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Dynamic Sets Set and Some of Their Applications to Neuroscience, Networks Set

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

Keywords: Dynamic Set, Set -Elements, Capacity Set, Set-Sets In Themselves, Set-Elements In Themselves, Sit-Elements, Capacity

1. Introduction

There is a long overdue need for the use of singular hierarchical structures, in particular self-sets, to describe complex processes, in particular to describe unusual states of consciousness and pathological conditions. The experiments of Nobel laureates in 2022-year Asle Ahlen, Clauser John, Zeilinger Anton correspond to the concept of the Universe as its self-containment in itself. Here, the axiom of regularity (A8) is removed from the axioms of set theory, so we naturally obtain the possibility of using singularities in the form of Set-sets in themselves, Set-elements in themselves, which is exactly what we need for new mathematical models for describing complex processes [1]. Instead of the axiom of regularity, we introduce the following axioms: Axiom R1. ∀B(St_{CoB}^{CoB}=B). Axiom R2. ∀B(∃B^{-1}). Here is considered a significant generalization of the Sit-structures we introduced earlier in the form of Set-structures to describe much more complex processes.

1.1. Set Elements

Definition 1

The containment of A into B and the displacement of D from C simultaneously we shall call Set – element. Let's denote ${}_{D}^{C}St_{B}^{A}$.

A, B, C, D-are any, in particular A may be action in the right direction and with the right goal (action with the so-called target weights [2]), any action.

Definition 2

${}_{\vec{D}}^{C}St_{B}^{\vec{A}}$ is called an ordered Set element, if some or any elements from A, B, C, D may be by ordered elements.

It is allowed to add Set – elements:

$$ {}_{D_1}^{C_1}St_{B_1}^{A_1} + {}_{D_2}^{C_2}St_{B_2}^{A_2} = {}_{D_1\cup D_2}^{C_1\cup C_2}St_{B_1\cup B_2}^{A_1\cup A_2} \qquad (*_1), $$

where some or any elements may be by ordered elements.

It is allowed to multiply Set – elements:

$$ {}_{D_1}^{C_1}St_{B_1}^{A_1} * {}_{D_2}^{C_2}St_{B_2}^{A_2} = {}_{D_1\cap D_2}^{C_1\cap C_2}St_{B_1\cap B_2}^{A_1\cap A_2} \qquad (*_2), $$

where some or any elements may be by ordered elements.

Set elements can be elements of a group both by multiplication (*2) and by addition (*1), and form algebraic ring, field by these operations.

1.2. Set-Capacity in Itself

Definition 3

The Set-capacity A in itself and from itself of the null type is the capacity containing itself as an element and expelling oneself out of oneself simultaneously: ${}_{A}^{A}St_{A}^{A}$. Denote $S_0^{et}fA$.

Definition 4

The Set-capacity in itself A and from itself B of the first type is the capacity containing itself as an element and expelling B oneself out of oneself simultaneously: ${}_{B}^{B}St_{A}^{A}$. Denote $S_1^{et}f_B^A$.

Definition 5

The Set1-capacity of the second type is the capacity containing B into A and expelling B oneself out of oneself simultaneously: ${}_{B}^{B}St_{A}^{B}$. Denote $S_2^{et}f_B^A$.

Definition 6

The Set1-capacity of the third type is the capacity containing B itself as an element and the displacement of B from A simultaneously: ${}^{A}_{B}St^{B}_{B}$. Denote $S^{et}_{3}f^{A}_{B}$.

Definition 7

Set-capacity A in itself of the fourth type is the capacity that contains the program that allows it to be generated and it to be degenerated simultaneously. Let's denote $S^{et}_{4}fA$.

Definition 8

Set-capacity A in itself of the fifth type contains itself in part and expelling oneself in part or contains a program that allows it to be generated in part and it to be degenerated in part, or both simultaneously. Let us denote $S^{et}_{5}fA$.

1.3. Connection of Set Elements with Set Capacity in Itself

Consider a fifth type of self-capacity. For example, based on $S^{et}_{5}fA$, where $A=(a_1,a_2,...,a_n)$ it is possible to consider Set-capacity in itself $S^{et}_{5}fA$, with m elements from A, at m<n, which is formed by the form:

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

that is, only m elements are located in the structure $S^{et}_{5}fA$. Set-capacity in itself of the fifth type can be formed for any other structure, not necessarily Set, only through the obligatory reduction in the number of elements in the structure. In particular, using the form

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

Structures more complex than $S^{et}_{5}fA$. can be introduced.

1.4. Mathematics Set Itself

- Similarly, for the simultaneous execution of various operators: ${}^{F_0C}_{F_1D}St^{F_2A}_{F_3B}$,where F_0,F_1,F_2,F_3 are operators.
- Similarly, for the simultaneous execution of various operators: $S^{et}_{j}fFA$, j=0,1,2,3,4,5, where $\{F\}=(F_0,F_1,F_2,F_3)$ are operators.
- 3. ${}^{B}_{Q}St^{A}_{B}$- is the result of the holding operator action and of the the expelling operator action, the dynamical hierarchical set of null type ${}^{B}_{Q}St^{A}_{B}$ - a kind of product of PN(A,B)*OPN(Q,B). Let's call it the PN_1-product. For sets A, B,Q we have two variants of hierarchical distribution of dynamic hierarchical set ${}^{B}_{Q}St^{A}_{B}$:

$$\begin{gathered} {}^{Q\cap B}_{Q\cap B}St^{A\cap B}_{A\cap B} \\ {}^{B}_{Q}St^{A}_{B} = \{{}^{B}_{Q}St^{A\cap B}_{A\cap B} + {}^{Q\cap B}_{Q\cap B}St^{A}_{B}\} \\ R_{11} + R_{21} + R_{31} \end{gathered} \qquad (3)$$

$$R_{11}={}^{B-Q\cap B}_{Q-Q\cap B}St^{A-A\cap B}_{B-A\cap B} + {}^{B-Q\cap B}_{Q-Q\cap B}St^{A-A\cap B}_{A\cap B} + {}^{B-Q\cap B}_{Q-Q\cap B}St^{A\cap B}_{B-A\cap B}$$

$$R_{21}={}^{B-Q\cap B}_{Q\cap B}St^{A-A\cap B}_{B-A\cap B} + {}^{B-Q\cap B}_{Q\cap B}St^{A-A\cap B}_{A\cap B} + {}^{B-Q\cap B}_{Q\cap B}St^{A\cap B}_{B-A\cap B}$$

$$R_{31}={}^{Q\cap B}_{Q-Q\cap B}St^{A-A\cap B}_{B-A\cap B} + {}^{Q\cap B}_{Q-Q\cap B}St^{A-A\cap B}_{A\cap B} + {}^{Q\cap B}_{Q-Q\cap B}St^{A\cap B}_{B-A\cap B}$$

The measure:

$$\begin{gathered} {}^{o}\mu^{s}({}^{Q\cap B}_{Q\cap B}St^{A\cap B}_{A\cap B}) \\ \mu({}^{B}_{Q}St^{A}_{B})=({}^{o}\mu({}^{B}_{Q}St^{A\cap B}_{A\cap B}) + \mu^{s}({}^{Q\cap B}_{Q\cap B}St^{A}_{B})) \\ \mu(A)+2\mu(B)-\mu(Q) \end{gathered} \qquad (4)$$

$$\begin{gathered} S^{e}_{1}f^{Q\cap A}_{B} \\ {}^{B}_{Q}St^{A}_{B} = \{{}^{B}_{Q}St^{A\cap B+Q\cap A}_{A\cap B+Q\cap A} + {}^{(Q\cap B+Q\cap A)}_{(Q\cap B+Q\cap A)}St^{A}_{B}\} \\ R_{12} + R_{22} + R_{32} \end{gathered} \qquad (5)$$

$$R_{12}={}^{B-(Q\cap B+Q\cap A)}_{Q-Q\cap B-Q\cap A}St^{A-A\cap B-Q\cap A}_{B-A\cap B-Q\cap A} + {}^{B-(Q\cap B+Q\cap A)}_{Q-Q\cap B-Q\cap A}St^{A-A\cap B-Q\cap A}_{A\cap B+Q\cap A} + {}^{B-(Q\cap B+Q\cap A)}_{Q-Q\cap B-Q\cap A}St^{A\cap B+Q\cap A}_{B-A\cap B-Q\cap A}$$

$$R_{22}={}^{B-(Q\cap B+Q\cap A)}_{Q\cap B+Q\cap A}St^{A-A\cap B-Q\cap A}_{B-A\cap B-Q\cap A} + {}^{B-(Q\cap B+Q\cap A)}_{Q\cap B+Q\cap A}St^{A-A\cap B-Q\cap A}_{A\cap B+Q\cap A} + {}^{B-(Q\cap B+Q\cap A)}_{Q\cap B+Q\cap A}St^{A\cap B+Q\cap A}_{B-A\cap B-Q\cap A}$$

$$R_{32}={}^{Q\cap B+Q\cap A}_{Q-Q\cap B-Q\cap A}St^{A-A\cap B-Q\cap A}_{B-A\cap B-Q\cap A} + {}^{Q\cap B+Q\cap A}_{Q-Q\cap B-Q\cap A}St^{A-A\cap B-Q\cap A}_{A\cap B+Q\cap A} + {}^{Q\cap B+Q\cap A}_{Q-Q\cap B-Q\cap A}St^{A\cap B+Q\cap A}_{B-A\cap B-Q\cap A}$$

