

# Dynamic Sets Se, Networks Se

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## Abstract

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

**Keywords:** Dynamic Set Se, Se -Elements, Capacity Se, Se - Sets in Themselves, Se - 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 [4]. Instead of the axiom of regularity, we introduce the following axioms: Axiom R1.

$\forall B(St_{CoB}^B=B)$ . Axiom R2.  $\forall B(\exists B-1)$ . 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.

## 2. Se –elements

### 2.1. Definition 1

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

A, B, C, D-are any, in particular A may be action, action in the right direction and with the right goal (action with the so-called target weights [2,7]).

### 2.2. Definition 2

${}^B St_B^A$  with ordered elements  $A \rightarrow$  and  $D \rightarrow$  is called an ordered Se – element.

It is allowed to add Se – elements:  ${}^{B_1} St_{B_1}^{A_1} + {}^{B_2} St_{B_2}^{A_2} = {}^{B_1 \cup B_2} St_{B_1}^{A_1 \cup A_2} (*_1)$ ,

where some or any elements may be by ordered elements.

It is allowed to multiply Se – elements:  ${}^C St_C^{A_1} * {}^C St_C^{A_2} = {}^C St_{C \cap D_2}^{A_1 \cap A_2} (*_2)$ ,

where some or any elements may be by ordered elements.

Se – elements can be elements of a group both by multiplication  $(*_2)$  and by addition  $(*_1)$ , and also form an algebraic ring, field by these operations. Consider

Se-capacity in itself.

### 2.3. Definition 3

The Se'-capacity of the first type is the capacity containing A into B and expelling an out of B simultaneously:  ${}^B St_B^A$ . Denote  $S_1^e f_B^A$ .

## 2.4. Definition 4

The Se<sup>1</sup>-capacity of the second type is the capacity containing A into B and expelling B oneself out of oneself simultaneously:

${}^BSt_B^A$ . Denote  $S_2^e f_B^A$ .

## 2.5. Definition 5

The Se<sup>1</sup>-capacity of the third type is the capacity B containing itself as an element and the displacement of A from B simultaneously:

${}_ASt_B^B$ . Denote  $S_3^e f_B^A$ .

## 2.6. Definition 6

Se-capacity A in itself of the fourth type is called Se-capacity in itself, which contains itself in part and expelling oneself in part or contains elements from which it can be generated in part, and it can be degenerated in part, or both simultaneously. Let us denote  $S_4^e f_A$ . Definition 6.1. Se-capacity A in itself of the fifth type is called Se-capacity in itself, which contains itself and expelling oneself or contains elements from which it can be generated, and it can be degenerated, or both simultaneously. Let us denote  $S_5^e f_A$ .

Consider the connection of Se – elements with Se-capacity in itself. Consider a fourth type of self-capacity. For example,  $S_4^e f_A$  where  $A=(a_1, a_2, \dots, a_n)$  it is possible to consider Se-capacity in itself  $S_4^e f_A$  with m elements from A, at  $m < n$ , which is formed by the form (1), that is, only m elements are located in the structure  $S_4^e f_A$ . Se-capacity in itself of the fourth type can be formed for any other structure, not necessarily Se, only through the obligatory reduction in the number of elements in the structure [1]. In particular, using the form (2), Structures more complex than  $S_4^e f_A$  can be introduced. Consider mathematics Se:

- Similarly, for the simultaneous execution of various operators:  ${}_{F_1 D}^{F_0 B} St_{F_0 B}^{F_2 A}$ , where  $F_0, F_1, F_2$  are operators.
- Similarly, for the simultaneous execution of various operators:  $S_j^e fFA$ ,  $j=1,2,3,4$ , where  $\{F\} = (F_0, F_1, F_2)$  are operators.
- ${}^BSt_B^A$  – is the result of the holding operator action and of the the expelling operator action, the dynamical hierarchical set of null type  ${}^BSt_B^A$  – 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  ${}^BSt_B^A$ :

$${}^BSt_B^A = \{ {}_{Q \cap B}^{Q \cap B} St_{A \cap B}^{A \cap B} + {}_{Q \cap B}^{Q \cap B} St_B^A \} \quad (1)$$

$$R_{11} + R_{21} + R_{31}$$

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

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

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

The measure:

$$\mu({}^BSt_B^A) = ( {}^o \mu({}_{Q \cap B}^{Q \cap B} St_{A \cap B}^{A \cap B}) + \mu^s({}_{Q \cap B}^{Q \cap B} St_B^A) ) \quad (2)$$

$$\mu(A) + 2\mu(B) - \mu(Q)$$

$${}^BSt_B^A = \{ {}_{Q \cap B+Q \cap A}^{B-(Q \cap B+Q \cap A)} St_{B-A \cap B-Q \cap A}^{A-A \cap B-Q \cap A} + {}_{(Q \cap B+Q \cap A)}^{(Q \cap B+Q \cap A)} St_B^A \} \quad (3)$$

$$R_{12} + R_{22} + R_{32}$$

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

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

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

The measure:

$$\mu({}^BSt_B^A) = ( {}^o \mu({}_{Q \cap B+Q \cap A}^{B-(Q \cap B+Q \cap A)} St_{A \cap B+Q \cap A}^{A \cap B+Q \cap A}) + \mu^s({}_{(Q \cap B+Q \cap A)}^{(Q \cap B+Q \cap A)} St_B^A) ) \quad (4)$$

$$\mu(A) + 2\mu(B) - \mu(Q)$$

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

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

Consider the concepts of Se-capacity in itself of physical objects A, B. Similar to the concepts of publication: the Se<sup>1</sup>-capacity of the first type is the capacity containing A into B and expelling an out of B simultaneously:  $S_i^e f_B^A$ . Se-capacity in itself of the fourth type A is called Se-capacity in itself, which 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:  $S_i^e fA$ . By analogy, for  $S_2^e f_B^A, S_3^e f_B^A$ .

Also, you can consider these types of Se-capacity in itself for other objects. For example:  $S_i^e f$  operator A,  $S_i^e f$  action B,  $S_i^e f$  made Q i=1,2,3,4 etc.

