. The activation of all networks enters it on s^2elf -level at the activation. We introduce the concepts Cha –the measure of capacity and Cca- the cardinality of its contents. Cca coincides with cardinal number if contents of capacity is set. We consider compression powers of dynamical set: q_1=$S^2t_B^A$ answers I compression power of dynamical set A, q_2=$S^2t_B^{q_1}$ –II compression power of dynamical set A,…, q_{n+1}=$S^2t_B^{q_n}$ –n+1 compression power of dynamical set A. . We introduce the designations: CoQ—the contents of the capacity Q, Q^- --empty capacity Q (without the contents). $S^2t_{activation}^A \equiv {}_{A}^{A}S^2t$, as a result, there is a displacement from A to a higher level s^2elf: s^2elf -A. Axiom R1.∀B($S^2t_{CoB}^{CoB}$=B). Axiom R2.∀B(∃B^{-1}).

2. S^2T - Elements

Definition 1. The set of elements $\{a\} = (a_1, a_2, \dots, a_n)$ at one point x of space X we shall call S^2t – element, and such a point in space is called capacity of the S^2t – element. We shall denote $S^2t_x^{\{a\}}$.

Definition 2. $S^2t_x^{\{a\}}$—dynamical set A at x.

Definition 3. An ordered set of elements at one point in space is called an ordered S^2t – element. It's possible to $S^2t_x^{\{a\}}$ correspond to the set of elements {a}, and to the ordered S^2t - element - a vector, a matrix, a tensor, a directed segment in the case when the totality of elements is understood as a set of elements in a segment.

It's allowed to add S^2t – elements:

$S^2t_x^{\{a\}} + S^2t_x^{\{b\}}$ =$S^2t_x^{\{a\}\cup\{b\}}$ ($*_9$)

$S^2t_{\{a\}}^x + S^2t_{\{b\}}^x$ =$S^2t_{\{a\}\cup\{b\}}^x$ ($*_{10}$)

It's allowed to multiply S^2t – elements:

$S^2t_x^{\{a\}} * S^2t_x^{\{b\}}$ =$S^2t_x^{\{a\}\cap\{b\}}$ ($*_{11}$)

$S^2t_{\{a\}}^x * S^2t_{\{b\}}^x$ =$S^2t_{\{a\}\cap\{b\}}^x$ ($*_{12}$)

where some or any elements may be by ordered elements.

The operator $S^2t_x^{\{a\}\cup\{b\}}$ is not equal $\{a\} \cup \{b\}$, faster it is dynamical—the compression $\{a\} \cup \{b\}$ into the point x. Similarly, for $S^2t_x^{\{a\}\cap\{b\}}$.

S^2t – elements can be elements of a group both by multiplication ($*_{11}$), ($*_{12}$) and by addition ($*_{10}$), ($*_9$) and also form algebraic ring, field by these operations. This is more suitable sets use for energy space, for any objects. The operator S^2t is adapted for usual energies, using their property is superimposed one on another.

3. Capacity in Its^{2}elf

Definition 4. The capacity in tse^{2}lf A of the first type is the capacity containing tse^{2}lf as an element. Denote $S^2{}_1fA$.

Definition 5. The capacity in its^{2}elf of the second type is the capacity that contains elements from which it can be generated. Let's denote $S^2{}_2fA$. An example of capacity in its^{2}elf of the first type is a set containing its^{2}elf. An example of capacity in its^{2}elf of the second type is a living organism, since it contains a program: DNA, RNA.

Definition 6. Partial capacity in its^{2}elf of the third type is called capacity in its^{2}elf, which contains its^{2}elf in part or contains elements from which it can be generated in part, or both. Let us denote $S^2{}_3f$.

All capacities in s^{2}elf -space are capacities in its^{2}elf by definition. The capacities in its^{2}elf may to appear as S^{2}t -capacities and usual capacities. In these cases, there is used usual measure and topology methods.

4. Connection of S^{2}t – Elements with Capacities in Its^{2}elf

For example, $S^2t_{g\{R\}}^{\{R\}}$ is the capacity in its^{2}e^{2}lf of the second type if $g\{R\}$ is a program capable of generating $\{R\}$.

Consider a third type of capacity in its^{2}elf. For example, based on $S^2t_{\mathrm{x}}^{\{\mathrm{a}\}}$, where $\{\mathrm{a}\} = (\mathrm{a}_1, \mathrm{a}_2, \ldots, \mathrm{a}_n)$, i.e. n - elements at one point, it's possible to consider the capacity in its^{2}e^{2}lf S_3f with m elements and from {a}, at m<n, which is formed by the form:

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

that is, only m elements are located in the structure$S^2t_{\mathrm{x}}^{\{\mathrm{a}\}}$.

Capacities in its^{2}elf of the third type can be formed for any other structure, not necessarily S^{2}t, only through the obligatory reduction in the number of elements in the structure. In particular, using the form

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

Structures more complex than S_3f can be introduced. The connection between the elements of s^{2}elf -containment in its^{2}elf is a property of s^{2}elf-containment in its^{2}e^{2}lf and therefore does not disappear when their location in it changes. The energy of s^{2}elf -containment in its^{2}elf is closed on its^{2}elf.

5. Mathematics Its^{2}elf

Consider first the arithmetic S^{2}t:

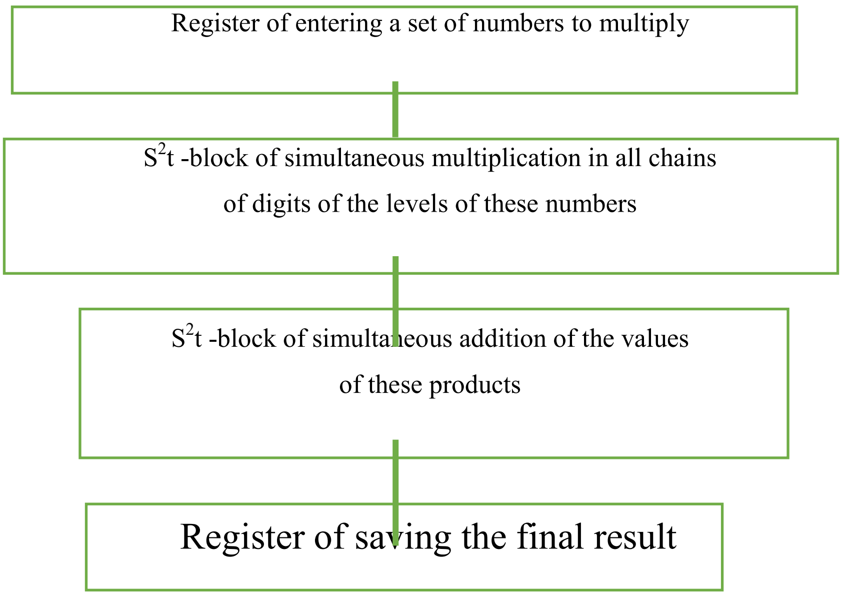
1. Simultaneous addition of a set of elements $\{\mathrm{a}\} = (\mathrm{a}_1, \mathrm{a}_2, \ldots, \mathrm{a}_n)$ are realized by $S^2t_{\mathrm{x}}^{\{\mathrm{a}+\}}$.

2. By analogy, for simultaneous multiplication: $S^2t_{\mathrm{x}}^{\{\mathrm{a}*\}}$: enter the notation of the set B with elements $b_{i_1 i_2 \ldots i_n} = (S^2t_x^{\{a_{1_{i_1}}*, a_{2_{i_2}}*, \ldots, a_{n_{i_n}}\}})_R$ for any $\{i_1, i_2, \ldots, i_n\}$ without repetitions, $\mathrm{x} = S^2t_a{}^{\{K\}}$,K-set of any $\{k_1 *, k_2 *, \ldots, k_n *\}$ without repetitions of their, k_i-any digit, i=1,2,…,n, R= $S^2t_a{}^{\{i_1+, i_2+, \ldots, i_n\}}$, R is the index of the lower discharge (we choose an index on the scale of discharges):

index	discharge
n	n
…	…
1	1
,	0
-1	1st digit to the right of the point

-2	2nd digit to the right of the point
...	...