The measure:

$$\mu({}_{Q}^{B}St_{B}^{A})=\frac{({}^{o}\mu({}_{Q}^{B}St_{A\cap B+Q\cap A}^{A\cap B+Q\cap A})+\mu^{s}({}_{(Q\cap B+Q\cap A)}^{(Q\cap B+Q\cap A)}St_{B}^{A}))}{\mu(A)+2\mu(B)-\mu(Q)} \qquad (6)$$

with ${}^{o}\mu^{s}(S_{1}^{e}f_{B}^{Q\cap A})$

There is the same for structures if it`s considered as sets. Likewise, for continual Set-elements, dynamical Set-elements, continual dynamical Set-elements, continual dynamical Set-elements with target weights.

The concepts of Set – force: ${}_{F_4}^{F_3}St_{F_2}^{F_1}$ -the containment of force F_1 into force F_2 and the displacement of force F_4 from force F_3 simultaneously, Set – energy: ${}_{F_4}^{F_3}St_{F_2}^{F_1}$ -the containment of energy E_1 into energy E_2 and the displacement of energy E_4 from energy E_3 simultaneously.

Consider the concepts of Set-capacity in itself of physical objects A, B. Similar to the concepts of publication: the Set-capacity in itself of the first type is the capacity containing itself A as an element and expelling B oneself out of oneself simultaneously: ${}_{B}^{B}St_{A}^{A}$, Set -capacity in itself of the third type contains itself in part and expelling oneself in part or contains a program that allows it to be generated and it to be degenerated simultaneously partially, or both: $S_5^{et}fA, S_5^{et}fB$. By analogy, for $S_0^{et}fA$, $S_2^{et}f_B^A$, $S_3^{et}f_B^A$, $S_4^{et}fA$.

Also, you can consider these types of Set-capacity in itself for other objects. For example: $S_i^{et}f$ foperator A, $S_i^{et}f$ action B, $S_i^{et}f$ made Q i=0,1,2,3,4,5 etc.

Remark. The concept of elements of physics Set is introduced for energy space. The corresponding concept of elements of chemistry Set is introduced accordingly.

1.5. Dynamical Set Elements

Definition 9

The process of the containment of A(t) into B(t) and the displacement of D(t) from C(t) at time t simultaneously we shall call dynamical Set – element. Let's denote ${}_{D(t)}^{C(t)}St(t)_{B(t)}^{A(t)}$.

Definition 10

${}_{D(t)}^{C(t)}St(t)_{B(t)}^{\overrightarrow{A(t)}}$ with ordered elements $\overline{A}(t)$ and $\overline{D}(t)$ is called an ordered dynamical Set – element

It is allowed to add dynamical Set – elements:

$${}_{D_1(t)}^{C_1(t)}St(t)_{B_1(t)}^{A_1(t)}+{}_{D_2(t)}^{C_2(t)}St(t)_{B_2(t)}^{A_2(t)}={}_{D_1(t)\cup D_2(t)}^{C_1(t)\cup C_2(t)}St(t)_{B_1(t)\cup B_2(t)}^{A_1(t)\cup A_2(t)} \qquad (*_3)$$

where some or any elements may be by ordered elements.

It is allowed to multiply dynamical Set – elements:

$${}_{D_1(t)}^{C_1(t)}St(t)_{B_1(t)}^{A_1(t)}*{}_{D_2(t)}^{C_1(t)}St(t)_{B_2(t)}^{A_2(t)}={}_{D_1(t)\cap D_2(t)}^{C_1(t)}St(t)_{B_1(t)\cap B_2(t)}^{A_1(t)\cap A_2(t)} \qquad (*_4)$$

where some or any elements may be by ordered elements.

Dynamical Set elements can be elements of a group both by multiplication $(*_4)$ and by addition $(*_3)$, and form algebraic ring, field by these operations.

1.6. Dynamical Set-Capacity in Itself

Definition 11

The dynamical Set-capacity A(t) in itself and from itself of the null type is the process of a containment itself as an element and expelling oneself out of oneself at time t simultaneously:

${}_{A(t)}^{A(t)}St(t)_{A(t)}^{A(t)}$. Denote $S_0^{et}(t)fA(t)$.

Definition 12

The dynamical Set-capacity in itself A(t) and from itself B(t) of the first type is the process of a containment itself as an element and expelling B(t) oneself out of oneself at time t simultaneously:

${}_{B(t)}^{B(t)}St_{A(t)}^{A(t)}$. Denote $S_1^{et}(t)f_{B(t)}^{A(t)}$.

Definition 13

The dynamical Set[1]-capacity of the second type is the process of putting B(t) into A(t) and expelling B(t) oneself out of oneself at time t simultaneously: ${}_{B(t)}^{B(t)}St(t)_{A(t)}^{B(t)}$. Denote $S_2^{et}(t)f_{B(t)}^{A(t)}$.

Definition 14

Dynamical Set1-capacity of the third type is the process of a containment of B(t) itself as an element and the displacement of B(t) from A(t) at time t simultaneously: ${}_{B(t)}^{A(t)}St_{B(t)}^{B(t)}$. Denote $S_3^{et}(t)f_{B(t)}^{A(t)}$.

Definition 15

Dynamical Set-capacity A(t) in itself of the fourth type is the process of a containment of the program that allows it to be generated and it to be degenerated at time t simultaneously through the structure Set. Let's denote $S_4^{et}(t)fA(t)$.

Definition 16

Dynamical Set-capacity A(t) in itself of the fifth type is the process of a containment of itself in part and expelling oneself in part or process of a containment of the program that allows it to be generated in part and it to be degenerated in part at time t through the structure Set , or both simultaneously.

Let us denote $S_5^{et}(t)fA(t)$.

Consider dynamical Set-capacity A(t) in itself of the fifth type:S_5^{et} (t)fA(t). For A(t)=(a_1 (t),a_2 (t),...,a_n (t)) it is possible to consider the dynamical Set-capacity in itself of the fifth type A(t): S_5^{et} (t) fA(t) with m elements and from {a(t)}, at m<n, which is process to be formed by the form (1), that is, only m elements from A(t) are located in the structure ${}_{D(t)}^{C(t)}St(t)_{B(t)}^{A(t)}$. The same for D(t)=($d_1$ (t),d_2 (t),...,d_n (t)) in it. Ddynamical Set-capacity in itself of the fifth type can be formed for any other structure, not necessarily Set, only through the obligatory reduction in the number of elements in the structure. In particular, using the form (2). Structures more complex than S_5^{et} (t)fA(t) can be introduced.

1.7. Dynamical Mathematics Set-Itself

- Similarly, for the simultaneous execution of various operators: ${}_{F_1(t)D(t)}^{F_0(t)C(t)}St(t)_{F_3(t)B(t)}^{F_2(t)A(t)}$, where F_0 (t),F_1 (t),F_2 (t),F_3 (t) are operators.
- Similarly, for the simultaneous execution of various operators: $S_j^{et}(t)fF(t)A(t)$, j=0,4,5, and $S_k^{et}(t)f_{B(t)}^{A(t)}$, k=1.2,3, where $\{F(t)\}$ =(F_0 (t),F_1 (t),F_2 (t),F_3 (t)) are operators.