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

The ideology of Se and  $S_i^e f$  can be used for programming. Here are some of the Se- program operators.

- Simultaneous the containment of assignment of the expressions  $\{p\} = (p_1, p_2, \dots, p_n)$  to the variables  $A = (a_1, a_2, \dots, a_n)$  and expelling it away. It's implemented through  $\frac{A}{\{=: \{p\}\}} St_A^{\{=: \{p\}\}}$ .
- Simultaneous check the set of conditions  $\{f\} = (f_1, f_2, \dots, f_n)$  for a set of expressions  $\{B\} = (B_1, B_2, \dots, B_n)$  and expelling it away. It's implemented through  $IF\{\{B\}\{f\}\} then Q St_x^{IF\{\{B\}\{f\}\} then Q}$  where Q can be any. Similarly, for loop operators and others.
- $S_4^e f$  – software operators will differ only just because aggregates  $\{a\}, \{p\}, \{B\}, \{f\}$  will be formed from corresponding Se-program operators in form (1) for more complex operators in form (2) [1].
- Consider the dynamical Se – elements.

## 2.7. Definition 7

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

## 2.8. Definition 8

$\frac{B(t)}{D(t)} St(t)_{B(t)}^{\overline{A(t)}}$  with ordered elements  $\vec{A}(t)$  and  $\vec{D}(t)$  is called an ordered dynamical Se – element.

It is allowed to add dynamical Se – elements:  $\frac{B_1(t)}{D_1(t)} St(t)_{B_1(t)}^{A_1(t)} + \frac{B_2(t)}{D_2(t)} St(t)_{B_2(t)}^{A_2(t)} = \frac{B_1(t)}{D_1(t) \cup D_2(t)} St(t)_{B_1(t)}^{A_1(t) \cup A_2(t)} (*_3)$

It is allowed to multiply dynamical Se – elements:  $\frac{B_1(t)}{D_1(t)} St(t)_{B_1(t)}^{A_1(t)} * \frac{B_2(t)}{D_2(t)} St(t)_{B_2(t)}^{A_2(t)} = \frac{B_1(t)}{D_1(t) \cap D_2(t)} St(t)_{B_1(t)}^{A_1(t) \cap A_2(t)} (*_4)$

Se – elements can be elements of a group by multiplication (\*<sub>4</sub>) and by addition (\*<sub>3</sub>), and algebraic ring, field by these operations. Consider the dynamical Se-capacity in itself.

## 2.9. Definition 9

The dynamical Se<sup>1</sup>-capacity of the first type is the process of putting B(t) into A(t) and expelling B(t) out of A(t) at time t simultaneously:  $\frac{A(t)}{B(t)}St(t)\frac{B(t)}{A(t)}$ . Denote  $S_1^e(t)f_{A(t)}^{B(t)}$ .

## 2.10. Definition 10

The dynamical Se<sup>1</sup>-capacity of the second type is the process of putting A(t) into B(t) and expelling B(t) oneself out of oneself at time t simultaneously:  $\frac{B(t)}{B(t)}St(t)\frac{A(t)}{B(t)}$ . Denote  $S_2^e(t)f_{B(t)}^{A(t)}$ .

## 2.11. Definition 11

Dynamical Se<sup>1</sup>-capacity of the third type is the process of a containment B(t) itself as an element and the displacement of A(t) from B(t) at time t simultaneously:  $\frac{B(t)}{A(t)}St(t)\frac{B(t)}{B(t)}$ . Denote  $S_3^e(t)f_{B(t)}^{A(t)}$ .

## 2.12. Definition 12

Dynamical Se-capacity in itself A(t) of the fourth type is the process of a containment of itself and expelling oneself or the process of a containment of elements from which it can be generated, and it can be degenerated at time t simultaneously through the structure Se. Let's denote  $S_4^e(t)fA(t)$ .

## 2.13. Definition 13

Dynamical Se-capacity in itself of the fifth type A(t) is the process of a containment of itself in part and expelling oneself in part or the process of a containment of elements from which it can be generated in part, and it can be degenerated in part at time t through the structure Se, or both simultaneously. Let us denote  $S_5^e(t)fA(t)$ .

Consider the connection of dynamical Se – elements with dynamical Se-capacity in itself. Consider dynamical Se-capacity in itself of the fifth type A(t):  $S_5^e(t)fA(t)$ . For  $A(t) = (a_1(t), a_2(t), \dots, a_n(t))$  it is possible to consider the dynamical Se-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)[1], that is, only m elements from A(t) are located in the structure  $\frac{B(t)}{D(t)}St(t)\frac{A(t)}{B(t)}$ . The same for D(t) =  $(d_1(t), d_2(t), \dots, d_n(t))$  in it. dynamical Se-capacity in itself of the fifth type can be formed for any other structure, not necessarily Se, only through the obligatory reduction in the number of elements in the structure. In particular, using the form (2)[1]. Structures more complex than  $S_5^e(t)fA(t)$  can be introduced. Consider the Dynamical Mathematics Se:

- Similarly, for the simultaneous execution of various operators:  $\frac{F_0(t)C(t)}{F_1(t)D(t)}St(t)\frac{F_2(t)A(t)}{F_0(t)C(t)}$ , where  $F_0(t), F_1(t), F_2(t)$  are operators.
- Similarly, for the simultaneous execution of various operators:  $S_j^e(t)fF(t)A(t)$ ,  $j=4,5$ , and  $S_k^e(t)f_{B(t)}^{A(t)}$ ,  $k=1,2,3$ , where  $\{F(t)\} = (F_0(t), F_1(t), F_2(t))$  are operators.

The concepts of dynamical Se–force:  $\frac{F_2(t)}{F_3(t)}St(t)\frac{F_1(t)}{F_2(t)}$  –the containment of force F<sub>1</sub>(t) into force F<sub>2</sub>(t) and the displacement of force F<sub>3</sub>(t) from force F<sub>2</sub>(t) at time t simultaneously, dynamical Se–energy:  $\frac{E_2(t)}{E_3(t)}St(t)\frac{E_1(t)}{E_2(t)}$  –the containment of energy E<sub>1</sub>(t) into energy E<sub>2</sub>(t) and the displacement of energy E<sub>3</sub>(t) from energy E<sub>2</sub>(t) at time t simultaneously.