Then $S^2 t_{\mathrm{x}}^{\{B+\}}$ gives the final result of simultaneous multiplication. Any system of calculus can be chosen, in particular binary. The simplest functional scheme of the assumed arithmetic-logical device for S^2t -multiplication:



3. Similarly for simultaneous execution of various operations: $S^2 t_{\mathrm{x}}^{\{\mathrm{aq}\}}$, where $\{q\} = (q_1, \mathrm{q}_2, .., \mathrm{q}_{\mathrm{n}})$. q_{i} -an operation, i = 1,…,n.
4. Similarly, for the simultaneous execution of various operators: $S^2 t_{\mathrm{x}}^{\{\mathrm{Fa}\}}$, where $\{F\} = (F_1, F_2, \ldots, F_n)$. F_{i} is an operator, i = 1,…,n.
5. The arithmetic its^{2}elf for capacities in its^{2}elf will be similar: addition - $S^2{}_1 f^{\{a+\}}$, (or $S^2{}_3 f_x^{\{a+\}}$ for the third type), multiplication $S^2{}_1 f^{\{a*\}}$, $(S^2{}_3 f_x^{\{a*\}})$.
6. Similarly with different operations: $S^2{}_1 f^{\{aq\}}$, $(S^2{}_3 f_x^{\{aq\}})$. and with different operators: $S^2{}_1 f^{\{Fa\}}$, $(S^2{}_3 f_x^{\{Fa\}})$.
7. $S^2 t_B^A -$ is the result of the holding operator action, the dynamical hierarchical set of null type $S^2 t_B^A -$ a kind of product of the sets A, B. For sets A, B we have

$$S^2 t_B^A = \left\{ \frac{D}{S^2 t_{B-A\cap B}^{A-A\cap B} + S^2 t_{A\cap B}^{A-A\cap B} + S^2 t_{B-A\cap B}^{A\cap B}} \right\} \qquad (*_8)$$

where D is s^{2}elf -set for $A \cap B$. The measure:

$$\mu(S^2 t_B^A) = \left(\frac{\mu^s(A \cap B)}{\mu(A) + \mu(B) - \mu(A \cap B)} \right) \qquad (*_9)$$

There is the same for structures if it`s considered as sets. Our approach to the theory of hierarchical sets differs from the construction of hierarchical sets by Y.L.Ershov [10]-[12]: we construct completely different types of hierarchical sets.

8. S^2t-derivative of f(x_1,x_2,…,x_n) is $S^2t_{f(x_1,x_2,...,x_n)}^{\left\{\frac{\partial}{\partial x_{1_i}},\frac{\partial}{\partial x_{2_i}},\dots,\frac{\partial}{\partial x_{k_i}}\right\}}$, where x=(x_{1_i}, x_{2_i},… x_{k_i})- any set from (x_1,x_2,…,x_n). Let's designate S^2t- $\frac{\partial^k f(x)}{\partial x_{1_i}\partial x_{2_i}\dots\partial x_{k_i}}$. S^2t-integral of f(x_1,x_2,…,x_n) is $S^2t_{f(x_1,x_2,...,x_n)}^{\{\int()dx_{1_i},\int()dx_{2_i},\dots,\int()dx_{k_i}\}}$, where ($x_{1_i}$, x_{2_i},… x_{k_i})- any set from (x_1,x_2,…,x_n). Let's designate S^2t -∫…∫ $f(x)dx_{1_i}dx_{2_i}\dots dx_{k_i}$-k-multiple integral. S^2t-lim of f(x_1,x_2,…,x_n) is $S^2t_{f(x_1,x_2,...,x_n)}^{\left\{\lim_{x_{1_i}\to a_{1_i}},\lim_{x_{2_i}\to a_{2_i}},\dots,\lim_{x_{k_i}\to a_{k_i}}\right\}}$. Let's designate S^2t-$\lim_{\substack{x_{1_i}\to a_{1_i}\\ \vdots\\ x_{k_i}\to a_{k_i}}} f(x_1,,x_2,\dots,x_n)$. S^2elf-$\lim_{x\to a}$ $= S^2t_{\lim_{x\to a}}^{\lim_{x\to a}}$.
9. In the case a s^2elf - derivate it's obtained inclusions of multiple derivates. There are the same for s^2elf - integrals: there are obtained inclusions of multiple integrals.
10. Let's denote s^2elf -(s^2elf -Q) through s^2elf ^{2}-Q , fS(n,Q)= s^2elf -(s^2elf -(…(s^2elf -Q))) = s^2elf ^{n}-Q for n-multiple s^2elf.

6. Operator Its²elf

Definition 7. An operator that transforms $S^2t_x^{\{a\}}$ into any $S^2{}_if_x^{\{b\}}, i = 2,3$; where$\{b\} \subset \{a\}$; is the operator its^{2}e^{2}lf.

Example. The operator contains the set in tse^{2}lf.

6.1 Lim- its²elf

1. Lim S^2t

For example, the double limit$\lim_{\substack{x\to a1\\ y\to a2}} G(x,y)$ corresponds to $S^2t_{(a_1a_2)}^{\{G(x,y)\}}$ Similarly for its^{2}e^{2}lf limit with n variables.

In the case of lim- its^{2}elf, for example, for m variables, it's sufficient to use the form (1) of lim S^2t, for n variables (n>m). Similarly, for integrals of variables m (for example, a double integral over a rectangular region- through a double lim).

The sequence of actions you can "collapse" into an ordered S^2t element, and then translate it, for example, to $S^2{}_3f-$ capacity in its^{2}elf. As an example, you can take the receipt $\frac{\partial^2 u}{\partial x^2}$. Here is the sequence of steps 1)$\frac{\partial u}{\partial x}$→ 2) $\frac{\partial}{\partial x}(\frac{\partial u}{\partial x})$. "collapses" into ordered $S^2t_x^{\{\frac{\partial u}{\partial x},\frac{\partial}{\partial x}(\frac{\partial u}{\partial x})\}}$, ones that can be translated into the corresponding $S^2{}_1f$. The differential operator $S^2t_x^{\{\frac{\partial}{\partial x},\frac{\partial}{\partial x}(\frac{\partial}{\partial x})\}}$ - its^{2}elf is also interesting.

Remark1. S^2t-displacement of A from B will be denoted through ${}_A^BS^2t$. Then the notation ${}_D^CS^2t_B^A$ is S^2t-containment of A in B and S^2t -displacement of D from C simultaneously. Let's denote ${}_A^BS^2t_B^A$ through $TS^2{}_B^A$, ${}_A^AS^2t_A^A - through\ TS^2{}_A^A$.

We can consider the concept of S^2t - element as $S^2t_B^A$, where A fits in capacity B. Then $S^2t_B^B$ it will mean $S^2{}_1f$ B. Let's denote $S^2t_B^B$ through L(B). The rule of 2d: L(L(B))→2L(B).

6.2. About S²t and S₃²f Programming

The ideology of S^2t and S_3^2f can be used for programming. Here are some of the S^2t programming operators.

1. Simultaneous assignment of the expressions $\{p\} = (p_1,p_2,\dots,p_n)$ to the variables $\{a\} = (a_1,a_2,\dots,a_n)$. It's implemented through $S^2t_x^{\{\{a\}:\{p\}\}}$.
2. Simultaneous check the set of conditions $\{f\} = (f_1,f_2,\dots,f_n)$ for a set of expressions$\{B\} = (B_1,B_2,\dots,B_n)$. It's implemented through $S^2t_x^{IF\{\{B\}\{f\}\}\ then\ Q}$ where Q can be any.
3. Similarly for loop operators and others.

S_3^2f – software operators will differ only in those aggregates $\{a\}, \{p\}, \{B\}, \{f\}$ will be formed from corresponding S^2t program operators in form (1) for more complex operators in form (2).
Quite interesting is the OS (operating system), the principles and modes of operation of the computer for this programming. But this is already the material of the next articles.

Using elements of the mathematics of S^2t [1], we introduce the concept of S^2t – the change in physical quantity B: $S^2t_x^{\{\Delta_1 B,\dots,\Delta_n B\}}$. Then the mean S^2t - velocity will be v_{cps^2t} (t, Δt) =, $S^2t_x^{\left\{\frac{\Delta_1 B}{\Delta t},\dots\frac{\Delta_n B}{\Delta t}\right\}}$and S^2t- velocity at time t:$v_{s^2t} = \lim_{\Delta t \to 0} v_{cps^2t}(t, \Delta t)$. S^2t – acceleration $a_{s^2t} = \frac{dv_{s^2t}}{dt}$.

In normal use, simply S^2t_x reduce to result a sum at point x of space, and when using S^2t_x with "target weights", we get, depending on the "target weights", one or another modification, namely, for example, the velocity $v_{s^2t}^f$(with a "target weight" f) in the case when two velocities v_1, v_2 are involved in the set $\{v_1 f, v_2\}$ for $v_{s^2t}^f = S^2t_x^{\{v_1 f, v_2\}}$, f – instantaneous replacement we get an instantaneous substitution $v_1 by\ v_2$ at point x of space at time t_0.

Consider, in particular, some examples: 1) $S^2t_{\{x_1,x_2\}}^e$ describes the presence of the same electron e at two different points x_1, x_2. 2) The nuclei of atoms can be considered as S^2t elements.

Similarly, the concepts of S^2t - force, S^2t - energy are introduced. For example, $E_{st}^f = S^2t_x^{\{E_1 f, E_2\}}$ it would mean the instantaneous replacement of energy E_1 by E_2 at time t_0. Two aspects of S^2t – energy should be distinguished: 1) carrying out the desired "target weight", 2) the fixing result of it. Do not confuse energy - S^2t (this is the node of energies) with S^2t – energy that generates the node of energies, usually with the "target weights". In the case of ordinary energies, the energy node is carried out automatically.