The concepts of dynamical Set–force: ${}_{F_4(t)}^{F_3(t)}St(t)_{F_2(t)}^{F_1(t)}$ -the containment of force F_1(t) into force F_2(t) and the displacement of force F_4(t) from force F_3(t) at time t simultaneously, dynamical Set – energy: ${}_{F_4(t)}^{F_3(t)}St(t)_{F_2(t)}^{F_1(t)}$ -the containment of energy E_1(t) into energy E_2(t) and the displacement of energy E_4(t) from energy E_3(t) at time t simultaneously.

Consider the concepts of dynamical Set-capacity in itself of physical objects A(t), B(t). Similar to the concepts of publication: the dynamical Set-capacity in itself of the null type is the dynamical capacity containing itself as an element and expelling oneself out of oneself at time t simultaneously: $S_0^{et}(t)fA(t) = {}_{A(t)}^{A(t)}St(t)_{A(t)}^{A(t)}$, dynamical Set-capacity in itself of the fifth type contains itself in part and expelling oneself in part or contains a program that allows it to be generated and it to be degenerated at time t simultaneously partially, or both:$S_5^{et}(t)fA(t)$, $S_5^{et}(t)fB(t)$. By analogy, for $S_1^{et}(t)f_{B(t)}^{A(t)}$ $S_2^{et}(t)f_{B(t)}^{A(t)}$, $S_3^{et}(t)f_{B(t)}^{A(t)}$, $S_4^{et}(t)fA(t)$.

Also, you can consider these types of dynamical Set-capacity in itself for other objects. For example:S_i^{et} $(t)f$ operator A(t), S_i^{et} (t) f action B(t), S_i^{et} $(t)f$ made Q(t) i=0,1,2,3,4,5 and etc.

Remark. The concept of elements of physics dynamical Set is introduced for energy space. The corresponding concept of elements of chemistry dynamical Set is introduced accordingly.

1.8. Set Elements for Continual Sets

Here we consider some continual Set-elements and continual self-consistencies in itself as an element.

Definition 17

The containment of A into B and the displacement of D from C simultaneously, where A, B, D, C- sets of continual elements we shall call continual Set – element. Let's denote ${}_{D}^{C}St_{B}^{A}$.

Definition 18

${}_{\vec{D}}^{C}St_{B}^{\vec{A}}$ with ordered elements $\vec{A}$ and $\overrightarrow{D}$, where A, B, D, C- sets of continual elements, is called an ordered Set element.

It is allowed to add continual Set – elements:

$$ {}_{D_1}^{C}St_{B_1}^{A_1} + {}_{D_2}^{C}St_{B_2}^{A_2} = {}_{D_1 \cup D_2}^{C}St_{B_1 \cup B_2}^{A_1 \cup A_2} \qquad (*_5) $$

where some or any elements may be by ordered elements.

It is allowed to multiply continual Set – elements:

$$ {}_{D_1}^{C}St_{B_1}^{A_1} * {}_{D_2}^{C}St_{B_2}^{A_2} = {}_{D_1 \cap D_2}^{C}St_{B_1 \cap B_2}^{A_1 \cap A_2} \qquad (*_6), $$

where some or any elements may be by ordered elements.

Continual Set elements can be elements of a group both by multiplication ($*_6$) and by addition ($*_5$), and form algebraic ring, field by these operations.

1.9 Set Capacity in Itself For Continual Sets

Definition 19

The continual Set-capacity A in itself and from itself of the null type is the capacity containing itself as an element and expelling oneself out of oneself simultaneously, where A - set of continual elements:${}_{A}^{A}St_{A}^{A}$. Denote $S_0^{et}fA$.

Definition 20

The ordered continual Set-capacity $\vec{A}$ in itself and from itself of the null type is the capacity containing itself as an element and expelling oneself out of oneself simultaneously, where - $\vec{A}$ ordered set of continual elements: ${}_{\vec{A}}^{\vec{A}}St_{\vec{A}}^{\vec{A}}$. Denote $S_0^{et}f\vec{A}$.

Definition 21

The continual Set-capacity in itself A and from itself B of the first type is the capacity containing itself as an element and expelling B oneself out of oneself simultaneously, where A, B- sets of continual elements: ${}_{B}^{B}St_{A}^{A}$. Denote $S_1^{et}f_B^A$.

Definition 22

The continual Set1-capacity of the second type is the capacity containing B into A and expelling B oneself out of oneself simultaneously, where A, B- sets of continual elements: ${}_{B}^{B}St_{A}^{B}$. Denote $S_2^{et}f_B^A$.

Definition 23

The continual Set1-capacity of the third type is the capacity containing B itself as an element and the displacement of B from A simultaneously, where A, B- sets of continual elements:${}_{B}^{A}St_{B}^{B}$. Denote $S_3^{et}f_B^A$.

Definition 24

The continual Set-capacity A in itself of the fourth type is the capacity that contains the program that allows it to be generated and it to be degenerated simultaneously, where A- set of continual elements. Let's denote $S_4^{et} f A$.

Definition 25

The continual Set-capacity A in itself of the fifth type contains itself in part and expelling oneself in part or contains a program that allows it to be generated in part and it to be degenerated in part simultaneously, or both, where A- set of continual elements. Let us denote $S_5^{et} f A$.

Definition 26

The ordered continual Set-capacity in itself $\vec{A}$ and from itself B of the first type is the capacity containing itself as an element and expelling B oneself out of oneself simultaneously, where $\vec{A}$ - ordered set of continual elements, B- set of continual elements: ${}_{B}^{B}St_{\vec{A}}^{\vec{A}}$.

Denote $S_1^{et} f_B^{\vec{A}}$.

Definition 27

The ordered continual Set[1]-capacity in itself A and from itself $\vec{B}$ of the first type is the capacity containing itself as an element and expelling $\vec{B}$ oneself out of oneself simultaneously, where $\vec{B}$ -ordered set of continual elements, A- set of continual elements: ${}_{\vec{B}}^{\vec{B}}St_A^A$.

Denote $S_1^{et} f_{\vec{B}}^{A}$.

Definition 28

The ordered continual Set[2]-capacity in itself $\vec{A}$ and from itself $\vec{B}$ of the first type is the capacity containing $\vec{A}$ itself as an element and expelling $\vec{B}$ oneself out of oneself simultaneously, where $\overrightarrow{A}, \vec{B}$ -ordered sets of continual elements: ${}_{\vec{B}}^{\vec{B}}St_{\vec{A}}^{\vec{A}}$. Denote $S_1^{et} f_{\vec{B}}^{\vec{A}}$.

Definition 29

The continual Set[1]-capacity of the second type is the capacity containing B into $\vec{A}$ and expelling B oneself out of oneself simultaneously, where $\vec{A}$ - ordered set of continual elements, B- set of continual elements: ${}_{B}^{B}St_{\vec{A}}^{B}$. Denote $S_2^{et} f_B^{\vec{A}}$.

Definition 30

The continual Set[2]-capacity of the second type is the capacity containing $\vec{B}$ into A and expelling $\vec{B}$ oneself out of oneself simultaneously, where $\vec{B}$ -ordered set of continual elements, A- set of continual elements: ${}_{\vec{B}}^{\vec{B}}St_A^{\vec{B}}$. Denote $S_2^{et} f_{\vec{B}}^{A}$.

Definition 31

The continual Set[3]-capacity of the second type is the capacity containing $\vec{B}$ into $\vec{A}$ and expelling $\vec{B}$ oneself out of oneself simultaneously, where $\vec{A}, \vec{B}$ -ordered sets of continual elements: ${}_{\vec{B}}^{\vec{B}}St_{\vec{A}}^{\vec{B}}$.

Denote $S_2^{et} f_{\vec{B}}^{A}$.

Definition 32

The continual Set[1]-capacity of the third type is the capacity containing B itself as an element and the displacement of B from A simultaneously, where A - ordered set of continual elements, B- set of continual elements: ${}_{B}^{\vec{A}}St_B^B$. Denote $S_3^{et} f_B^{\vec{A}}$.

Definition 33

The continual Set[2]-capacity of the third type is the capacity containing $\vec{B}$ itself as an element and the displacement of $\vec{B}$ from A simultaneously, where $\vec{B}$ ordered set of continual elements, A- set of continual elements: ${}_{\vec{B}}^{A}St_{\vec{B}}^{\vec{B}}$. Denote $S_3^{et} f_{\vec{B}}^{A}$.