Consider the concepts of dynamical Se-capacity in itself of physical objects A(t), B(t). Similar to the concepts of publication: the dynamical Se-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:  $S_5^e(t)fA(t)$ ,  $S_5^e(t)fB(t)$ . By analogy, for  $S_1^e(t)f_{B(t)}^{A(t)}$ ,  $S_2^e(t)f_{B(t)}^{A(t)}$ ,  $S_3^e(t)f_{B(t)}^{A(t)}$ ,  $S_4^e(t)fA(t)$ .

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

Remark. 1The concept of elements of physics dynamical Se is introduced for energy space. The corresponding concept of elements of chemistry dynamical Se is introduced accordingly.

The ideology of Se and  $S_4^e(t)f$  can be used for programming. Here are some of the Se- program operators.

- Simultaneous the containment of assignment of the expressions  $\{p(t)\} = (p_1(t), p_2(t), \dots, p_n(t))$  to the variables  $A(t) = (a_1(t), a_2(t), \dots, a_n(t))$  and expelling it away. It's implemented through  $\frac{A(t)}{\{=: \{p(t)\}\}} St(t)_{A(t)}$ .
- Simultaneous check the set of conditions  $\{f\} = (f_1, f_2, \dots, f_n)$  for a set of expressions  $\{B\} = (B_1, B_2, \dots, B_n)$  and expelling it away. It's implemented through  $\frac{x(t)}{IF\{\{B(t)\}\{f(t)\}\} then Q(t)} St_{x(t)}^{IF\{\{B(t)\}\{f(t)\}\} then Q(t)}$  where  $Q(t)$  can be any.
- Similarly, for loop operators and others.
- $S_4^e f$  – software operators will differ only just because aggregates  $\{a\}, \{p\}, \{B\}, \{f\}$  will be formed from corresponding Se program operators in form (1)[1] for more complex operators in form (2)[1].
- Consider Se – elements for continual sets.
- Here we consider some continual Se-elements and continual self-consistencies in itself as an element.

### 2.13. Definition

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

Definition 15.  ${}^B St_B^{\vec{A}}$  with ordered elements  $\vec{A}$  and  $\vec{D}$ , where  $A, B, D$ - sets of continual elements, is called an ordered continual Se – element.

It is allowed to add continual Se – elements:

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

where some or any elements may be by ordered elements.

It is allowed to multiply continual Se – elements:  ${}_{D_1}^C St_C^{A_1} * {}_{D_2}^C St_C^{A_2} = {}_{D_1 \cap D_2}^C St_C^{A_1 \cap A_2} (*_6)$ , where some or any elements may be by ordered elements.

Ccontinual Se – elements can be elements of a group by multiplication (\*6) and by addition (\*5), and algebraic ring, field by these operations. Consider Se-capacity in itself for continual sets. Definition 16. The continual Se<sup>1</sup>-capacity of the first type is the capacity containing A into B and expelling A out of B simultaneously, where A, B- sets of continual elements:  ${}^B St_B^A$ . Denote  $S_1^e f_B^A$ .

### 2.17. Definition 17

The continual Se<sup>1</sup>-capacity of the second type is the capacity containing A into B and expelling B oneself out of oneself simultaneously, where A, B- sets of continual elements:  ${}^B St_B^A$ . Denote  $S_2^e f_B^A$ .

Definition 18. The continual Se<sup>1</sup>-capacity of the third type is the capacity B containing itself as an element and the displacement of A from B simultaneously, where A, B- sets of continual elements:  ${}^B St_B^B$ . Denote  $S_3^e f_B^A$ .

### 2.19. Definition 19

The continual Se-capacity A in itself of the fourth type, where A- set of continual elements, is called Se-capacity in itself, which contains itself in part and expelling oneself in part or contains elements from which it can be generated in part, and it can be degenerated in part, or both simultaneously. Let us denote  $S_4^e f_A$ .

### 2.20. Definition 20

The ordered continual Se<sup>1</sup>-capacity of the first type is the capacity containing  $A^\rightarrow$  into B and expelling  $A^\rightarrow$  out of B simultaneously, where  $A^\rightarrow$  - ordered set of continual elements, B- set of continual elements:  ${}^B St_B^{\vec{A}}$ . Denote  $S_1^e f_B^{\vec{A}}$ .

### 2.21. Definition 21

The ordered continual Se<sup>2</sup>-capacity of the first type is the capacity containing A into  $B^\rightarrow$  and expelling A out of  $B^\rightarrow$  simultaneously, where  $B^\rightarrow$ -ordered set of continual elements, A- set of continual elements:  ${}^{\vec{B}} St_B^A$ . Denote  $S_1^e f_B^A$ .

### 2.22. Definition 22

The ordered continual Se<sup>3</sup>-capacity of the first type is the capacity containing  $A^\rightarrow$  into  $B^\rightarrow$  and expelling  $A^\rightarrow$  out of  $B^\rightarrow$  simultaneously, where  $A^\rightarrow B^\rightarrow$ -ordered sets of continual elements:  ${}^{\vec{B}} St_B^{\vec{A}}$ . Denote  $S_1^e f_B^{\vec{A}}$ .

### 2.23. Definition 23

The ordered continual Se<sup>1</sup>-capacity of the second type is the capacity containing  $A^\rightarrow$  into B and expelling B oneself out of oneself simultaneously, where  $A^\rightarrow$  - ordered set of continual elements, B- set of continual elements:  ${}^B St_B^{\vec{A}}$ . Denote  $S_2^e f_B^{\vec{A}}$ .

### 2.24. Definition 24

The ordered continual Se<sup>2</sup>-capacity of the second type is the capacity containing A into  $B^\rightarrow$  and expelling  $B^\rightarrow$  oneself out of oneself simultaneously, where  $B^\rightarrow$ - ordered sets of continual elements, A- set of continual elements:  ${}^{\vec{B}} St_B^A$ . Denote  $S_2^e f_B^A$ .