Remark2. In fact, S^2t – elements are all ordinary, but with "target weights" they become peculiar. Here you need the necessary kind of energy to perform them. As a rule, this energy lies in the region tse^2lf. This is natural, since it's much easier to control the elements of the k level by the elements of the more highly structured k +1 level. Consider the concepts of capacity in its^2elf of physical objects. Similar to the concepts of publication: the capacity in tse^2lf of the first type contains its^2elf, the second type contains a program (like DNA) capable of generating it, the third type - partially containing its^2e^2lf or a program capable of generating it, or both. The question arises about the s^2elf -energy of the object. In particular, according to the results of the publication [2]: «$S^2t_B^B$ will mean $S1_1^2$f B.» In particular, it allows you to determine the s^2elf -energy of DNA through $S^2t_{DNA}^{DNA}$, $S^2t_Q^Q$ - s^2elf -energy Q. The law of s^2elf -energy conservation acts on the level of s^2elf -energy already. Also, in addition to capacities in its^2elf, you can consider the types of containment in $ones^2$elf: the first type is containment in its^2elf, the second type is the containment of $ones^2$elf potentially, for example, in the form of programming $ones^2$elf, the third type is partial containment in $ones^2$elf. For example: s^2elf -operator, s^2elf -action, whirlwind. It's as a result of containment in $ones^2$elf that capacity in tse^2lf can be formed.

Let's clarify the concept of the term capacity in its^2elf: this is the capacity that contains its^2elf potentially. Consider s^2elf -Q, where Q may be any, including Q= s^2elf, in particular it may be any action. Therefore s^2elf -Q is s^2elf -made Q, it does its^2elf. There is a partial s^2elf -Q for any Q with partial made its^2elf. Consider some examples for capacity in its^2e^2lf: ordinary lightning, electric arc discharge, ball lightning.

A s^2elf -search of the solution of the equations $f_i(x)=0$, where $i=1,2,\ldots,n$, $x=(x_1,x_2,\ldots,x_n)$, will be realized in $S^2t_{\alpha}^{\{f_1(x)=0?x,f_2(x)=0?x,\ldots,f_n(x)=0?x\}}$ or $S^2t_{?x}^{\{f_1(x)=0,f_2(x)=0,\ldots,f_n(x)=0\}}$. x obtains more power of the liberty and in this is direct decision (i.e. s^2elf -capacity in tse^{2}lf as an element for x). S^2elf-equation for x has its decision for x in direct kind.

The same for $S^2t_{?x}^{\{tasks(x)\}}$. S^2elf -task for x has its decision for x in direct kind. S^2elf -question has its answer for x in direct kind. x acquires more degree of liberty and in this is direct decision. $S^2t_{(o,x)}^{\{t\}}$, where $\{t\}$- time points set, (o,x)- object o in point x from space X, give to enter in necessary time moments. The same for $S^2t_{o}^{\{t\}}$. $S^2t_{\alpha}^{\{God-father,God-son,Holy\ Spirit\}}$is Three concept representation, where α- point in connectedness space. S^2t is also great for working with structures, for example: 1) $S^2t_B^{strA}$--the structure A containment to B, where by B you can understand any capacity, other structure, etc, 2) $S^2t_R^{strQ}$--containment structure from Q into R. Similarly for displacement: 1) ${}^{strA}_{B}S^2t$--displacement of structure A from B, 2) ${}^{strQ}_{B}S^2t$--displacement of the structure from Q to B. You can enter special operator C^2t to work with structures: $C^2t_B^{strA}$ structures B with the structure of A, $C^2t_R^{strQ}$ structures R with the structure from Q, ${}^{strA}_{B}C^2t$ unstructures B from the structure A, ${}^{strQ}_{B}C^2t$ unstructures B from the structure which structures Q.

Definition 8. A structure with a second degree of freedom will be called complete, i.e. "capable" of reversing tse^{2}lf with respect to any of its elements clearly, but not necessarily in known operators, it can form (create) new special operators (in particular, special functions). In particular, $C^2t_{strA}^{strA}$ is such structure. Similarly, for working with models, each of which is structured by its own structure, for example, use S^2t -groups, S^2t -rings, S^2t -fields, S^2t -spaces, s^2elf -groups, s^2elf -rings, s^2elf -fields, s^2elf -spaces. Like any task, this is also a structure of the appropriate capacity. S^2elf -H (s^2elf - hydrogen) , like other s^2elf -particles, does not exist in the ordinary, but in fact all s^2elf -molecules, s^2elf -atoms, s^2elf - particles are elements of the energy space.

Remark3. The concept of elements of physics S^2t is introduced for energy space. The corresponding concept of elements of chemistry S^2t is introduced accordingly. Examples: 1) $S^2tE_{\mathrm{D}}^{\{a_1 \mathrm{q}, a_2\}}$ – the energy of instantaneous substitution and a_1 by a_2, where a_1, and a_2 are chemical elements, q is instant replacement. Similarly, one can consider for the node of chemical reactions $S^2t_{reaction}^{\{chemical\ elements\ with\ "target\ weights"\}}$. The periodic table tse^{2}lf can also be thought of as the S^2t – element: $S^2t_{Mendeleev\ table}^{\{list\ of\ chemical\ elements\}}$ The ideology of S^2t elements allows us to go to the border of the world familiar to us, which allows us to act more effectively.

7. Dynamical S^2t – Elements

We considered stationary S^2t – elements earlier [1]. Here we consider dynamical S^2t – elements.

Definition 9. The process of the containment of the set of elements $\{a(t)\} = (a_1(t), a_2(t), \ldots, a_n(t))$ in one point x of the space X at time t we shall call dynamical S^2t – element. We shall denote $S^2t(t)_x^{\{a(t)\}}$.

Definition 10. The process of the containment of ordered set of elements in one point in space is called dynamical ordered S^2t – element.

It is allowed to add dynamical S^2t – elements:

$S^2t(t)_x^{\{a(t)\}} + S^2t(t)_x^{\{b(t)\}} = S^2t(t)_x^{\{a(t)\}\cup\{b(t)\}}$ $(*_{13})$,

$S^2t(t)_{\{a(t)\}}^x + S^2t(t)_{\{b(t)\}}^x = S^2t(t)_{\{a(t)\}\cup\{b(t)\}}^x$ $(*_{14})$,

where some or any elements may be by ordered elements.

It is allowed to multiply dynamical S^2t – elements:

$S^2t(t)_x^{\{a(t)\}} * S^2t(t)_x^{\{b(t)\}} = S^2t(t)_x^{\{a(t)\}\cap\{b(t)\}}$ ($*_{16}$),

$S^2t(t)_{\{a(t)\}}^x * S^2t(t)_{\{b(t)\}}^x = S^2t(t)_{\{a(t)\}\cap\{b(t)\}}^x$ ($*_{15}$),

where some or any elements may be by ordered elements.

Dynamical S^2t – elements can be elements of a group both by multiplication ($*_{15}$), ($*_{16}$) and by addition ($*_{13}$), ($*_{14}$) and form algebraic ring, field by these operations.

7.1 Dynamical Containment of ones²elf

Definition 11. Dynamical capacity Q(t) is called the process of a containment in Q(t).

Definition 12. Dynamical S^2t -capacity $S^2t(t)_{Q(t)}^{R(t)}$ is called the process of a containment R(t) in Q(t).

Definition 13. The dynamical containment of ones²elf A(t) of the first type is the process of putting A(t) into A(t). Denote $S^2{}_1f(t)A(t)$.

Definition 14. The dynamical containment of ones²elf C(t) of the second type is the process of a elements containment from which C(t) can be generated. Let's denote $S^2{}_2f(t)C(t)$.

Definition 15. Dynamical partial containment of ones²elf B(t) of the third type is the process of partial containment of B(t) into ones²elf or a elements containment from which C(t) can be generated in part, or both simultaneously. Let us denote $S^2{}_3f(t)B(t)$.

All dynamical capacities in dynamical s²elf -space are containments of ones²elf by definition. The dynamical containments of ones²elf may to appear as dynamical S^2t -capacities and usual dynamical capacities. In these cases, there is used usual measure and topology methods.

7.2 Connection Of Dynamical S²t – Elements With Dynamical Containment Of Ones²elf

Consider a third type of dynamical partial containment of ones²elf. For example, based on $S^2t(t)_{\mathrm{x}}^{\{\mathrm{a}(t)\}}$, where $\{\mathrm{a}(t)\} = (\mathrm{a}_1(t), \mathrm{a}_2(t), \dots, \mathrm{a}_n(t))$, i.e. n - elements in one point x, it is possible to consider the dynamical containment of ones²elf $S^2{}_3f(t)$with m elements from $\{\mathrm{a}(t)\}$, at m<n, which is process to be formed by the form (1), that is, only m elements from $\{\mathrm{a}(t)\}$ are located in the structure $S^2t(t)_{\mathrm{x}}^{\{\mathrm{a}(t)\}}$.

Dynamical containments of ones²elf of the third type can be formed for any other structure, not necessarily S^2t, only through the obligatory reduction in the number of elements in the structure. In particular, using the form (2).

Structures more complex than $S_3f(t)$ can be introduced.