Definition 34

The continual Set[3]-capacity of the third type is the capacity containing $\vec{B}$ itself as an element and the displacement of $\vec{B}$ from $\vec{A}$ $\vec{A}$multaneously, where $\vec{A}$, $\vec{B}$- ordered sets of continual elements:

${}_{\vec{B}}^{\vec{A}}St_{\vec{B}}^{\vec{B}}$. Denote $S_3^{et} f_{\vec{B}}^{\vec{A}}$.

Definition 35

The ordered continual Set-capacity $\vec{A}$ in itself of the fourth type is the capacity that contains the program that allows it to be generated and it to be degenerated simultaneously, where $\vec{A}$- set of continual elements. Let's denote $S_4^{et} f \vec{A}$.

Definition 36

The ordered continual Set-capacity $\vec{A}$ in itself of the fifth type contains itself in part and expelling oneself in part or contains a program that allows it to be generated in part and it to be degenerated in part simultaneously, or both simultaneously, where $\vec{A}$ - ordered set of continual elements. Let us denote $S_5^{et} f \vec{A}$.

Also we consider next elements: $S_0^{et} f \overrightarrow{\uparrow \mathrm{I} \downarrow_{-1}^{1}}$, $S_1^{et} f_{B\downarrow\mathrm{I}\uparrow_{-\infty}^{\infty}}^{\uparrow\mathrm{I}\downarrow_{-1}^{1}}$,

$S_2^{et} f_B^{\overrightarrow{A\downarrow\mathrm{I}\uparrow_{-1}^{1}}}$, $S_3^{et} f_B^{A\uparrow\mathrm{I}\downarrow_{-\infty}^{\infty}}$, $S_4^{et} f \overrightarrow{\uparrow \mathrm{I} \downarrow_d^a}$ etc.

1.10. Connection of Set Elements with Self Capacity in Itself as an Element

Consider a fifth type of continual self- capacity in itself as an element. For example, $S_5^{et} f A$,where $A = (a_1, a_2, ..., a_n)$, i.e. a_i - continual elements, i=1, 2, …, n. It's possible to consider the continual self- capacity in itself as an element $S_5^{et} f A$,with m continual elements from A, at m<n, which is formed by the form , that is, only m continual elements are located in the structure $S_5^{et} f A$. Ccontinual self- capacity in itself as an element of the fifth type can be formed for any other structure, not necessarily Set, only through the obligatory reduction in the number of continual elements in the structure. In particular, using the form [2,3]. The same for $S_5^{et} f A$ Structures more complex than $S_5^{et} f \vec{A}$ can be introduced.

1.11. Mathematics itself for Continual Set-elements

Simultaneous addition of a sets A, B, C, D with continual elements are realized by ${}_{D\cup}^{C}St_{B\cup}^{A\cup}$, where A, B, C, D may be ordered sets of continual elements.

Let's introduce operator to transform capacity to self-consistency in itself as an element: Q_jSet(A) transforms A to $S_j^{et}fA$, Q_i Set(A,B) transforms A to $S_i^{et}f_B^A$, where A,B may be ordered sets of continual elements, i=1,2,3,4.

1.12. Dynamical Continual Set Elements

Definition 37

The process of the containment of A(t) into B(t) and the displacement of D(t) from C(t) at time t simultaneously, where some or any elements may be by ordered elements, we shall call dynamical continual Set – element. Let's denote ${}_{D(t)}^{C(t)}St(t)_{B(t)}^{A(t)}$.

Definition 38

The process ${}_{D(t)}^{C(t)}St(t)_{B(t)}^{\overrightarrow{A(t)}}$ is called an ordered dynamical continual Set – element, if some or any elements from A(t), B(t), C(t), D(t) may be by ordered dynamical continual elements.

It is allowed to add dynamical continual Set – elements:

$$ {}_{D_1(t)}^{C_1(t)}St(t)_{B_1(t)}^{A_1(t)} + {}_{D_2(t)}^{C_1(t)}St(t)_{B_2(t)}^{A_2(t)} = {}_{D_1(t)\cup D_2(t)}^{C_1(t)}St(t)_{B_1(t)\cup B_2(t)}^{A_1(t)\cup A_2(t)} \quad (*_7), $$

where some or any elements may be by ordered dynamical continual elements.

It is allowed to multiply dynamical continual Set – elements:

$$ {}_{D_1(t)}^{C_1(t)}St(t)_{B_1(t)}^{A_1(t)} * {}_{D_2(t)}^{C_1(t)}St(t)_{B_2(t)}^{A_2(t)} = {}_{D_1(t)\cap D_2(t)}^{C_1(t)}St(t)_{B_1(t)\cap B_2(t)}^{A_1(t)\cap A_2(t)} \quad (*_8), $$

where some or any elements may be by ordered dynamical continual elements.

Dynamical continual Set elements can be elements of a group both by multiplication ($*_8$) and by addition ($*_7$), and also form algebraic ring, field by these operations.

1.13. Dynamical Continual Containment of Oneself

Definition 39

The dynamical continual Set-capacity A(t) in itself and from itself of the null type is the process of a containment itself as an element and expelling oneself out of oneself at time t simultaneously, where A(t) - set of dynamical continual elements: ${}_{A(t)}^{A(t)}St(t)_{A(t)}^{A(t)}$. Denote $S_0^{et}(t)fA(t)$.

Definition 40

The ordered dynamical continual Set-capacity $\vec{A}$ (t) in itself and from itself of the null type is the capacity containing itself as an element and expelling oneself out of oneself at time t simultaneously , where $\overrightarrow{A(t)}$ ordered set of dynamical continual elements: ${}_{\overrightarrow{A(t)}}^{\overrightarrow{A(t)}}St(t)_{\overrightarrow{A(t)}}^{\overrightarrow{A(t)}}$. Denote $S_0^{et}(t)f\vec{A}(t)$.

Definition 41

The dynamical continual Set-capacity in itself A(t) and from itself B(t) of the first type is the process of a containment of A(t) itself as an element and expelling B(t) oneself out of oneself at time t simultaneously, where A(t), B(t)- sets of dynamical continual elements:${}_{B(t)}^{B(t)}St(t)_{A(t)}^{A(t)}$.Denote $S_1^{et}(t)f_{B(t)}^{A(t)}$.

Definition 42

The dynamical continual Set1-capacity of the second type is the process of putting B(t) into A(t) and expelling B(t) oneself out of oneself at time t simultaneously, where A(t), B(t)- sets of dynamical continual elements: ${}_{B(t)}^{B(t)}St(t)_{A(t)}^{B(t)}$. Denote$S_2^{et}(t)f_{B(t)}^{A(t)}$.

Definition 43

The dynamical continual Set1-capacity of the third type is the process of a containment of B(t) itself as an element and the displacement of B(t) from A(t) at time t simultaneously, where A,B- sets of dynamical continual elements: ${}_{B(t)}^{A(t)}St(t)_{B(t)}^{B(t)}$. Denote $S_3^{et}(t)f_{B(t)}^{A(t)}$.

Definition 44

The dynamical continual Set-capacity A(t) in itself of the fourth type is the process of a containment of the program that allows it to be generated and it to be degenerated at time t simultaneously, where A(t)- set of dynamical continual elements. Let's denote $S_4^{et}(t)fA(t)$.

Definition 45

The dynamical continual Set-capacity A(t) in itself of the fifth type is the process of a containment of itself in part and expelling oneself in part or contains a program that allows it to be generated and it to be degenerated at time t through the structure Set, or both simultaneously, where A(t)- set of dynamical continual elements. Let us denote $S_5^{et}(t)fA(t)$.

Definition 46

The ordered dynamical continual Set-capacity in itself $\vec{A}$ (t) and from itself B(t) of the first type is the process of a containment of $\vec{A}$ (t) itself as an element and expelling B(t) oneself out of oneself at time t simultaneously, where $\vec{A}$ (t)- ordered set of dynamical continual elements, B(t)- set of dynamical continual elements: ${}_{B(t)}^{B(t)}St(t)_{A(t)}^{\overrightarrow{A(t)}}$. Denote $S_1^{et}(t)f_{B(t)}^{\overrightarrow{A(t)}}$.

Definition 47

The ordered dynamica[l] continual Set1-capacity in itself A(t) and from itself $\overrightarrow{B(t)}$ of the first type is the process of a containment of A(t) itself as an element and expelling $\overrightarrow{B(t)}$oneself out of oneself at time t simultaneously, where $\overrightarrow{B(t)}$ -ordered set of dynamical continual elements, A- set of dynamical continual elements: ${}_{\overrightarrow{B(t)}}^{\overrightarrow{B(t)}}St(t)_{A(t)}^{A(t)}$. Denote $S_1^{et}(t)f_{\overrightarrow{B(t)}}^{A(t)}$.