### 2.25. Definition 25

The ordered continual Se<sup>3</sup>-capacity of the second type is the capacity containing  $A^\rightarrow$  into  $B^\rightarrow$  and expelling  $B^\rightarrow$  oneself out of oneself simultaneously, where  $A^\rightarrow, B^\rightarrow$  - ordered sets of continual elements:  ${}^{\vec{B}} St_B^{\vec{A}}$ . Denote  $S_2^e f_B^{\vec{A}}$ .

### 2.26. Definition 26

The ordered continual Se<sup>1</sup>-capacity of the third type is the capacity B containing itself as an element and the displacement of  $A^\rightarrow$  from B simultaneously, where  $A^\rightarrow$ - ordered set of continual elements, B- set of continual elements:  ${}^B St_B^B$ . Denote  $S_3^e f_B^{\vec{A}}$ .

### 2.27. Definition 27

The ordered continual Se<sup>2</sup>-capacity of the third type is the capacity  $B^\rightarrow$  containing itself as an element and the displacement of A from  $B^\rightarrow$  simultaneously, where  $B^\rightarrow$ - ordered sets of continual elements, A- set of continual elements:  ${}^{\vec{B}} St_B^{\vec{B}}$ . Denote  $S_3^e f_B^{\vec{A}}$ .

### 2.28. Definition 28

The ordered continual Se<sup>3</sup>-capacity of the third type is the capacity  $B^\rightarrow$  containing itself as an element and the displacement of  $A^\rightarrow$  from  $B^\rightarrow$  simultaneously, where  $A^\rightarrow, B^\rightarrow$ - ordered sets of continual elements:  ${}^{\vec{B}} St_B^{\vec{B}}$ . Denote  $S_3^e f_B^{\vec{A}}$ .

### 2.29. Definition

The ordered continual Se-capacity in itself of the fourth type  $A^\rightarrow$ , where  $A^\rightarrow$  - ordered set of continual elements, is called Se-capacity in itself, which contains itself in part and expelling oneself in part or contains elements from which it can be generated in part, and

it can be degenerated in part, or both simultaneously. Let us denote  $S_4^e f A^{\rightarrow}$ .

#### 2.1.29. Definition

The ordered continual Se-capacity in itself of the fifth type  $A^{\rightarrow}$ , where  $A^{\rightarrow}$  - ordered set of continual elements, is called Se-capacity in itself, which contains itself and expelling oneself or contains elements from which it can be generated, and it can be degenerated, or both simultaneously. Let us denote  $S_5^e f A^{\rightarrow}$ .

Also we consider next elements:  $S_1^e f_{B \downarrow \uparrow \infty}^{\uparrow \downarrow 1}$ ,  $S_2^e f_B^{\overline{A \downarrow \uparrow 1}}$ ,  $S_3^e f_B^{A \uparrow \downarrow \infty}$ ,  $S_4^e f \overline{\uparrow \downarrow d}^a$  [7] etc. Consider the connection of Se – elements for continual sets with self-capacity in itself as an element. Consider a fourth type of continual self-consistency in itself as an element. For example,  $S_4^e f A$ , where  $A = (a_1, a_2, \dots, a_n)$ , i.e.  $a_i$  - continual elements,  $i=1, 2, \dots, n$ . It's possible to consider the continual self-consistency in itself as an element  $S_4^e f A$  with  $m$  continual elements from  $A$ , at  $m < n$ , which is formed by the form (1)[1], that is, only  $m$  continual elements are located in the structure  $S_4^e f A$ . Continual self-consistencies in itself as an element of the fourth type can be formed for any other structure, not necessarily Se, only through the obligatory reduction in the number of continual elements in the structure. In particular, using the form (2)[1]. Structures more complex than  $S_4^e f A$  can be introduced. The same for  $S_4^e f \vec{A}$ .

Consider mathematics for continual Se-elements.

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

Let's introduce operator to transform capacity to self-consistency in itself as an element:  $Q_4 Se(A)$  transforms  $A$  to  $S_4^e f A$ ,  $Q_i Se(A, B)$  transforms  $A$  to  $S_i^e f_B^A$ , where  $A, B$  may be ordered sets of continual elements,  $i=1, 2, 3$ .

${}_{Q}^B St_B^A$  – is the result of the holding operator action and of the the expelling operator action, the continual dynamical hierarchical set of null type  ${}_{Q}^B St_B^A$  - 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

$${}_{Q}^B St_B^A = \left\{ \begin{array}{c} {}_{Q \cap B}^{Q \cap B} St_{A \cap B}^{A \cap B} \\ {}_{Q}^B St_{A \cap B}^{A \cap B} + {}_{Q \cap B}^{Q \cap B} St_B^A \\ R_1 + R_2 + R_3 \end{array} \right\} \quad (5)$$

$$R_1 = {}_{Q-Q \cap B}^{B-Q \cap B} St_{B-A \cap B}^{A-A \cap B} + {}_{Q-Q \cap B}^{B-Q \cap B} St_{A \cap B}^{A-A \cap B} + {}_{Q-Q \cap B}^{B-Q \cap B} St_{B-A \cap B}^{A \cap B}$$



$$R_2 = {}^{B-Q \cap B}_{Q \cap B} St_{B-A \cap B}^{A-A \cap B} + {}^{B-Q \cap B}_{Q \cap B} St_{A \cap B}^{A-A \cap B} + {}^{B-Q \cap B}_{Q \cap B} St_{B-A \cap B}^{A \cap B}$$

$$R_3 = {}^{Q \cap B}_{Q-Q \cap B} St_{B-A \cap B}^{A-A \cap B} + {}^{Q \cap B}_{Q-Q \cap B} St_{A \cap B}^{A-A \cap B} + {}^{Q \cap B}_{Q-Q \cap B} St_{B-A \cap B}^{A \cap B}$$

The measure:

$$\mu({}^B St_B^A) = ({}^o \mu({}^B St_{A \cap B}^{A \cap B}) + \mu^s({}^{Q \cap B}_{Q \cap B} St_B^A)) \quad (6)$$

$$\mu(A) + \mu(B) - \mu(Q)$$

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

Consider the dynamical continual Se – elements.