7.3 Dynamical Mathematics its²elf

1. The process of simultaneous addition of a set of elements $\{\mathrm{a}(t)\} = (\mathrm{a}_1(t), \mathrm{a}_2(t), \dots, \mathrm{a}_n(t))$ are realized by $S^2t(t)_{\mathrm{x}}^{\{\mathrm{a}(t)+\}}$.
2. By analogy, for simultaneous multiplication: $S^2t(t)_{\mathrm{x}}^{\{\mathrm{a}(t)*\}}$.
3. Similarly for simultaneous execution of various operations:$S^2t(t)_{\mathrm{x}}^{\{\mathrm{a}(t)q(t)\}}$, where $\{q(t)\} = (q_1(t), \mathrm{q}_2(t), .., \mathrm{q_n}(t))$. $q_i(t)$-an operation, i = 1,…,n.
4. Similarly, for the simultaneous execution of various operators: $S^2t(t)_{\mathrm{x}}^{\{F(t)\mathrm{a}(t)\}}$where $\{F(t)\} = (F_1(t), F_2(t), \dots, F_n(t))$. $F_i(t)$ is an operator, i = 1,…,n.

5.The dynamical arithmetic tse²lf for containments of ones²elf will be similar: dynamical addition - $S^2{}_1f(t)^{\{a(t)+\}}$, (or $S^2{}_3f(t)_x^{\{a(t)+\}}$ for the third type), dynamical multiplication $S^2{}_1f(t)^{\{a(t)*\}}$, (or $S^2{}_3f(t)_x^{\{a(t)*\}}$).

6. Similarly with different operations: $S^2{}_1 f(t)^{\{a(t)q(t)\}}$, $(S^2{}_3 f(t)_x^{\{a(t)q(t)\}})$, and with different operators: $S^2{}_1 f(t)^{\{F(t)a(t)\}}$, $(S^2{}_3 f(t)_x^{\{F(t)a(t)\}})$.

7. $S^2 t(t)_{B(t)}^{A(t)} = \left\{ \begin{matrix} D(t) \\ S^2 t(t)_{B(t)-A(t)\cap B(t)}^{A(t)-A(t)\cap B(t)} + S^2 t_{A(t)\cap B(t)}^{A(t)-A(t)\cap B(t)} + S^2 t_{B(t)-A(t)\cap B(t)}^{A(t)\cap B(t)} \end{matrix} \right\}$, where D(t) is s^2elf-set for $A(t) \cap B(t)$. The measure:

   $\mu(St(t)_{B(t)}^{A(t)}) = (\frac{\mu^s(A(t) \cap B(t).)}{\mu(A(t)) + \mu(B(t)) - \mu(A(t) \cap B(t).)})$.

   There is the same for structures if it`s considered as sets.

8. Similarly for dynamical S^2t -derivatives, dynamical S^2t -integrals, dynamical S^2t -lim, dynamical s^2elf -derivatives, dynamical s^2elf -integrals

9. Let's denote dynamical s^2elf -(dynamical s^2elf -Q(t)) through dynamical s^2elf^2 -Q(t), fS^2(t)(n,Q(t))=dynamical s^2elf -(dynamical s^2elf -(…(dynamical s^2elf -Q(t)))) = dynamical s^2elf^n-Q(t) for n-multiple dynamical s^2elf.

Remark4. Dynamical S^2t -displacement of A(t) from B(t) will be denote through ${}_{A(t)}^{B(t)}S^2 t(t)$. Then the notation ${}_{D(t)}^{C(t)}S^2 t(t)_{B(t)}^{A(t)}$ is dynamical S^2t -containment of A(t) in B(t) and dynamical S^2t -displacement of D(t) from C(t) simultaneously. Let's denote ${}_{A(t)}^{B(t)}S^2 t(t)_{B(t)}^{A(t)}$ through $TS^2(t)_{B(t)}^{A(t)}$, ${}_{A(t)}^{A(t)}S^2 t(t)_{A(t)}^{A(t)} - through\ TS^2(t)_{A(t)}^{A(t)}$.

We can consider the concept of dynamical S^2t - element as $S^2 t(t)_{B(t)}^{A(t)}$, where A(t) fits in dynamical capacity B(t). Then$S^2 t(t)_{B(t)}^{B(t)}$ it will mean S_1f(t) B(t). Let's denote $S^2 t(t)_{B(t)}^{B(t)}$ through L(t)(B(t)). ${}_{A(t)}^{A(t)}S^2 t(t)$ denotes the dynamical expelling ones^{2}elf A(t) out of ones^{2}elf A(t), ${}_{A(t)}^{A(t)}S^2 t(t)_{A(t)}^{A(t)}$—simultaneous dynamical containment of A(t) ones^{2}elf in ones^{2}elf and dynamical expelling A(t) ones^{2}elf out of ones^{2}elf. ${}_A^A S^2 t$ will be called anti-capacity from ones^{2}elf. For example, "white hole" in physics is such simple anti-capacity. The concepts of "white hole" and "black hole" were formulated by the physicists proceeding from the physics subjects –usual energies level. The mathematics allows to find deeply and to formulate the concepts singular points in the Universe proceeding from levels of more thin energies. The experiments of Nobel laureates in 2022-year Ahlen Asle, John Clauser Anton, Zeilinger correspond to the concept of the Universe as its s^2elf -containment in tse^{2}lf. The connection between the elements of s^2elf -containment in its^{2}elf is a property of s^2elf -containment in its^{2}elf and therefore does not disappear when their location in it changes. The energy of s^2elf -containment in its^{2}elf is closed on its^{2}elf. Hypothesis: the containment of the galaxy in ones^{2}elf as spiral curl and the expelling her out of ones^{2}elf defines its existence. A s^2elf -capacity in its^{2}elf as an element A is the god of A, the s^2elf -capacity in its^{2}elf as an element the globe—the god of the globe, the s^2elf -capacity in its^{2}elf as an element man-- the god of the man, the s^2elf -capacity in its^{2}elf as an element of the universe-- the god of the universe, the containment of A into ones^{2}elf is spirit of A, the containment of the globe into ones^{2}elf is spirit of globe, the containment of the man into ones^{2}elf is spirit of the man (soul), the containment of the universe into ones^{2}elf is spirit of the universe. We may consider next axiom: any capacity is capacity of ones^{2}elf in its^{2}elf. This is for each energy capacity.

7.4 About Dynamical S^2t and $S_3{}^2$f(t) Programming

The ideology of dynamical S^2t and S_3^2f(t) can be used for programming:

1. The process of simultaneous assignment of the expressions $\{p\} = (p_1, p_2, \ldots, p_n)$ to the variables $\{a\} = (a_1, a_2, \ldots, a_n)$ is implemented through $S^2 t(t)_x^{\{\{a\}:\{p\}\}}$.
2. The process of simultaneous check the set of conditions $\{f(t)\} = \left(f(t)_1, f_{2,}(t) \ldots, f(t)_n\right)$ for a set of

expressions$\{B(t)\} = (B_1(t), B_2(t), \dots, B_n(t))$ is implemented through $S^2t(t)_x^{IF\{\{B(t)\}\{f(t)\}\}\ then\ Q(t)}$ where Q(t) can be any.

3.Similarly for loop operators and others.

$S^2{}_3f(t)$– software operators will differ only in these aggregates $\{a\}, \{p\}, \{B(t)\}, \{f(t)\}$ will be formed from corresponding processes S^2t (t) for above mentioned programming operators through form (1) or form (2) for more complex operators.

Remark5. Using dynamical S^2t -elements, we introduce the concepts of dynamical S^2t - force, dynamical S^2t – energy. For example, $E(t)^f_{s^2t} = S^2t(t)^{\{E_1(t)f, E_2(t)\}}_{x(t)}$ it would mean the process of instantaneous replacement f of energy $E_1(t)$ by $E_2(t)$ at time t. Similarly, using S_i^2f(t) we introduce the concepts of S_i^2f(t) -force, S_i^2f(t)-energy, i=1,2,3, etc.

Remark6. Namely the putting $ones^2elf$ into $ones^2elf$ may "gives birth" the capacities in tse^2lf –that's what it is s^2elf -organization.

Remark7. $S^2t(t)^{S^2t(t)^{B(t)}_{B(t)}}_{S^2t(t)^{B(t)}_{B(t)}}$ may to increase B(t) s^2elf -level.

Remark8. For example, operator its^2elf [1] is S_1^2f(t).

Remark9. May be considered the next derivatives: $\frac{dS^2t(t)^{A(t)}_{B(t)}}{dt}$, $\frac{d^{B(t)}_{A(t)}S^2t(t)}{dt}$, $\frac{d^{C(t)}_{D(t)}S^2t(t)^{A(t)}_{B(t)}}{dt}$, $\frac{dS_i^2f(t)}{dt}$, i=1,2,3.

Remark10. Namely a containment of $ones^2elf$ in $ones^2elf$ may be interpreted as dynamical capacities in its^2elf.

Remark11. By far not each capacity in tse^2lf will appear as S^2t - capacitiesor holding capacities.

8. S^2t–Elements for Continual Sets

Earlier we considered finite-dimensional discrete S^2t -elements and s^2elf -capacities in its^2elf as an element [1]. Here we consider some continual S^2t -elements and continual s^2elf -capacities in its^2elf as an element.

Definition 16. The set of continual elements $\{a\} = (a_1, a_2, \dots, a_n)$ at one point x of space X we shall call S^2t – element, and such a point in space is called capacity of the continual S^2t – element. We shall denote $S^2t_x^{\{a\}}$.

Definition 17. An ordered set of continual elements at one point in space is called an ordered continual S^2t – element.