Definition 48

The ordered dynamical continual Set^2-capacity in itself and from itself $\overrightarrow{B(t)}$ of the first type is the process of a containment of $\overrightarrow{A(t)}$ itself as an element and expelling $\overrightarrow{B(t)}$ oneself out of oneself at time t simultaneously, where $\overrightarrow{A(t)}$, $\overrightarrow{B(t)}$ -ordered sets of dynamical continual elements: ${}^{\overrightarrow{B(t)}}_{\overrightarrow{B(t)}}St(t)^{\overrightarrow{A(t)}}_{\overrightarrow{A(t)}}$. Denote $S_1^{et}(t)f^{\overrightarrow{A(t)}}_{\overrightarrow{B(t)}}$.

Definition 49

The dynamical continual Set^1-capacity of the second type is the process of a containment B(t) into $\vec{A}(t)$ and expelling B(t) oneself out of oneself at time t simultaneously, where $\vec{A}(t)$ - ordered set of dynamical continual elements, B(t) - set of dynamical continual elements: ${}^{B(t)}_{B(t)}St(t)^{B(t)}_{\overrightarrow{A(t)}}$. Denote $S_2^{et}(t)f^{\overrightarrow{A(t)}}_{B(t)}$.

Definition 50

The dynamical continual Set^2-capacity of the second type is the process of a containment $\overrightarrow{B(t)}$ into A(t) and expelling $\overrightarrow{B(t)}$ oneself out of oneself at time t simultaneously, where $\overrightarrow{B(t)}$ -ordered set of dynamical continual elements, A(t) - set of dynamical continual elements: ${}^{\overrightarrow{B(t)}}_{B(t)}St^{\overrightarrow{B(t)}}_{A(t)}$. Denote $S_2^{et}(t)f^{A(t)}_{\overrightarrow{B(t)}}$.

Definition 51

The dynamical continual Set^3-capacity of the second type is the process of a containment $\overrightarrow{B(t)}$ into $\overrightarrow{A(t)}$ and expelling $\overrightarrow{B(t)}$ oneself out of oneself at time t simultaneously , where $\overrightarrow{A(t)}$, $\overrightarrow{B(t)}$- ordered sets of dynamical continual elements: ${}^{\overrightarrow{B(t)}}_{B(t)}St(t)^{\overrightarrow{B(t)}}_{A(t)}$. Denote $S_2^{et}(t)f^{\overrightarrow{A(t)}}_{\overrightarrow{B(t)}}$.

Definition 52

The dynamical continual Set^1-capacity of the third type is the process of a containment of B(t) itself as an element and the displacement of B(t) from $\overrightarrow{A(t)}$ at time t simultaneously, where $\overrightarrow{A(t)}$ ordered set of dynamical continual elements, B(t) - set of dynamical continual elements: ${}^{\overrightarrow{A(t)}}_{B(t)}St(t)^{B(t)}_{B(t)}$. Denote $S_3^{et}(t)f^{\overrightarrow{A(t)}}_{B(t)}$.

Definition 53

The dynamical continual Set^2-capacity of the third type is the process of a containment of $\overrightarrow{B(t)}$ itself as an element and the displacement of $\overrightarrow{B(t)}$ from A at time t simultaneously, where $\overrightarrow{B(t)}$ ordered set of dynamical continual elements, A- set of dynamical continual elements: ${}^{A(t)}_{B(t)}St(t)^{\overrightarrow{B(t)}}_{B(t)}$. Denote $S_3^{et}(t)f^{A(t)}_{\overrightarrow{B(t)}}$.

Definition 54

The dynamical continual Set^3-capacity of the third type is the process of a containment of $\overrightarrow{A(t)}$ itself as an element and the displacement of from $\overrightarrow{A(t)}$ at time t simultaneously, where $\overrightarrow{B(t)}$, $\overrightarrow{B(t)}$ - ordered sets of dynamical continual elements: ${}^{\overrightarrow{A(t)}}_{B(t)}St(t)^{\overrightarrow{B(t)}}_{\overrightarrow{B(t)}}$. Denote $S_3^{et}(t)f^{\overrightarrow{A(t)}}_{\vec{B}(t)}$.

Definition 55

The ordered dynamical continual Set-capacity $\overrightarrow{A(t)}$ in itself of the fourth type is the process that contains the program that allows it to be generated and it to be degenerated at time t simultaneously, where - set of dynamical continual elements. Let's denote $S_4^{et}(t)f\overrightarrow{A(t)}$.

Definition 56

The ordered dynamical continual Set-capacity $\overrightarrow{A(t)}$ in itself of the fifth type is the process of a containment of itself in part and expelling oneself in part or contains a program that allows it to be generated in part and it to be degenerated in part at time t, or both simultaneously, where $\overrightarrow{A(t)}$ - ordered set of dynamical continual elements. Let us denote $S_5^{et}(t)f\overrightarrow{A(t)}$.

Also we consider some elements: $S_0^{et}(t)f\,\overrightarrow{\uparrow \mathrm{I} \downarrow^{1}_{-1}}$, $S_1^{et}(t)f^{\uparrow\mathrm{I}\downarrow^{1}_{-1}}_{B(t)\downarrow\mathrm{I}\uparrow^{\infty}_{-\infty}}$, $S_2^{et}(t)f^{\overrightarrow{A(t)\downarrow\mathrm{I}\uparrow^{1}_{-1}}}_{B(t)}$, $S_3^{et}(tf^{A(t)\uparrow\mathrm{I}\downarrow^{\infty}_{-\infty}}_{B(t)}$, $S_4^{et}(t)f\,\overrightarrow{\uparrow \mathrm{I} \downarrow^{a(t)}_{d(t)}}$ etc.

1.14. Connection of Dynamical Continual Set Elements with Dynamical Containment of Oneself

Consider a fifth type of dynamical partial containment of oneself. For example, $S_5^{et}(t)f\overrightarrow{A^n(t)}$, where $\{A^n(t)\}=(a_1(t),a_2(t),...,a_n(t))$, i.e. n - continual elements, it is possible to consider the dynamical containment of oneself $S_5^{et}(t)f\overrightarrow{A^m(t)}$ with m continual elements from $\{A^n(t)\}$, at m<n, which is process to be formed by the form (1) , that is, only m continual elements from $\{A^n(t)\}$ are located in the structure $S_5^{et}(t)f\overrightarrow{A^n(t)}$. Ddynamical co ntinual containments of oneself of the fifth type can be formed for any other structure, not necessarily Set, only through the obligatory reduction in the number of continual elements in the structure. In particular, using the form (2). Structures more complex than $S_5^{et}(t)f\overrightarrow{A^n(t)}$ can be introduced.

1.15. Dynamical Continual Set Elements with Target Weights

Definition 57

The process of the containment of A(t) with target weights $\{g_1(t)\}$ into B(t) and the displacement of D(t) with target weights $\{g_2(t)\}$ from C(t) at time t simultaneously, where some or any elements may be by dynamical continual elements, we shall call dynamical continual Set – element with target weights. Let's denote ${}^{C(t)}_{D(t)\{g_2(t)\}}St(t)^{A(t)\{g_1(t)\}}_{B(t)}$.

Definition 58

The process ${}^{C(t)}_{D(t)\{g_2(t)\}}St(t)^{\overrightarrow{A(t)\{g_1(t)\}}}_{B(t)}$ is called an ordered dynamical continual Set – element with target weights $\{g_1(t)\}$ or $\{g_2(t)\}$ at time t , or both simultaneously, if some or any elements from A, B, C, D may be by ordered dynamical continual elements with target weights.

It is allowed to add dynamical continual Set –elements with target weights $\{g_1(t)\}$, $\{g_2(t)\}$:

$$ {}_{D_1(t)\{g_2(t)\}}^{C_1(t)}St(t)_{B_1(t)}^{A_1(t)\{g_1(t)\}} + {}_{D_2(t)\{g_2(t)\}}^{C_1(t)}St(t)_{B_2(t)}^{A_2(t)\{g_1(t)\}} = $$

$$ {}_{(D_1(t)\cup D_2(t))\{g_2(t)\}}^{C_1(t)}St(t)_{B_1(t)\cup B_2(t)}^{(A_1(t)\cup A_2(t))\{g_1(t)\}} \qquad (*_9), $$

where some or any elements may be by ordered dynamical continual elements with target weights or dynamical continual elements with target weights, or both.