### 2.30. Definition

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

### 2.31. Definition

${}^{B(t)}_{D(t)} St(t)_{B(t)}^{\overline{A(t)}}$  is called an ordered continual dynamical Se – element, if some or any elements from  $A(t)$ ,  $B(t)$ ,  $D(t)$  may be by ordered dynamical continual elements. It is allowed to add dynamical continual Se – elements:  ${}^{B_1(t)}_{D_1(t)} St(t)_{B_1(t)}^{A_1(t)} + {}^{B_2(t)}_{D_2(t)} St(t)_{B_2(t)}^{A_2(t)} = {}^{B_1(t)}_{D_1(t) \cup D_2(t)} St(t)_{B_1(t)}^{A_1(t) \cup A_2(t)}$  (\*<sub>7</sub>), where some or any elements may be by ordered dynamical continual elements.

It is allowed to add dynamical continual Se – elements:  ${}^{B_1(t)}_{D_1(t)} St(t)_{B_1(t)}^{A_1(t)} * {}^{B_2(t)}_{D_2(t)} St(t)_{B_2(t)}^{A_2(t)} = {}^{B_1(t)}_{D_1(t) \cap D_2(t)} St(t)_{B_1(t)}^{A_1(t) \cap A_2(t)}$  (\*<sub>8</sub>), where some or any elements may be by ordered dynamical continual elements.

### 2.32. Definition

Dynamical continual Se – elements can be elements of a group by multiplication (\*<sub>8</sub>) and by addition (\*<sub>7</sub>), and algebraic ring, field by these operations. Consider the dynamical continual containment of oneself. Definition 32. The dynamical continual Se<sup>1</sup>-capacity of the first type is the process of a containment  $A(t)$  into  $B(t)$  and expelling  $A(t)$  out of  $B(t)$  simultaneously, where  $A(t)$ ,  $B(t)$  - sets of dynamical continual elements:  ${}^{B(t)}_{A(t)} St(t)_{B(t)}^{A(t)}$ . Denote  $S_1^e(t) f_{B(t)}^{A(t)}$ .

### 2.34. Definition

The dynamical continual Se<sup>1</sup>-capacity of the second type is the process of a containment  $A(t)$  into  $B(t)$  and expelling  $B(t)$  oneself out of oneself simultaneously, where  $A(t)$ ,  $B(t)$  - sets of dynamical continual elements:  ${}^{B(t)}_{B(t)} St(t)_{B(t)}^{A(t)}$ . Denote  $S_2^e(t) f_{B(t)}^{A(t)}$ .



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### 2.35. Definition

The dynamical continual  $Se^1$ -capacity of the second type is the process of a containment  $A(t)$  into  $B(t)$  and expelling  $B(t)$  oneself out of oneself simultaneously, where  $A(t)$ ,  $B(t)$  - sets of dynamical continual elements:  $\frac{B(t)}{B(t)}St(t)\frac{A(t)}{B(t)}$ . Denote  $S_2^e(t)f_{B(t)}^{A(t)}$ .

### 2.36. Definition

The continual  $Se^1$ -capacity  $B(t)$  of the third type is the capacity containing itself as an element and the displacement of  $A(t)$  from  $B(t)$  simultaneously, where  $A(t)$ ,  $B(t)$  - sets of dynamical continual elements:  $\frac{B(t)}{A(t)}St(t)\frac{B(t)}{B(t)}$ . Denote  $S_3^e(t)f_{B(t)}^{A(t)}$ .

### 2.37. Definition

The dynamical continual  $Se$ -capacity  $A(t)$  in itself of the sixth type, where  $A(t)$ - set of continual elements, is the process of a containment of itself in part and expelling oneself in part or contains elements from which it can be generated in part, and it can be degenerated in part, or both simultaneously. Let us denote  $S_6^e f(t)A(t)$ .

### 2.38. Definition

The ordered dynamical continual  $Se^1$ -capacity of the first type is the process of a containment of  $\overrightarrow{A(t)}$  into  $B(t)$  and expelling  $\overrightarrow{A(t)}$  out of  $B(t)$  simultaneously, where  $\overrightarrow{A(t)}$  - ordered set of dynamical continual elements,  $B(t)$  - set of dynamical continual elements:  $\frac{B(t)}{A(t)}St(t)\frac{\overrightarrow{A(t)}}{B(t)}$ . Denote  $S_1^e(t)f_{B(t)}^{\overrightarrow{A(t)}}$ .

### 2.39. Definition

The ordered dynamical continual  $Se^2$ -capacity of the first type is the process of a containment of  $A(t)$  into  $\overrightarrow{B(t)}$  and expelling  $A(t)$  out of  $\overrightarrow{B(t)}$  simultaneously, where  $\overrightarrow{B(t)}$  -ordered set of dynamical continual elements,  $A(t)$  - set of dynamical continual elements :  $\frac{\overrightarrow{B(t)}}{A(t)}St(t)\frac{A(t)}{\overrightarrow{B(t)}}$ . Denote  $S_1^e(t)f_{\overrightarrow{B(t)}}^{A(t)}$ .

### 2.40. Definition

The ordered dynamical continual  $Se^3$ -capacity of the first type is the process of a containment of  $\overrightarrow{A(t)}$  into  $\overrightarrow{B(t)}$  and expelling  $\overrightarrow{A(t)}$  out of  $\overrightarrow{B(t)}$  simultaneously, where  $\overrightarrow{A(t)}$ ,  $\overrightarrow{B(t)}$ -ordered sets of dynamical continual elements:  $\frac{\overrightarrow{B(t)}}{\overrightarrow{A(t)}}St(t)\frac{\overrightarrow{A(t)}}{\overrightarrow{B(t)}}$ . Denote  $S_1^e(t)f_{\overrightarrow{B(t)}}^{\overrightarrow{A(t)}}$ .

#### 2.41. Definition

The ordered dynamical continual  $\text{Se}^1$ -capacity of the second type is the process of a containment of  $\overrightarrow{A(t)}$  into  $B(t)$  and expelling  $B(t)$  oneself out of oneself simultaneously, where  $\overrightarrow{A(t)}$ -ordered set of dynamical continual elements,  $B(t)$  - set of dynamical continual elements:  $\frac{B(t)}{B(t)}St(t)\frac{\overrightarrow{A(t)}}{B(t)}$ .