It's allowed to add continual S^2t – elements:

$$S^2t_x^{\{a\}} + S^2t_x^{\{b\}} = S^2t_x^{\{a\}\cup\{b\}} \quad (*_{17})$$

$$S^2t^x_{\{a\}} + S^2t^x_{\{b\}} = S^2t^x_{\{a\}\cup\{b\}} \quad (*_{18})$$

It's allowed to multiply continual S^2t – elements:

$$S^2t_x^{\{a\}} * S^2t_x^{\{b\}} = S^2t_x^{\{a\}\cap\{b\}} \quad (*_{19})$$

$$S^2t^x_{\{a\}} * S^2t^x_{\{b\}} = S^2t^x_{\{a\}\cap\{b\}} \quad (*_{20})$$

where some or any elements may be by ordered elements.

The continual S^2t – elements can be elements of a group both by multiplication $(*_{19})$, $(*_{20})$ and by addition $(*_{17})$, $(*_{18})$ and also form algebraic ring, field by these operations.

Definition 18. The continual s^{2}elf -capacity in its^{2}elf as an element A of the first type is the capacity containing tse^{2}lf as an element. Denote $S^2{}_1 fA$.

Definition 19. The ordered continual s^{2}elf -capacity in its^{2}elf as an element A of the first type is the ordered capacity containing tse^{2}lf as an element. Denote $\overrightarrow{S^2{}_1 fA}$.

For example S_∞^+=_sin∞ has such type. It denotes continual ordered s^{2}elf -capacities in tse^{2}lf as an element of next type—the range of simultaneous "activation" of numbers from [-1,1] in mutual directions: $\uparrow \mathrm{I} \downarrow_{-1}^{1}$. Also we consider next elements: S_∞^-=sin(-∞)--$\downarrow \mathrm{I} \uparrow_{-1}^{1}$, T_∞^+=_tg∞--$\uparrow \mathrm{I} \downarrow_{-\infty}^{\infty}$, T_∞^-=tg(-∞)--$\downarrow \mathrm{I} \uparrow_{-\infty}^{\infty}$, don't confuse with values of these functions. Such elements can be summarized. For example: aS_∞^++bS_∞^-=(a-b)$S_\infty^+ = (b-a)\, S_\infty^-$.

Definition 20. The continual s^{2}elf -capacity in its^{2}elf as an element of the second type is the capacity that contains continual elements from which it can be generated. Let's denote $S^2{}_2 fA$. An example of continual s^{2}elf -capacity in its^{2}elf as an element of the second type is a living organism, since it contains a program: DNA, RNA.

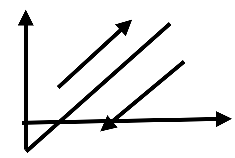
Definition 21. Partial continual s^{2}elf -capacity in its^{2}elf as an element of the third type is called continual s^{2}elf -capacity in its^{2}elf as an element, which contains its^{2}elf in part or contains elements from which it can be generated in part, or both simultaneously. Let us denote $S^2{}_3 fA$.

Also, may be considered operators for them. For example: fS_∞^+(t-t$_0$)=$\begin{cases} S_\infty^+, t = t_0 \\ 0, t \neq t_0 \end{cases}$.

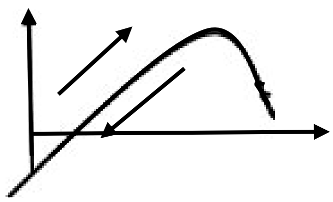
All continual capacities in s^{2}elf -space are continual s^{2}elf -capacities in its^{2}elf as an element by definition. The continual s^{2}elf -capacities in its^{2}elf as an element may to appear as continual S^{2}t -capacities and usual continual capacities. In these cases, there is used usual measure and topology methods.

s^{2}elf -vector $\underset{\leftarrow}{\overset{\rightarrow}{[(0,0),(a,b)]}}$ b

s^{2}elf -discrete vector: $\uparrow \begin{pmatrix} q \\ d \\ c \end{pmatrix} \downarrow$ a



s^{2}elf -ordered curve



8.1 Connection of Continual S^{2}t – Elements with S^{2}elf -Capacities in Its^{2}elf as an Element

Consider a third type of continual s^{2}elf -capacity in its^{2}elf as an element. For example, based on $S^2 t_x^{\{a\}}$, where $\{a\} = (a_1, a_2, \ldots, a_n)$, i.e. a_i - continual elements at one point, i=1,2,…,n. It's possible to consider the continual s^{2}elf -capacity in its^{2}elf as an element $S^2{}_3 f$ with m continual elements from {a}, at m<n, which is formed by the form (1), that is, only m continual elements are located in the structure $S^2 t_x^{\{a\}}$. Continual s^{2}elf -capacities in its^{2}elf as an element of the third type can be formed for any other structure, not necessarily S^{2}t, only through the obligatory reduction in the number of continual elements in the structure. In particular, using the form (2)

Structures more complex than $S^2{}_3 f$ can be introduced.

8.2 Mathematics Its²elf for Continual Elements

1.Simultaneous addition of a set of continual elements $\{\mathrm{a}\} = (\mathrm{a}_1, \mathrm{a}_2, \ldots, \mathrm{a}_n)$ are realized by $S^2 t_{\mathrm{x}}^{\{\mathrm{a}\cup\}}$.

2. By analogy, for simultaneous multiplication: $S^2 t_{\mathrm{x}}^{\{a\cap\}}$.

3. Similarly for simultaneous execution of various operations: $S^2 t_{\mathrm{x}}^{\{\mathrm{a}q\}}$where $\{q\} = (q_1, \mathrm{q}_2, \ldots, \mathrm{q_n})$. $\mathrm{q_i}$ -an operation, i = 1,…,n.

4. Similarly, for the simultaneous execution of various operators: $S^2 t_{\mathrm{x}}^{\{F\mathrm{a}\}}$, where $\{F\} = (F_1, F_2, \ldots, F_n)$. $\mathrm{F_i}$ is an operator, i = 1,…,n.

4. 5. For continual s²elf -capacities in its²elf as an element will be similar: addition - ${S^2}_1 f^{\{a+\}}$, (or ${S^2}_3 f_x^{\{a+\}}$ for the third type), multiplication ${S^2}_1 f^{\{a*\}}$, $({S^2}_3 f_x^{\{a*\}})$.

11. Similarly with different operations: ${S^2}_1 f^{\{aq\}}$, $({S^2}_3 f_x^{\{aq\}})$. and with different operators: ${S^2}_1 f^{\{Fa\}}$, $({S^2}_3 f_x^{\{Fa\}})$.

12. $S^2 t_B^A -$ is the result of the holding operator action, the continual dynamical hierarchical set of null type $S^2 t_B^A -$ a kind of product of the sets A. For sets A, B we have

$$S^2 t_B^A = \left\{ \frac{D}{S^2 t_{B-A\cap B}^{A-A\cap B} + S^2 t_{A\cap B}^{A-A\cap B} + S^2 t_{B-A\cap B}^{A\cap B}} \right\} \qquad (*_8)$$

where D is s²elf -set for $A \cap B$. The measure:

$$\mu(\, St_B^A) = \left(\frac{\mu^s(\, A \cap B)}{\mu(A) + \mu(B) - \mu(A \cap B)} \right) \qquad (*_9)$$

There is the same for structures if it`s considered as sets.

Remark12. S²t -displacement of A from B will be denote through ${}_A^B S^2 t$. Then the notation ${}_D^C S^2 t_B^A$ is S²t -containment of A in B and S²t -displacement of D from C simultaneously. Let's denote ${}_A^B S^2 t_B^A$ through ${TS^2}_B^A$, ${}_A^A S^2 t_A^A - through\ {TS^2}_A^A$. Three in one is $S^2 t_\propto^{\{\infty\ in\ itself, no\ element, 0\ out\ oneself\}}$, α- point space connectedness.

We can consider the concept of continual S²t - element as $S^2 t_B^A$, where A fits in continual capacity B. Then $S^2 t_B^B$, it will mean${S^2}_1 f$ B.

Namely such elements are used for S²t -coding, S²t translation, coding s²elf, translation s²elf for networks [1], what for electric current of ultrahigh frequency is suitable. May be considered more complex elements as continual sets of numbers with mutual directions "activation" them. For example, ranges of functions values, in particular, functions, which represent lightning form. Certainly, here may be applied differential geometry. Also, may be considered n-dimensional elements. The space of such elements is Banach space if we introduce usual norm for functions or vectors excluding their exceptions. We call this space-- Selb-space. Then we introduce scalar product for functions or vectors excluding their exceptions and get Hilbert space. We call this space—S²elh-space. In particular, may try to describe some processes with these elements by differential equations and to use methods from [2]. Also, may try to apply an optimization and others researches to some processes with these elements by methods from [7]. Let's introduce operators to transform capacity to s²elf -capacity in its²elf as an element:

Q_1S^2(A) transforms A to f_1S^2A, Q_0S^2(A) transforms A to ${}_A^A S^2 t$, S^2O(A) transforms A to↑ A ↓ , ↑ A ↓ -- ordered s²elf -capacity in its²elf as an element of simultaneous "activation" of all elements of A in mutual directions. For example, $S^2O([-1,1]) = S_\infty^+$, $S^2O([1,-1]) = S_\infty^-$, S^2O ([-∞,∞])= T_∞^+, S^2O ([∞,-∞])= T_∞^-. Operator $(Q_1S^2(A))^2$ increases s²elf level for A: it transforms S²elf-A= f_1S^2A to s²elf²-A, $(Q_1S^2(A))^n \rightarrow$ s²elfⁿ-A, $e^{Q_1 S^2(\mathrm{A})} \rightarrow e^{\mathrm{s^2elf}} - A$.