It is allowed to multiply dynamical continual Set –elements with target weights:

$$ {}_{D_1(t)\{g_2(t)\}}^{C_1(t)}St(t)_{B_1(t)}^{A_1(t)\{g_1(t)\}} * {}_{D_2(t)\{g_2(t)\}}^{C_1(t)}St(t)_{B_2(t)}^{A_2(t)\{g_1(t)\}} = $$

$$ {}_{(D_1(t)\cap D_2(t))\{g_2(t)\}}^{C_1(t)}St(t)_{B_1(t)\cap B_2(t)}^{(A_1(t)\cap A_2(t))\{g_1(t)\}} \qquad (*_{10}), $$

where some or any elements may be by ordered dynamical continual elements with target weights or dynamical continual elements with target weights, or both.

Dynamical continual Set – elements with target weights can be elements of a group both by multiplication ($*_{10}$) and by addition ($*_9$), and also form algebraic ring, field by these operations.

1.16. Dynamical Continual Containment of Oneself with Target Weights

Definition 59

The dynamical continual Set-capacity A(t) in itself and from itself with target weights {g(t)} of the null type is the process of a containment itself as an element with target weights {g(t)} and expelling oneself out of oneself with target weights{g(t)} at time t simultaneously, where A(t) - set of some dynamical continual elements or some ordered dynamical continual elements, or both. Denote $S_0^{et}(t)fA(t)\{g(t)\}$.

Definition 60

The dynamical continual Set-capacity A(t) in itself with target weights {g(t)} of the fourth type is the process that contains the program that allows it to be generated with target weights {g(t)} and it to be degenerated with target weights {g(t)} at time t simultaneously, where A(t) - set of some dynamical continual elements or some ordered dynamical continual elements, or both. Denote $S_4(t)fA(t)\{g(t)\}$.

Definition 61

The ordered dynamical continual Set-capacity A(t) in itself of the fifth type with target weights {g(t)} is the process of a containment of itself in part with target weights {g(t)} and expelling oneself in part with target weights {g(t)} or contains a program that allows it to be generated in part with target weights {g(t)} and it to be degenerated in part with target weights {g(t)} at time t simultaneously, or both simultaneously, where A(t) - set of some dynamical continual elements or some ordered dynamical continual elements, or both . Denote $S_5^{et}(t)fA(t)\{g(t)\}$.

Definition 62

The dynamical continual Set-capacity in itself A(t) with target weights $\{g_1(t)\}$ and from itself B(t) with target weights $\{g_2(t)\}$ of the first type is the process of a containment of A(t) itself as an element and expelling B(t) oneself with target weights $\{g_2(t)\}$ out of oneself at time t simultaneously , where some or any elements from A(t), B(t) may be by ordered dynamical continual elements with target weights or dynamical continual elements with target weights, or both:

$$ {}_{B(t)\{g_2(t)\}}^{B(t)}St(t)_{A(t)}^{A(t)\{g_1(t)\}}. \text{ Denote } S_1^{et}(t)f_{B(t)\{g_2(t)\}}^{A(t)\{g_1(t)\}}. $$

Definition 63

The dynamical continual Set1-capacity with target weights of the second type is the process of putting B(t) with target weights $\{g_1(t)\}$ into A(t) and expelling B(t) oneself with target weights $\{g_2(t)\}$ out of oneself at time t simultaneously , where some or any elements from A(t), B(t) may be by ordered dynamical continual elements with target weights or dynamical continual elements with target weights, or both:

$$ {}_{B(t)\{g_2(t)\}}^{B(t)}St(t)_{A(t)}^{B(t)\{g_1(t)\}}. \text{ Denote} S_2^{et}(t)f_{B(t)\{g_1(t)\},\{g_2(t)\}}^{A(t)}. $$

Definition 64

The dynamical continual Set[1]-capacity of the third type with target weights is the process of a containment of B(t) itself as an element with target weights $\{g_1(t)\}$ and the displacement of B(t) with target weights $\{g_1(t)\}$ from A(t) at time t simultaneously, where some or any elements from A(t), B(t) may be by ordered dynamical continual elements with target weights or dynamical continual elements with target weights, or both:

$$ {}_{B(t)\{g_1(t)\}}^{A(t)}St(t)_{B(t)}^{B(t)\{g_1(t)\}}. \text{ Denote } S_3^{et}(t)f_{B(t)\{g_1(t)\}}^{A(t)}. $$

Also we consider some elements: $S_0^{et}(t)f\ \overrightarrow{\uparrow \mathrm{I} \downarrow_{-1}^{1} \{g(t)\}}$, $S_1^{et}(t)f_{B(t)\downarrow \mathrm{I}\uparrow_{-\infty}^{\infty},}^{\uparrow \mathrm{I}\downarrow_{-1}^{1}\{g(t)\}}$ $S_2^{et}(t)f_{B(t)}^{\overrightarrow{A(t)\downarrow \mathrm{I}\uparrow_{-1}^{1}\{g(t)\}\ ,}}$, $S_3^{et}(t)f_{B(t)\{g(t)\}}^{A(t)\uparrow \mathrm{I}\downarrow_{-\infty}^{\infty}}$, $S_4^{et}(t)f\ \overrightarrow{\uparrow \mathrm{I} \downarrow_{d(t)\{g2(t)\}}^{a(t)\{g1(t)\}}}$ etc.

1.17. Connection of Dynamical Continual Sit Elements with Target Weights with Dynamical Containment of Oneself with Target Weights

Consider a fifth type of dynamical partial containment of oneself with target weights g(t). For example, based on S_5^{et}(t)fA(t){g(t)}, where $A=(a_1(t),a_2(t),\ldots,a_n(t))$, i.e. n - continual elements with target weights{g(t)} in one point x, it is possible to consider the dynamical containment of oneself with target weights S_5^{et}(t)fA(t){g(t)} with m continual elements with target weights{g(t)} from A, 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 A are located in the structure S_5^{et}(t)fA(t){g(t)}. Ddynamical containments of oneself with target weights of the fifth type can be formed for any other structure, not necessarily Set, 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_5^{et}(t)fA(t){g(t)} can be introduced.

1.18. Supplement

We consider Set-logic: consider the functional f(Q), which gives a numerical value for the truth of the statement Q from the interval [0,1] , where 0 corresponds to "no", and 1 corresponds to the logical value "yes".

Then for joint statements St_B^A, ${}_D^CSt$, A, B, C, D: f(${}_D^CSt_B^A$)= f(${}_D^CSt$)+f(St_B^A)-f(${}_D^CSt \cap St_B^A$)= $\left(\dfrac{f^{os}(C\cap D-Co(C\cap D))+f^{s}(A\cap B)+f^{-s}\left({}_{C-C\cap D}^{\{\}}St\right)}{f(A)+f(B)-f(A\cap B)+f(D)-f(C)}\right)$ -f(${}_D^CSt \cap St_B^A$), $f^s(x)$- the value of self-truth for self- statement x, $Co(x)$ – content of x, $f^{os}(x)$- the value of oself-truth for oself-statement x ; for dependent statements: f(A*B)=f(A)*f(B/A)=f(B)*f(A/B), where f(B/A)- conditional truth of the statement B at the statement A, f(A/B)- conditional truth of the statement A at the statement B, for dependent statements: f(${}_D^CSt \cap St_B^A$)= f(${}_D^CSt$)*f($St_B^A/{}_D^CSt$)= f(St_B^A)*f(${}_D^CSt/St_B^A$).

Adding the truth values of inconsistent propositions: f(A+B) = F(A)+f(B). The formula of complete truth: f(A)=$\sum_{k=1}^{n} f(B_k)*f(A/B_k)$, B1, B2, .., Bn-full group of hypotheses-statements: $\sum_{k=1}^{n} f(B_k)$=1(“yes”).

Remark: A statement can be interpreted as an event, and its truth value as a probability.

Definition 65

Set-probability of events ${}_D^CSt_B^A$ is p(${}_D^CSt_B^A$), denote ${}_D^CSp_B^A$.