Denote  $S_2^e(t)f_{B(t)}^{\overrightarrow{A(t)}}$ .

#### 2.42. Definition

The ordered dynamical continual  $\text{Se}^2$ -capacity of the second type is the process of a containment of  $A(t)$  into  $\overrightarrow{B(t)}$  and expelling  $\overrightarrow{B(t)}$  oneself out of oneself simultaneously, where  $\overrightarrow{B(t)}$ -ordered sets of dynamical continual elements,  $A(t)$  - set of dynamical continual elements:  $\frac{\overrightarrow{B(t)}}{B(t)}St(t)\frac{A(t)}{B(t)}$ .

Denote  $S_2^e(t)f_{\overrightarrow{B(t)}}^{A(t)}$ .

#### 2.43. Definition

The ordered dynamical continual  $\text{Se}^3$ -capacity of the second type is the process of a containment of  $\overrightarrow{A(t)}$  into  $\overrightarrow{B(t)}$  and expelling  $\overrightarrow{B(t)}$  oneself out of oneself simultaneously, where  $\overrightarrow{A(t)}, \overrightarrow{B(t)}$ -ordered sets of dynamical continual elements:  $\frac{\overrightarrow{B(t)}}{B(t)}St(t)\frac{\overrightarrow{A(t)}}{B(t)}$ . Denote  $S_2^e(t)f_{\overrightarrow{B(t)}}^{\overrightarrow{A(t)}}$ .

#### 2.44. Definition

The ordered dynamical continual  $\text{Se}^1$ -capacity of the third type is the process of a containment  $B(t)$  of itself as an element and the displacement of  $\overrightarrow{A(t)}$  from  $B(t)$  simultaneously, where  $\overrightarrow{A(t)}$ -ordered set of dynamical continual elements,  $B(t)$  - set of dynamical continual elements:

$\frac{B(t)}{A(t)}St(t)\frac{B(t)}{B(t)}$ . Denote  $S_3^e(t)f_{B(t)}^{\overrightarrow{A(t)}}$ .

#### 2.45. Definition

The ordered dynamical continual  $\text{Se}^2$ -capacity of the third type is the process of a containment  $\overrightarrow{B(t)}$  of itself as an element and the displacement of  $A(t)$  from  $\overrightarrow{B(t)}$  simultaneously, where  $\overrightarrow{B(t)}$ -ordered sets of dynamical continual elements,  $A(t)$  - set of dynamical continual elements:

$\frac{\overrightarrow{B(t)}}{A(t)}St(t)\frac{\overrightarrow{B(t)}}{B(t)}$ . Denote  $S_3^e(t)f_{\overrightarrow{B(t)}}^{A(t)}$ .

#### 2.46. Definition

The ordered dynamical continual  $\text{Se}^3$ -capacity of the third type is the process of a containment  $\overrightarrow{B(t)}$  of itself as an element and the displacement of  $\overrightarrow{A(t)}$  from  $\overrightarrow{B(t)}$  simultaneously, where  $\overrightarrow{A(t)}$

,  $\vec{B}$ - ordered sets of dynamical continual elements:  $\frac{\overrightarrow{B(t)}}{A(t)} S t(t) \frac{\vec{B}(t)}{B(t)}$ . Denote  $S_3^e f \frac{\overrightarrow{A(t)}}{B(t)}$ .

#### 2.47. Definition

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

#### 2.48. Definition

The ordered dynamical continual Se-capacity  $\overrightarrow{A(t)}$  in itself of the fifth type is the process of a containment of itself and expelling oneself or the process that contains elements from which it can be generated, and it can be degenerated at time  $t$  simultaneously, where  $\overrightarrow{A(t)}$  - set of dynamical continual elements. Let's denote  $S_5^e(t) f \overrightarrow{A(t)}$ .

##### 2.48.1. Definition

The ordered dynamical continual Se-capacity  $\overrightarrow{A(t)}$  in itself of the sixth type is the process of a containment of itself in part and expelling oneself in part or contains elements from which it can be generated in part, and it can be degenerated in part at time  $t$ , or both simultaneously, where  $\overrightarrow{A(t)}$  - ordered set of dynamical continual elements. Let us denote  $S_6^e(t) f \overrightarrow{A(t)}$ .

Also we consider some elements:  $S_0^e(t) f \overrightarrow{\uparrow I \downarrow_{-1}^1}$ ,  $S_1^e(t) f \frac{\uparrow \downarrow_{-1}^1}{B(t) \downarrow \uparrow_{-\infty}^\infty}$ ,  $S_2^e(t) f \frac{\overrightarrow{A(t) \downarrow \uparrow_{-1}^1}}{B(t)}$ ,  $S_3^e(t) f \frac{\overrightarrow{A(t) \uparrow \downarrow_{-\infty}^\infty}}{B(t)}$ ,  $S_4^e(t) f \overrightarrow{\uparrow I \downarrow_{a(t)}^{a(t)}}$  etc. Consider the connection of dynamical continual Se – elements with dynamical containment of oneself. Consider a sixth type of dynamical partial containment of oneself. For example,  $S_6^e(t) f \overrightarrow{A^n(t)}$ , where  $\{A^n(t)\} = (a_1(t), a_2(t), \dots, a_n(t))$ , i.e.  $n$  - continual elements, it is possible to consider the dynamical containment of oneself  $S_6^e(t) f \overrightarrow{A^m(t)}$  with  $m$  continual elements from  $\{A^n(t)\}$ , at  $m < n$ , which is process to be formed by the form (1)[1], that is, only  $m$  continual elements from  $\{A^n(t)\}$  are located in the structure  $S_6^e(t) f \overrightarrow{A^n(t)}$ . Dynamical continual containments of oneself of the fifth type can be formed for any other structure, not necessarily Se, only through the obligatory reduction in the number of continual elements in the structure. In particular, using the form (2)[1]. Structures more complex than  $S_6^e(t) f \overrightarrow{A^n(t)}$  can be introduced. Consider the dynamical continual Se – elements with target weights.