8.3 Dynamical Continual S^2t – Elements

Also, may be considered dynamical continual S^2t -elements, where may be transfer these definitions, operations using [3] on them by analogy:

Definition 22. The process of the containment of the set of continual elements $\{a(t)\} = (a_1(t), a_2(t), \ldots, a_n(t))$ in one point x of the space X at time t we shall call dynamical continual S^2t – element. We shall denote $S^2t(t)_x^{\{a(t)\}}$.

Definition 23. The process of the containment of ordered set of continual elements in one point in space is called dynamical continual ordered S^2t – element.

It is allowed to add dynamical continual S^2t – elements:

$S^2t(t)_x^{\{a(t)\}} + S^2t(t)_x^{\{b(t)\}} = S^2t(t)_x^{\{a(t)\}\cup\{b(t)\}}$ $(*_{13})$,

$S^2t(t)^x_{\{a(t)\}} + S^2t(t)^x_{\{b(t)\}} = S^2t(t)^x_{\{a(t)\}\cup\{b(t)\}}$ $(*_{14})$,

where some or any elements may be by ordered elements.

It is allowed to multiply dynamical continual S^2t – elements:

$S^2t(t)_x^{\{a(t)\}} * S^2t(t)_x^{\{b(t)\}} = S^2t(t)_x^{\{a(t)\}\cap\{b(t)\}}$ $(*_{16})$,

$S^2t(t)^x_{\{a(t)\}} * S^2t(t)^x_{\{b(t)\}} = S^2t(t)^x_{\{a(t)\}\cap\{b(t)\}}$ $(*_{15})$,

where some or any elements may be by ordered elements.

Dynamical continual S^2t – elements can be elements of a group both by multiplication $(*_{15})$, $(*_{16})$ and by addition $(*_{13})$, $(*_{14})$ and form algebraic ring, field by these operations.

8.4 Dynamical Continual Containment of ones²elf

Definition 24. Dynamical continual capacity Q(t) is called the process of a containment in Q(t).

Definition 25. Dynamical continual S^2t -capacity $S^2t(t)^{R(t)}_{Q(t)}$ is called the process of a containment R(t) in Q(t).

Definition 26. The dynamical containment of ones²elf continual A(t) of the first type is the process of putting A(t) into A(t). Denote $S^2{}_1f(t)A(t)$.

Definition 27. The dynamical containment of ones²elf continual C(t) of the second type is the process of a continual elements containment from which C(t) can be generated. Let's denote $S^2{}_2f(t)C(t)$.

Definition 28. Dynamical partial containment of ones²elf B(t) of the third type is the process of partial containment of continual B(t) into ones²elf or a continual elements containment from which C(t) can be generated in part, or both simultaneously. Let us denote $S^2{}_3f(t)B(t)$.

8.5 Connection of Dynamical Continual S^2t – Elements with Dynamical Containment of ones²elf

Consider a third type of dynamical continual partial containment of ones²elf. For example, based on $S^2t(t)_x^{\{a(t)\}}$, where $\{a(t)\} = (a_1(t), a_2(t), \ldots, a_n(t))$, i.e. n - continual elements in one point x, it is possible to consider the dynamical containment of ones²elf $S^2{}_3f(t)$ with m continual elements from $\{a(t)\}$, at m<n, which is process to be formed by the form (1), that is, only m continual elements from $\{a(t)\}$ are located in the structure $S^2t(t)_x^{\{a(t)\}}$. Dynamical continual containments of ones²elf of the third type can be formed for any other structure, not necessarily S^2t, only through the obligatory reduction in the number of continual elements in the structure. In particular, using the form (2). Structures more complex than $S^2{}_3f(t)$ can be introduced.

8.6 Dynamical Continual Mathematics its^{2}elf

1. The process of simultaneous addition of a set of continual elements $\{\mathrm{a}(t)\} = (\mathrm{a}_1(t), \mathrm{a}_2(t), \dots, \mathrm{a}_n(t))$ are realized by $S^2t(t)_{\mathrm{x}}^{\{\mathrm{a}(t)\cup\}}$.
2. By analogy, for simultaneous multiplication: $S^2t(t)_{\mathrm{x}}^{\{\mathrm{a}(t)\cap\}}$.
3. Similarly for simultaneous execution of various operations: $S^2t(t)_{\mathrm{x}}^{\{\mathrm{a}(t)q(t)\}}$, where $\{q(t)\} = (q_1(t), \mathrm{q}_2(t), .., \mathrm{q_n}(\mathrm{t}))$. $q_i(t)$-an operation, i = 1,…,n.
4. Similarly, for the simultaneous execution of various operators: $S^2t(t)_{\mathrm{x}}^{\{F(t)\mathrm{a}(t)\}}$ where $\{F(t)\} = (F_1(t), F_2(t), \dots, F_n(t))$. $F_i(t)$ is an operator, i = 1,…,n.
5. The dynamical arithmetic tse^{2}lf for containments of ones^{2}elf will be similar: dynamical addition - $S^2{}_1f(t)^{\{a(t)\cup\}}$, (or $S^2{}_3f(t)_x^{\{a(t)\cup\}}$ for the third type), dynamical multiplication $S^2{}_1f(t)^{\{a(t)\cap\}}$, (or $S^2{}_3f(t)_x^{\{a(t)\cap\}}$).
6. Similarly with different operations: $S^2{}_1f(t)^{\{\mathrm{a}(t)q(t)\}}$, $(S^2{}_3f(t)_x^{\{a(t)q(t)\}})$, and with different operators: $S^2{}_1f(t)^{\{F(t)\mathrm{a}(t)\}}$, $(S^2{}_3f(t)_x^{\{F(t)a(t)\}})$.
7. $S^2t(t)_{B(t)}^{A(t)} = \left\{ \begin{matrix} D(t) \\ S^2t(t)_{B(t)-A(t)\cap B(t)}^{A(t)-A(t)\cap B(t)} + S^2t_{A(t)\cap B(t)}^{A(t)-A(t)\cap B(t)} + S^2t_{B(t)-A(t)\cap B(t)}^{A(t)\cap B(t)} \end{matrix} \right\}$, where D(t) is s^{2}elf-set for $A(t) \cap B(t)$. The measure:

   $\mu(S^2t(t)_{B(t)}^{A(t)}) = (\begin{matrix} \mu^s(A(t) \cap B(t).) \\ \mu(A(t)) + \mu(B(t)) - \mu(A(t) \cap B(t).) \end{matrix})$.

   There is the same for structures if it`s considered as sets.
8. Similarly for dynamical S^{2}t -derivatives, dynamical S^{2}t -integrals, dynamical S^{2}t -lim, dynamical s^{2}elf -derivatives, dynamical s^{2}elf -integrals
9. Let's denote dynamical s^{2}elf -(dynamical s^{2}elf -Q(t)) through dynamical s^{2}elf^2-Q(t) , fS^2(t)(n,Q(t))= dynamical s^{2}elf -(dynamical s^{2}elf -(…(dynamical s^{2}elf -Q(t)))) = dynamical s^{2}elf^n-Q(t) for n-multiple dynamical s^{2}elf.

Remark13. Dynamical S^{2}t -displacement of A(t) from B(t) will be denote through ${}^{B(t)}_{A(t)}S^2t(t)$. Then the notation ${}^{C(t)}_{D(t)}S^2t(t)_{B(t)}^{A(t)}$ is dynamical S^{2}t -containment of A(t) in B(t) and dynamical S^{2}t -displacement of D(t) from C(t) simultaneously. Let's denote ${}^{B(t)}_{A(t)}S^2t(t)_{B(t)}^{A(t)}$ through $TS^2(t)_{B(t)}^{A(t)}$, ${}^{A(t)}_{A(t)}S^2t(t)_{A(t)}^{A(t)} - through\ TS^2(t)_{A(t)}^{A(t)}$.

We can consider the concept of dynamical S^{2}t - element as $S^2t(t)_{B(t)}^{A(t)}$, where A(t) fits in dynamical capacity B(t). Then $S^2t(t)_{B(t)}^{B(t)}$ it will mean $S^2{}_1f(t)^{B(t)}$. Let's denote S$^2t(t)_{B(t)}^{B(t)}$ through L(t)(B(t)). ${}^{A(t)}_{A(t)}S^2t(t)$ denotes the dynamical expelling ones^{2}elf A(t) out of ones^{2}elf A(t), ${}^{A(t)}_{A(t)}S^2t(t)_{A(t)}^{A(t)}$—simultaneous dynamical containment of ones^{2}elf A(t) in ones^{2}elf A(t) and dynamical expelling ones^{2}elf A(t) out of ones^{2}elf A(t). ${}^{A(t)}_{A(t)}S^2t(t)$will be called anti-capacity from ones^{2}elf. For example, "white hole" in physics is such simple anti-capacity. The concepts of "white hole" and "black hole" were formulated by the physicists proceeding from the physics subjects –usual energies level. The mathematics allows to find deeply and to formulate the concepts singular points in the Universe proceeding from levels of more thin energies.