Then for joint events St_B^A, ${}_A^BSt$, A, B, C, D: p(${}_D^CSt_B^A$)= p(${}_D^CSt$)+p(St_B^A)-p(${}_D^CSt \cap St_B^A$)= $\left(\dfrac{p^{oss}(C\cap D-Co(C\cap D))+p^{ss}(A\cap B)+p^{-ss}\left({}_{C-C\cap D}^{\{\}}St\right)}{p(A)+p(B)-p(A\cap B)+p(D)-p(C)}\right)$- p(${}_D^CSt \cap St_B^A$), for dependent events: p(${}_D^CSt \cap St_B^A$)= p(${}_D^CSt$)*p($St_B^A/{}_D^CSt$)= p(St_B^A)*p(${}_D^CSt/St_B^A$). $p^{ss}(x)$- the value of self-P for self- event x, $Co(x)$ – content of x, $p^{oss}(x)$- the value of oself-P for oself- event x.

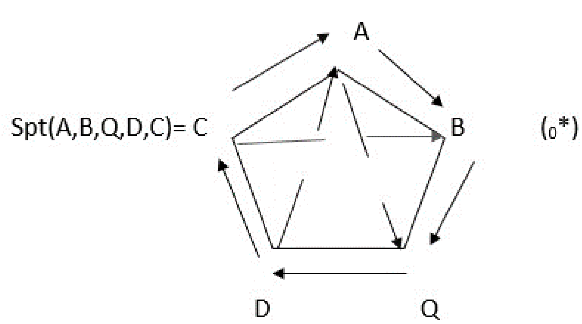
p(St_B^A) =$p_{SSt_B^A}$* p($St_B^A/E_{St_B^A}$), $p_{SSt_B^A}$ - probability of random placement A into B, $E_{St_B^A}$ -the event of random placement A into B, p(${}_D^CSt$) =$p_{{}_D^CSt}$* p(${}_D^CSt/E_{{}_D^CSSt}$), $p_{{}_D^CSt}$ - probability of accidental displacement D from C, $E_{{}_D^CSt}$- the event of accidental displacement D from C.

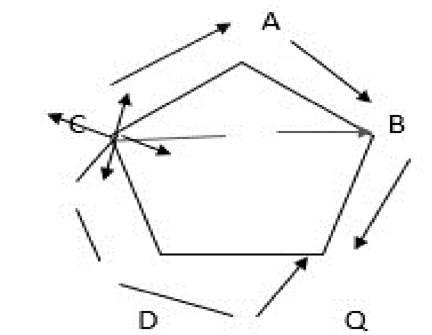
1.19. Some Applications of Set to Neuroscience

Ideology Set can be used to describe processes in the central nervous system and other vital systems at the energy and chemical levels etc. For example, ${}_{D}^{B}St_{B}^{A}$, where B denotes an organ, a complex of neurons, an individual neuron, R- what goes into it, D- what comes out of it. For example, if by B we mean the energy of the central nervous system, then in the case of degenerations of type ${}_{B}^{B}St_{B}^{A}$, ${}_{D}^{B}St_{B}^{B}$, ${}_{B}^{B}St_{B}^{B}$, ${}_{A}^{B}St_{B}^{A}$ we get descriptions of the energy of unusual states of consciousness: random for a normal person, pathological for a patient, consciously controlled for a magician, yogi. More details about this in future publications. For example, ${}_{D}^{q_B}St_{d_B}^{A}$ makes it possible to describe processes through the entry point d_B into B and the exit point q_B from B. Model $St_{the\ energy\ of\ the\ central\ nervous\ system}^{the\ energy\ of\ the\ central\ nervous\ system}$ corresponds to the exit of the ordinary energy of the central nervous system to its border with the space of subtler, more structured energies and the involvement of the central nervous system of its part from subtler, structured energies and the involvement of the central nervous system of its part from subtler, more structured energies. This happens through its activation: $St_{\text{activation}}^{the\ central\ nervous\ system}$. It can be carried out through the epiphysis, hypothalamus and other formations of the central nervous system. ${}_{energy\ of\ the\ central\ nervous\ system}^{energy\ of\ the\ central\ nervous\ system}St_{energy\ of\ the\ central\ nervous\ system}^{energy\ of\ the\ central\ nervous\ system}$ 1 corresponds to the exit of the ordinary energy of the central nervous system to its border with the space of subtler, even more structured energies energies and the involvement of the central nervous system of its part from subtler, even more structured energies.

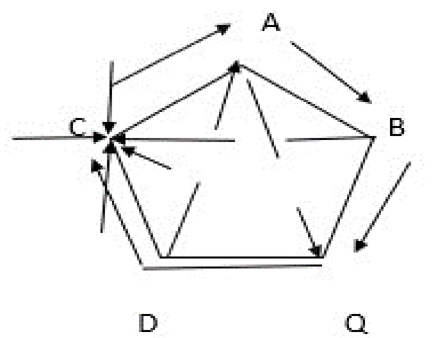
May be considered variable structures (models), both discrete and continuous:
a) with variable connections,
b) with the variable backbone for links,
c) generalized version; in particular, in variable structures (models), for example,

1. The structure (0*), where A goes into B, B goes into Q, Q goes into D, D goes into C, C goes into A, D goes out from A, A goes out from Q, C goes out from B, is used by the ancient Chinese concept of "wu-xing," for example, for energy meridians on the skin person, in this case ($_1$*), ($_2$*), ($_3$*) will mean pathological changes.

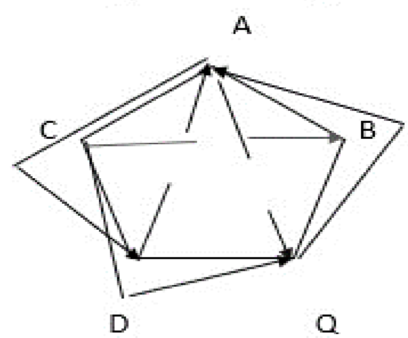




(1*)



(2*)



(3*)

$$2)\ {}^{C}_{D}St(t)^{A}_{B}=\begin{cases} {}^{C}_{D}St, & q_2 \ge t \ge q_1 \\ {}^{B}_{D}S^1t^{A}_{B}, & q_3 \ge t > q_2 \\ {}^{C}_{D}St^{A}_{B}, & q_4 \ge t > q_3 \\ St^{A}_{B}, & q_5 \ge t > q_4 \\ {}^{\{\}}_{D}St, & t > q_5 \\ \dots & \end{cases} \quad (4^*)$$

1.20. The Usage of Set-Elements for Networks

Here we consider a generalization of networks Sit-networks Set [2]. The same simple executing programs are in the cores of simple artificial neurons of type Set (designation - Mn Set) for simple information processing. More complex executing programs are used for MN Set nodes. Set-threshold element –sgn(${}^{b}_{\{qy\}}St^{\{ax\}}_{b}$), b- mnSet, $x=(x_1,x_{2,\dots,}x_n)$ – source signals values, $a=(a_1,a_2,\dots,a_n)$ – Set-synapses weights, {qy}-output signals. The first level of Mn Set consists of simple Mn Set. The second level of Mn Set consists of ${}_{\{\text{mnSet}\}}^{D}St_{D}^{\{\text{mnSet}\}}$ – Set-node of mnSet in range D, D- capacity for mnSet node. The third level of mnSet consists of ${}_{{}_{\{\text{mnSet}\}}^{D}St_{D}^{\{\text{mnSet}\}}}^{D}St_{D}^{\{\text{mnSet}\}{}^{D}St_{D}^{\{\text{mnSet}\}}}$ - Set^2- node of Mn Set in range D, thus D becomes capacity of itself in itself as an element for Mn Set. For our networks, it is sufficient to use Set^2- nodes of Mn Set, but self-level is higher in living organisms, particularly Sen^t-, n≥3. The target structure or the corresponding program enters the target unit using alternating current. After that, all networks or parts of them are activated according to the indicative goal. It may appear that we are leaving the network ideology, but these networks are a complex hierarchy of different levels, like living organisms.

Remark. Traditional scientific approaches through classical mathematics make it possible to describe only at the usual energy level. Here we consider an approach that makes describing processes with finer energies possible. Mn Set contains ${}_{\{\text{esprograms}\}}^{\{\text{mnSet}\}}St_{\{\text{mnSet}\}}^{\{\text{esprograms}\}}$, esprogram –executing program in Set- OS. Set-OS (or Self-OS) is based on Set-assembly language (or Self-assembly language), which is based on assembly language through Set-approach in turn, if the base of elements of Set-networks is sufficient. The reprograms are in Set-programming environments (or Self-programming environments), but this question and Set-networks base will be considered in the following monographs. In particular, reprograms may contain Set- programming operators. In Mn Set cores, the constant memory Set with correspondent reprograms depending on Mn Set.