## 2.49. Definition

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  $B(t)$  at time  $t$  simultaneously, where some or any elements may be by dynamical continual elements, we shall call dynamical continual Se – element with target weights. Let's denote  ${}_{D(t)\{g_2(t)\}}^{B(t)}St(t)_{B(t)}^{A(t)\{g_1(t)\}}$ .

## 2.50. Definition

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

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

${}_{D_1(t)\{g_2(t)\}}^{B_1(t)}St(t)_{B_1(t)}^{A_1(t)\{g_1(t)\}} * {}_{D_2(t)\{g_2(t)\}}^{B_1(t)}St(t)_{B_1(t)}^{A_2(t)\{g_1(t)\}} =$   
 ${}_{(D_1(t) \cap D_2(t))\{g_2(t)\}}^{B_1(t)}St(t)_{B_1(t)}^{(A_1(t) \cap A_2(t))\{g_1(t)\}} (*_9)$ , 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 add dynamical continual Se – elements with target weights  $\{g_1(t)\}$ ,  $\{g_2(t)\}$

${}_{D_1(t)\{g_2(t)\}}^{B_1(t)}St(t)_{B_1(t)}^{A_1(t)\{g_1(t)\}} + {}_{D_2(t)\{g_2(t)\}}^{B_1(t)}St(t)_{B_1(t)}^{A_2(t)\{g_1(t)\}} =$   
 ${}_{(D_1(t) \cup D_2(t))\{g_2(t)\}}^{B_1(t)}St(t)_{B_1(t)}^{(A_1(t) \cup A_2(t))\{g_1(t)\}} (*_{10})$ , 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 Se – elements with target weights can be elements of a group by multiplication ( $*_{39}$ ) and by addition ( $*_{40}$ ), and algebraic ring, field by these operations. Consider the dynamical continual containment of oneself with target weights.

## 2.51. Definition

The dynamical continual Se-capacity with target weights of the first type is the process of a containment  $A(t)$  with target weights  $\{g_1(t)\}$  into  $B(t)$  and expelling  $A(t)$  with target weights  $\{g_1(t)\}$  out of  $B(t)$  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:  ${}_{A(t)\{g_1(t)\}}^{B(t)}St(t)_{B(t)}^{A(t)\{g_1(t)\}}$ . Denote  $S_1^e(t)f_{B(t)}^{A(t)\{g_1(t)\}}$ .

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### 2.52. Definition

The dynamical continual Se-capacity  $A(t)$  with target weights  $\{g_1(t)\}$  and from itself  $B(t)$  with target weights  $\{g_2(t)\}$  of the second type is the process of a containment itself as an element  $A(t)$  and expelling oneself  $B(t)$  with target weights  $\{g_2(t)\}$  out of oneself  $B(t)$  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:

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

### 2.53. Definition

The dynamical continual  $Se^1$ -capacity with target weights of the third type is the process of putting  $B(t)$  with target weights  $\{g_1(t)\}$  in itself and expelling  $A(t)$  with target weights  $\{g_2(t)\}$  out of  $B(t)$  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:

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

### 2.54. Definition

The dynamical continual Se-capacity  $A(t)$  in itself with target weights  $\{g(t)\}$  of the fourth type is the process of a containment of itself with target weights  $\{g(t)\}$  and expelling oneself with target weights  $\{g(t)\}$  or the process that contains elements from which it can be generated with target weights  $\{g(t)\}$  and it can 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  $S_4^e(t)fA(t)\{g(t)\}$ .

### 2.55. Definition

The ordered dynamical continual Se-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 elements from which it can be generated in part with target weights  $\{g(t)\}$ , and it can 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  $S_5^e(t)fA(t)\{g(t)\}$ .

Also we consider some elements:  $S_0^e(t)f \overrightarrow{\uparrow I \downarrow_{-1}^1 \{g(t)\}}$ ,  $S_1^e(t)f_{B(t)\downarrow_{-1}^{\uparrow\downarrow_{-1}^1\{g(t)\}}}$ ,  $S_2^e(t)f_{B(t)}^{\overrightarrow{A(t)\downarrow_{-1}^{\uparrow\downarrow_{-1}^1\{g(t)\}}}}$ ,  
 $S_3^e(t)f_{B(t)\{g(t)\}}^{\overrightarrow{A(t)\uparrow\downarrow_{-1}^{\infty}}}$ ,  $S_4^e(t)f \overrightarrow{\uparrow I \downarrow_{d(t)\{g_2(t)\}}^{a(t)\{g_1(t)\}}}$  etc.

Consider the connection of dynamical continual Se – 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  $S_5^e(t)fA(t)\{g(t)\}$ , where  $A = (a_1(t), a_2(t), \dots, a_n(t))$ , 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  $S_5^e(t)fA(t)\{g(t)\}$  with  $m$  continual elements with target weights  $\{g(t)\}$  from  $A$ , at  $m < n$ , which is process to be formed by the form (1)[1], that is, only  $m$  continual elements with target weights  $\{g(t)\}$  from  $A$  are located in the structure  $S_5^e(t)fA(t)\{g(t)\}$ . Dynamical containments of oneself with target weights of the fifth type can be formed for any other structure, not necessarily Se, only through the obligatory reduction in the number of continual elements with target weights in the structure. In particular, using the form (2)[1]. Structures more complex than  $S_5^e(t)fA(t)\{g(t)\}$  can be introduced.

## 2.56. Definition

Se-probability of events  ${}_B^B St_B^A$  is  $p({}_B^B St_B^A)$ , denote  ${}_B^B Sp_B^A$ .

In particular,  ${}_B^B Sp_B^A$  for joint events  $St_B^A$ ,  ${}_B^B St$ ,  $A$ ,  $B$ ,  $D$ ,  ${}_B^B St_B^A$ :

$$p({}_B^B St_B^A) = p({}_B^B St) + p(St_B^A) - p({}_B^B St \cap St_B^A) =$$

$$\left( p^{os}(B \cap D - Co(B \cap D)) + p^s(A \cap B) + p^{-s}({}_{B-B \cap D}^{\{\}} St) \right) - p({}_B^B St \cap St_B^A), \quad \text{for dependent}$$

$$p(A) - p(A \cap B) + p(D)$$

events:  $p({}_B^B St \cap St_B^A) = p({}_B^B St) * p(St_B^A / {}_B^B St) = p(St_B^A) * p({}_B^B St / St_B^A)$ .  $p^s(x)$ - the value of self-P for self- event  $x$ ,  $Co(x)$  – content of  $x$ ,  $p^{os}(x)$ - the value of oself-P for oself- event  $x$ .