Hypothesis: the containment of the galaxy in ones^{2}elf as spiral curl and the expelling her out of ones^{2}elf defines its existence. A s^{2}elf -capacity in its^{2}elf as an element A is the god of A, the s^{2}elf -capacity in tse^{2}lf as an element the glob- the god of the globe, the s^{2}elf -capacity in tse^{2}lf as an element man-- the god of the man, the s^{2}elf -capacity in its^{2}elf as an element of the universe- the god of the universe, the containment of A into ones^{2}elf is spirit of A, the containment of the globe into ones^{2}elf is is spirit of globe, the containment of the man into ones^{2}elf is spirit of the man (soul), the containment of the universe into ones^{2}elf is spirit of the universe. We may consider next axiom: any capacity is capacity of ones^{2}elf in its^{2}elf. This is for each energy capacity. The experiments of Nobel laureates in 2022-year Ahlen Asle, John Clauser, Anton Zeilinger correspond to the concept of the Universe as its s^{2}elf -containment in its^{2}elf. The connection between the elements of s^{2}elf -containment in its^{2}elf is a property of s^{2}elf -containment in its^{2}elf and therefore does not disappear when their location in it changes. The energy of s^{2}elf -containment in its^{2}elf is closed on its^{2}elf.

8.7 Connection of Dynamical Continual S^{2}t – Elements with Target Weights with Dynamical Continual Containment of ones^{2}elf with Target Weights

It is allowed to add dynamical continual S^{2}t – elements with target weights g(t):

$S^2t(t)_x^{\{a(t)\}\mathrm{g(t)}} + S^2t(t)_x^{\{b(t)\}\mathrm{g(t)}} = S^2t(t)_x^{\{a(t)\}\cup\{b(t)\}\mathrm{g(t)}}$ $(*_{21})$,

$S^2t(t)^x_{\{a(t)\}\mathrm{g(t)}} + S^2t(t)^x_{\{b(t)\}\mathrm{g(t)}} = S^2t(t)^x_{\{a(t)\}\cup\{b(t)\}\mathrm{g(t)}}$ $(*_{22})$,

where some or any elements may be by ordered elements.

It is allowed to multiply dynamical continual S^{2}t – elements with target weights g(t):

$S^2t(t)_x^{\{a(t)\}} * S^2t(t)_x^{\{b(t)\}\mathrm{g(t)}} = S^2t(t)_x^{\{a(t)\}\cap\{b(t)\}\mathrm{g(t)}}$ $(*_{23})$,

$S^2t(t)^x_{\{a(t)\}\mathrm{g(t)}} * S^2t(t)^x_{\{b(t)\}\mathrm{g(t)}} = S^2t(t)^x_{\{a(t)\}\cap\{b(t)\}\mathrm{g(t)}}$ $(*_{24})$,

where some or any elements may be by ordered elements.

Dynamical continual S^{2}t – elements with target weights g(t): can be elements of a group both by multiplication $(*_{21})$, $(*_{22})$ and by addition $(*_{23})$, $(*_{24})$ and also form algebraic ring, field by these operations. Consider a third type of dynamical partial containment of ones^{2}elf with target weights g(t). For example, based on $S^2t(t)_\mathrm{x}^{\{\mathrm{a}(t)\mathrm{g(t)}\}}$, where $\{\mathrm{a}(t)\} = (\mathrm{a}_1(t), \mathrm{a}_2(t), \dots, \mathrm{a}_n(t))$, i.e. n - continual elements with target weights{g(t)} in one point x, it is possible to consider the dynamical containment of ones^{2}elf with target weights $S^2{}_3f(t)\mathrm{g(t)}$ with m continual elements with target weights{g(t)} from $\{\mathrm{a}(t)\}$, at m<n, which is process to be formed by the form (1), that is, only m continual elements with target weights{g(t)} from $\{\mathrm{a}(t)\}$ are located in the structure $S^2{}_3f(t)\mathrm{g(t)}$.

Dynamical containments of ones^{2}elf with target weights of the third type can be formed for any other structure, not necessarily S^{2}t, only through the obligatory reduction in the number of continual elements with target weights in the structure. In particular, using the form (2)

Structures more complex than $S^2{}_3f(t)\mathrm{g(t)}$ can be introduced.

Definition 29. The dynamical containment of ones^{2}elf continual A(t) with target weights {g(t)} of the first type is the process of putting A(t) into A(t) with target weights. Denote $S^2{}_1f(t)A(t)\mathrm{g(t)}$

Definition 30. The partial dynamical containment of ones^{2}elf continual C(t) with target weights{g(t)} of the second type is the process of a continual elements containment from which C(t) with target weights{g(t)} can be generated. Let's denote $S^2{}_2f(t)C(t)\mathrm{g(t)}$.

Definition 31. Dynamical partial containment of ones^{2}elf B(t) with target weights {g(t)}of the third type is the process of partial a continual elements containment from which B(t) with target weights{g(t)} can be generated partially. Let us denote $S^2{}_3f(t)B(t)\mathrm{g(t)}$.

8.8 The Usage of S^2t -Elements for Networks

The all-encompassing monograph of A. Galushkin [6] embraces all aspects of networks but usual traditional approaches to networks are through classical mathematics, in particular through usual conformity operators. Here considers another approach – through new mathematics partition with containment operators, which though may be interpreted as a result of some conformity operators, but themselves are no conformity operators. The containment operators are more convenient for networks. Also, main lay stress on the processors use, which work with triodes use, that does not use in S^2t -networks in mainly. S^2t -networks is represented by S^2t -structure, which may constructed for necessary weights. S^2t -OS (S^2t operating system) are used S^2t -coding and S^2t -translation. In the first the coding is realized through 2-measured matrix –row (a,b), where the number b – the code of the action, the number a- the object code of this action. S^2t -coding (or s^2elf -coding) is realized through the matrix, which has 2 columns (in continuous case- 2 numbers intervals). Here initial coding is used for all matrix rows simultaneously. S^2t -translation is realized by the inversion. In this case s^2elf -coding and s^2elf -translation will be more stable in particular. The target weights f_i in $S^2t_a^{\{fx\}}$ are chosen for necessary tasks. We will touch no questions of the applications, optimization of networks. They are detailed by A Galushkin.[6]. We touch difference of it for complex networks hierarchy only. The same simple executing programs are in the cores of simple artificial neurons of type S^2t (designation - mnS^2t) for simple information processing. More complex executing programs are used for mnS^2t nodes. Unfortunately we change name S^2t-elements [2] to S^2t -elements because we find that S^2t -elements were used by other authors early. S^2t -threshold element –sgn($S^2t_b^{\{ax\}}$), b- mnS^2t, $x=(x_1,x_2,\dots,x_n)$ – source signals values, $a=(a_1,a_2,\dots,a_n)$ – S^2t -synapses weights. The first level of mnS^2t consists from simple mnS^2t . The second level of mnS^2t consists from $St_D^{\{mnS^2t\}}$ – S^2t -node of mnS^2t in range D, D- capacity for mnS^2t node. The third level of mnS^2t consists from $S^2t_D^{\{St_D^{\{mnS^2t\}}\}}$- S^2t^2- node of mnS^2t in range D, thus D becomes capacity in its^{2}elf for mnS^2t. The usage of S^2t^2- nodes of mnS^2t is enough for our networks, but s^2elf-level is more higher in living organisms, in particular S^2t^n-, n≥3. Target structure or corresponding eprogram by corresponding s^2elf - code enters to target block by means of alternating current. After that here takes place the activation of all networks or its part according to indicative target. May arise the opinion that we go out from networks ideology, but in fact networks presents complex hierarchy with capacity in tse^{2}lf of different levels in living organisms.

Remark14. Traditional scientific approaches through classical mathematics allows to describe only on usual energy level. Here is approach- on more thin energy level.

In mnS^2t are $S^2t_{mnS^2t}^{\{eprograms\}}$, eprogram −executing program in S^2t-OS . In this connection S^2t -OS (or S^2elf-OS) is based on S^2t -assembly language (or s^2elf - assembly language), which is based on assembly language through S^2t -approach in turn in the case of the sufficiency of the S^2t -networks elements base. The eprograms are in S^2t -programming environments (or S^2elf - programming environments), but this question and S^2t -networks base will be considered in next articles. In particular, eprograms may contain S^2t - programming operators. In mnS^2t cores the constant memory S^2t with correspondent eprograms depending on mnS^2t.

The ideology of S^2t and S^2_3f [2] can be used for programming. Here are some of the S^2t programming operators.

1. Simultaneous assignment of the expressions $\{p\} = (p_1, p_2, \dots, p_n)$ to the variables $\{a\} = (a_1, a_2, \dots, a_n)$. It's implemented through $S^2t_x^{\{\{a\}:\{p\}\}}$.
2. Simultaneous check the set of conditions $\{f\} = (f_1, f_2, \dots, f_n)$ for a set of expressions$\{B\} =$

$(B_1, B_{2,}, \ldots, B_n)$. It's implemented through $S^2t_x^{IF\{\{B\}\{f\}\}\ then\ Q}$ where Q can be any.