The ideology of Set and S_3f [2], can be used here for programming. Here are some of the Set programming operators.

The ideology of Set and $S_5^{et}f$ can be used for programming. Here are some of the Set- program operators.

1. Simultaneous the containment of assignment of the expressions $\{p\} = (p_1, p_2, \ldots, p_n)$ to the variables $A = (\mathrm{a}_1, \mathrm{a}_2, \ldots, \mathrm{a}_n)$ and expelling it away. It's iimplemented through ${}_{\{=:\{p\}\}}^{\quad A}St_{A}^{\{=:\{p\}\}}$.
2. Simultaneous check the set of conditions $\{f\} = \left(f_1, f_{2,} \ldots, f_n\right)$ for a set of expressions $\{B\} = \left(B_1, B_{2,} \ldots, B_n\right)$ and expelling it away. It's implemented through ${}_{IF\{\{B\}\{f\}\}\ then\ Q}^{\quad x}St_{x}^{IF\{\{B\}\{f\}\}\ then\ Q}$ where Q can be any.
3. Similarly, for loop operators and others.

$S_5^{et}f$ – software operators will differ only just because aggregates $\{\mathrm{a}\}, \{p\}, \{B\}, \{f\}$ will be formed from corresponding Set-program operators in form (1) for more complex operators in form (2). The OS (operating system) and the principles and modes of operation of the Set-networks for this programming are interesting. But this is already the material for the next publications.

Here is developed a helicopter model without a main and tail rotor based on Set physics and special neural networks with artificial neurons operating in normal and Set-modes. Let's denote this model through Sunset. To do this, it's proposed to use Mn Set of different levels; for example, for the usual mode, Mn Set serves for the initial processing of signals and the transfer of information to the second level, etc., to the nodal center, then checked. In case of an anomaly - local Set–mode with the desired "target weight" is realized in this section, etc., to the center. In the case of a monster during the test, Sunset is activated with the desired "target weight." Here are realized other tasks also. To reach the self-energy level, the mode ${}_{\mathrm{Smnset}}^{\mathrm{Smnset}}St_{\mathrm{Smnset}}^{\mathrm{Smnset}}$ is used. In normal mode, it's planned to carry out the movement of Smnst on jet propulsion by converting 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 Sunset for the gases emitted by the jet engine, which first exit through a straight chute connected to the spiral one. There is drainage of exhaust gases outside the Sunset. Sunset is represented by a neural network that extends from the center of one of the main clusters of Set - artificial neurons to the shell, turning into the body itself. Above the operator's cabin is the central core of the neural network and the target block, 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 Sunset's actions is below the operator's cab. In Set – mode, the entire network or its sections are Set – activated to perform specific tasks, in particular, with "target weights." In the target, block used Set-coding, Set-translation for activation of all networks to "target weights" simultaneously, then –the reset of this Set-coding after activation, which is carried out automatically due to structure Set. Unfortunately, triodes are not suitable for Set -neural networks. In the most primitive case, usual separators with corresponding resistances and cores for reprograms may be used instead triodes since there is no necessity to unbend the alternating current to direct.

The Set-operative memory belt is disposed around a central core of Sunset. There are Set-coding, Set-translation, and Set-realize of reprograms and the programs from the archives without extraction, Set-coding and Set-translation may be used in high-intensity, ultra-short optical pulses laser of Nobel laureates 2018-year Gerard Mourou, Donna, Strickland. Set – structure or an esprogram if one is present of needed «target weight» are taken in target block at Set – activation of the networks. ${}^{activantion}_{\mathrm{Smnset\ f}}St^{S_{mnSet},f}_{activantion}$ derives S_{unset} to the self-level boundary with target weight f. It's used an alternating current of above high frequency and ultra-violet light, which can work with Set – structures in Set–modes by its nature to activate the networks or some of its parts in Set–modes and locally using Set–mode. Above high frequently alternating current go through mercury bearers. That's why overheating does not occur. The power of the alternating current above high frequently increases considerably for the target block. The activation of all networks is realized to indicate "target weights." Networks Set can also be used to automate process control, diagnosis and treatment of diseases, especially the central nervous system.

Supplement

Energy of a living organism:

$$f(r, a(E_q)) = St_{t_0}^{\left\{ {}^{q({}^a_aSt^a_a)}_{W_q}St^{E_q}_{q({}^a_aSt^a_a)},\ St^{\{El^{d_r},\, q({}^a_aSt^a_a)\}}_{d_r} \right\}}$$

${}^a_aSt^a_a$ -internal energy of a living organism, q- a gap in the energy cocoon of a living organism, r- the position of the assemblage point d_r on the energy cocoon of a living organism, W_q- energy prominences from the gap in the cocoon of a living organism, E_q-external energy entering the gap in the cocoon of a living organism, El^{d_r} - a bundle of fibers of external energy self-capacities, collected at the point of assembly of the cocoon of a living organism. For example, St^{DNA}_{DNA} allows you to reach the level of DNA self-energy. Set model corresponds to the distribution of self-energy of a living organism, in particular a human one. The left part ${}^C_DSt$ corresponds to the distribution of self-energy of the left half of a living organism, the right part St^A_B corresponds to the distribution of self-energy of the right half of a living organism. For example, based on operations : $S_1t^{A_1*}_{B_1*} + {}^{C_2}_{D_2}S_1t^{A_2}_{B_2} = {}^{B_1\cup C_2}_{A_1\cup D_2}S_1t^{A_1\cup A_2}_{B_1\cup B_2}$, $S_1t^{A_1}_{B_1} + {}^{C_2}_{D_2}S_1t^{A_2}_{B_2} = {}^{C_2}_{D_2}S_1t^{A_1\cup A_2}_{B_1\cup B_2}$ we get

$$St^{virus\ C*}_{virus\ C*} + {}^{culture\ medium\ for\ A}_{culture\ medium\ for\ A}S_1t^{culture\ medium\ for\ A}_{culture\ medium\ for\ A} =$$
$${}^{virus\ C+culture\ medium\ for\ A}_{virus\ C+culture\ medium\ for\ A}S_1t^{virus\ C+culture\ medium\ for\ A}_{virus\ C+culture\ medium\ for\ A},$$

$$St^{\ B}_{\ B} + {}^{culture\ medium\ for\ A}_{culture\ medium\ for\ A}S_1t^{culture\ medium\ for\ A}_{culture\ medium\ for\ A} = {}^{culture\ medium\ for\ A}_{culture\ medium\ for\ A}S_1t^{\ B+culture\ medium\ for\ A}_{B+culture\ medium\ for\ A}$$

It is clear that a chemical agent (tablets) St^B_B cannot destroy the virus, since St^B_B cannot actually enter ${}^{virus\ C+culture\ medium\ for\ A}_{virus\ C+culture\ medium\ for\ A}S_1t^{virus\ C+culture\ medium\ for\ A}_{virus\ C+culture\ medium\ for\ A}$, incompatible objects in the addition operation, there is no interaction directly with the virus, but a simple overlay. The aggressiveness of the virus is modeled here by the target weight *. Here, virus cure is modeled by an antivirus model $St^{-virus\ C*}_{-virus\ C*}$ with a target weight *: $St^{-virus\ C*}_{-virus\ C*} +$
$$+{}^{virus\ C+culture\ medium\ for\ A}_{virus\ C+culture\ medium\ for\ A}S_1t^{virus\ C+culture\ medium\ for\ A}_{virus\ C+culture\ medium\ for\ A} =$$
$$={}^{culture\ medium\ for\ A}_{culture\ medium\ for\ A}S_1t^{culture\ medium\ for\ A}_{culture\ medium\ for\ A}.$$

Here, an antivirus (-*virus C*) can be an appropriate agent, a virus-antagonist to this virus and etc.

Authors' contributions

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

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References

1. Jech, T. J. (2006). Lectures in set theory: with particular emphasis on the method.
2. Danilishyn, I., Danilishyn, O., & Pasynkov, V. (2023). THE USAGE OF SIT-ELEMENTS FOR NETWORKS. Collection of scientific papers «ΛΌГOΣ», (March 31, 2023; Zurich, Switzerland), 129-134.
3. Danilishyn, I., Danilishyn, O., & Pasynkov, V. (2023). MATHEMATICS ST, PROGRAMMING OPERATORS ST AND SOME EMPLOYMENT. Collection of scientific papers «SCIENTIA», (March 10, 2023; Valencia, Spain), 123-127.
4. 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