## 2.57. Definition

The capacity  $A$  is called own for its elements, if for any element  $x \in A$  the relation  $Ax \subset \mu A$  for any  $\mu \in Z$ ,  $Z$ - set of real numbers. For example, the hierarchy of levels self is just such capacity with  $\mu=1$ .

### 3. Supplement

We consider Se-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  $St_B^A$ ,  ${}_B^B St$ ,  $A$ ,  $B$ ,  $D$ :  $f({}_B^B St_B^A) = f({}_B^B St) + f(St_B^A) - f({}_B^B St \cap St_B^A) = (f^{os}(C \cap D - Co(C \cap D)) + f^s(A \cap B) + f^{-s}({}_{B-B \cap D}^{\{ \} } St)) - f({}_B^B St \cap St_B^A)$ ,  $f^s(x)$  - 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:  $f({}_B^B St \cap St_B^A) = f({}_B^B St) * f(St_B^A / {}_B^B St) = f(St_B^A) * f({}_B^B St / St_B^A)$ . Adding the truth values of inconsistent propositions:  $f(A+B) = f(A) + f(B)$ . The formula of complete truth:  $f(A) = \sum_{k=1}^n f(B_k) * f(A/B_k)$ ,  $B_1, B_2, \dots, B_n$  - 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.

Remark 1 The concept of elements of physics Se is introduced for energy space. The corresponding concept of elements of chemistry Se is introduced accordingly.

Remark 2. Remark 3. The model  ${}_{E_3}^{E_2} St_{E_2}^{E_1}$  corresponds to the distribution of self-energy of a living organism, in particular a human one. The left part  ${}_{E_3}^{E_2} St$  corresponds to the distribution of self-energy of the left half of a living organism, the right part  $St_{E_2}^{E_1}$  corresponds to the distribution of self-energy of the right half of a living organism. The examples:

$$St_{virus\ C*}^{virus\ C*} + \frac{culture\ medium\ for\ A}{culture\ medium\ for\ A} St_{culture\ medium\ for\ A}^{culture\ medium\ for\ A} =$$

$$\frac{virus\ C + culture\ medium\ for\ A}{virus\ C + culture\ medium\ for\ A} S_1 t_{virus\ C + culture\ medium\ for\ A}^{virus\ C + culture\ medium\ for\ A}$$

$$St_B^B + \frac{culture\ medium\ for\ A}{culture\ medium\ for\ A} St_{culture\ medium\ for\ A}^{culture\ medium\ for\ A} = \frac{culture\ medium\ for\ A}{culture\ medium\ for\ A} St_{B + culture\ medium\ for\ A}^{B + culture\ medium\ for\ A}$$

It is clear that a chemical agent (tablets)  $St_B^B$  cannot destroy the virus, since  $St_B^B$  cannot actually enter  $\frac{virus\ C + culture\ medium\ for\ A}{virus\ C + culture\ medium\ for\ A} St_{virus\ C + culture\ medium\ for\ A}^{virus\ C + culture\ medium\ for\ A}$ , 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 \*:  $St_{-virus\ C*}^{-virus\ C*} +$   
 $+_{virus\ C+culture\ medium\ for\ A}^{virus\ C+culture\ medium\ for\ A} St_{virus\ C+culture\ medium\ for\ A}^{virus\ C+culture\ medium\ for\ A} =$   
 $=_{culture\ medium\ for\ A}^{culture\ medium\ for\ A} St_{culture\ medium\ for\ A}^{culture\ medium\ for\ A}$ . Here, an antivirus ( $-virus\ C$ ) can be an appropriate agent, a virus-antagonist to this virus etc.

The main trend in science, in our opinion, is a hierarchical representation by external compression of object spaces, for example, compression of the object space in an ordinary point space into a Banach space, in logics of higher order (e.g., second order) etc. There is a need for a significant increase in the capacity of information. The next trend in science, in our opinion, will be a hierarchical representation by internal compression of objects to myself, for example, compression

#### 4. The Usage of Se-Elements for Networks

Here we consider a generalization of networks Sit - networks Se [1]. The same simple executing programs are in the cores of simple artificial neurons of type Se (designation - mnSe) for simple information processing. More complex executing programs are used for mnSe nodes. Se-threshold element  $-sgn(\{qy\}^b St_b^{\{ax\}})$ , b- mnSe,  $x=(x_1, x_2, \dots, x_n)$  – source signals values,  $a=(a_1, a_2, \dots, a_n)$  – Se-synapses weights,  $\{qy\}$ -output signals. The first level of mnSe consists of simple mnSe. The second level of mnSe consists of  $\{mnSe\}_D^D St_D^{\{mnSe\}}$  – Se-node of mnSe in range D, D- capacity for mnSe node. The third level of mnSe consists of  $\{mnSe\}_{\{mnSe\} St_D^D}^D St_D^{\{mnSe\} St_D^{\{mnSe\}}}$  - Se<sup>2</sup>- node of mnSe in range D, thus D becomes capacity of itself in itself as an element for mnSe. For our networks, it is sufficient to use Se<sup>2</sup>- nodes of mnSe, but self-level is higher in living organisms, particularly Se<sup>n</sup>-,  $n \geq 3$ . 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. mnSe contains esprograms,

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esprogram –executing program in Se- OS. Se-OS (or Self-OS) is based on Se-assembly language (or Self-assembly language), which is based on assembly language through Se-approach in turn, if the base of elements of Se-networks is sufficient.

The esprograms are in Se-programming environments (or Self-programming environments), but this question and Se-networks base will be considered in the following monographs. In particular, esprograms may contain Seprogramming operators. In mnSe cores, the constant memory Se with correspondent esprograms [8].

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