3. Similarly for loop operators and others.

$S^2{}_3f$– software operators will differ only in those aggregates $\{a\}, \{p\}, \{B\}, \{f\}$ will be formed from corresponding S^2t program operators in form (1) for more complex operators in form (2).

Quite interesting is the OS (operating system), the principles and modes of operation of the S^2t -networks for this programming. But this is already the material of the next articles.

Here is based on the elements of S^2t – physics and special neural networks with artificial neurons operating in normal and S^2t – modes, a model of a helicopter without a main and tail rotors was developed. Let's denote this model through $SmnS^2t$. To do this, it's proposed to use mnS^2t of different levels, for example, for the usual mode, mnS^2t serves for the initial processing of signals and the transfer of information to the second level, etc. to the nodal center, then checked and in case of anomaly - local S^2t – mode with the desired "target weight" is realized in this section, etc. to the center. Here, in case of anomaly during the test, S^2mnS^2t is activated with the desired "target weight". Here are realized other tasks also. To reach the s^2elf -energy level, the mode $S^2t_{\mathrm{SmnS^2t}}^{\mathrm{SmnS^2t}}$ is used. In normal mode, it's planned to carry out the movement of S^2mnS^2t on jet propulsion with the conversion of the energy of the emitted gases into a vortex, to obtain additional thrust upwards. For this purpose, a spiral-shaped chute (with "pockets") is arranged at the bottom of the S^2mnS^2t for the gases emitted by the jet engine, which first exit through a straight chute connected to the spiral one. There is a drainage of exhaust gases outside the S^2mnS^2t. Otherwise, S^2mnS^2t is represented by a neural network that extends from the center of one of the main clusters of S^2t - artificial neurons to the shell, turning on into the shell tse^2lf. Above the operator's cabin is the central core of the neural network and the target block, which is responsible for performing the "target weights" and auxiliary blocks, the functions and roles of which we will discuss further. Next is the space for the movement of the local vortex. The unit responsible for S^2mnS^2t 's actions is located below the operators' cab. In S^2t – mode the entire network or its sections are S^2t – activated to perform certain tasks, in particular, with "target weights". In target block are used S^2t -coding, S^2t -translation for activation all networks to "target weights" simultaneously, then –the reset of this S^2t -coding after activation. Unfortunately, triodes are not suitable for S^2t -neural network. In the most primitive case usual separaters with corresponding resistances and core for eprograms may be used instead triodes since there is not necessity in the unbending of the alternating current to direct. The belt of S^2t -memory operative is disposed around central core of S^2mnS^2t. There are S^2t -coding, S^2t -translation, S^2t -realize of eprograms and of the programs from the archives without extraction theirs. For S^2t -coding and S^2t -translation may be use high-intensity, ultra-short optical pulses laser of Nobel laureates 2018 year Gerard Mourou, Donna, Strickland.

S^2t – structure or a eprogram if one is present of needed «target weight» are taken in target block at S^2t – activation of the networks. $S^2t_{activation}^{\mathrm{SmnS^2t},f}$ derives $S_{\mathrm{mnS^2t}}$ to the s^2elf level boundary with target weight f.

It's used an alternating current of above high frequently and ultra-violet light, which are able to work with S^2t – structures in S^2t – modes by it`s nature for an activation of the networks or some of its parts in S^2t – modes and at local using S^2t – mode. Above high frequently alternating current go through mercury bearers that overheating does not occur. The power of the alternating current of above high frequently increase considerably for target block. The activation of all networks is realized to indicative "target weights".

9. Supplement

9.1 Connection S^2t – Elements with Usual Functionals and Operators

$S^2p_B^A$ for joint A,B: $S^2p_B^A$= p($S^2t_B^A$)=p({A∪B-A∩B,D})= p(A)+p(B) –p(AB)+pS^2(D), D-- the s^2elf-capacity in tse^{2}lf as an element from A∩B, pS^2(D)—probability s^2elf of D of next level—s^2elf level. The probability for stochastic value X is holding capacity. We represent their distribution in the kind of S^2t -element:

$S^2t(t)_X^{\{(x_1,p_1),(x_2,p_2),\dots,(x_n,p_n)\}}$ (*)

Here interest represent partial distribution s^2elf from (*) by form (1) or (2) with value s^2elf of stochastic value X for some subset $\{xx_{1_1}, x_{2_1}, \dots, x_{j_1}\} \in \{x_1,x_2,\dots,x_n\}$ with probabilities s^2elf { pS^2_1, pS^2_2,…, pS^2_j}.

For operator $X_1 \xrightarrow{F} X_2$: $\xrightarrow{F}$ X_2 is capacity for X_1. $S^2t_{\xrightarrow{F} X2}^{\xrightarrow{F} X2}$ -- s^2elf -capacity in its^{2}elf as an element for X_1. More complex for implicit operator: $F(X_1,X_2)=0$. Then $S^2t_{F(X1,X2)=0}^{F(X1,X2)=0}$ forms s^2elf -capacity in its^{2}elf as an element for X_1 relatively of X_2 or for X_2 relatively of X_1.

x obtains more power of the liberty and in this is direct decision (i.e. s^2elf -capacity in its^{2}elf as an element for x). S^2elf -equation for x has its decision for x in direct kind. S^2elf -task for x has its decision for x in direct kind. S^2elf -question has its answer for x in direct kind. x acquires more degree of liberty and in this is direct decision.

We consider $S^2t_D^D$, D-block over execution subject in $S^2{}_{\mathrm{mnS^2t}}$ for networks [1]. Then we have s^2elf -capacity in its^{2}elf as an element D, where full realization requires correspondent s^2elf -energy. $S^2t_{\mathrm{SmnS^2t}}^{\mathrm{SmnS^2t}}$ increase s^2elf level of $S^2{}_{\mathrm{mnS^2t}}$ and may made no visual its.

10. Conclusions

New concepts and new processing methods of information based on them and new software operators were introduced. We have a fairly non-classical section of mathematics, so the presentation of the material is a bit non-classical to emphasize this. Classical science reaches the horizon and beyond the horizon through chance, while we immediately start from the horizon. We have found a way to construct some mathematical class of complex processes with which classical science can work through chance at best. Classical science proceeds from the objective components, while we immediately start from the wave ones, bypassing the objective ones. Further development is associated with changing the structure of the arithmetic-logical device, the corresponding software and application for new technologies, in the light of the new approach. The entire neural network as instantaneous simultaneous RAM in S^2t -elements and s^2elf-elements.$s^2\mathrm{elf}^{s^2\mathrm{elf}^{\dots^{s^2\mathrm{elf}}}}$, $f1 \downarrow I \uparrow_{-1}^{1} f_2{}^{f1\downarrow I\uparrow_{-1}^{1} f_2, \dots^{f1\downarrow I\uparrow_{-1}^{1} f_2,}}$, $sin\infty^{sin\infty^{\dots^{sin\infty}}}$.When activated in a neural network, the entire neural network becomes a working memory. Use of s^2elf -energy as activation or from outside. $Q^2_0 = S^2t_{S^2t_{activation}^{\mathrm{S^2mnS^2t}}}^{S^2t_{activation}^{\mathrm{S^2mnS^2t}}} \rightarrow$ s^2elf -RAM, $Q^2_{00} = {}_{activation^{St}}^{\mathrm{S^2mnS^2t}}{}^{\mathrm{S^2mnS^2t}}_{activation^{St}} Q^2{}_0$, $Q^2_{01} = {}_{S^2t_{activation}^{\mathrm{S^2mnS^2t}}}^{S^2t_{activation}^{\mathrm{S^2mnS^2t}}} Q^2{}_0$.

Q^2_0, Q^2_{00}, Q^2_{01}-coding, translation,realization eprograms, Q^2_0, Q^2_{00}, Q^2_{01}-$S^2{}_{\mathrm{mnS^2t}}$, Assembler

Contents

Declarations

Availability of Data and Material

1) Danilishyn I.V. Danilishyn O.V. THE USAGE OF SIT-ELEMENTS FOR NETWORKS. IV International Scientific and Practical Conference ”GRUNDLAGEN DER MODERNEN WISSENCHAFTLICHEN FORSCHUNG ”, 31.03.2023/Zurich, Switzerland. https://archive.logos-science.com/index.php/conference-proceedings/issue/view/9
2) Danilishyn I.V. Danilishyn O.V. MATHEMATICS ST, PROGRAMMING OPERATORS ST AND SOME EMPLOYMENT. Collection of scientific papers “SCIENTIA”, 2023. https://previous.scientia.report/index.php/archive/issue/view/07.04.2023Russian).
3) Danilishyn I.V. Danilishyn O.V. DYNAMICAL SIT-ELEMENTS . IV International Scientific and Practical Conference ”GRUNDLAGEN DER MODERNEN WISSENCHAFTLICHEN FORSCHUNG ”, 31.03.2023/Zurich, Switzerland. https://archive.logos-science.com/index.php/conference-proceedings/issue/view/9

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