

Extrapolation of the synergetic paradigm into modern linguistic science

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Abstract. In modern linguistic science transdisciplinary methods in the process of studying linguistic and speech aspects gain ground. The priority is given to cross-disciplinary scientific researches that determine the systematic and comprehensive consideration of linguistic phenomena in correlation with synergetic methodology. In this sense, the language is investigated as an object of a synergetic paradigm built with a complex megasystem of a fractal organization capable of self-regulation, self-development, and self-improvement. These characteristics point to the openness, non-linearity, dynamics of the language system, which functions in conjunction with the intra- and extralingual factors.

Keywords: *synergetics, system, dissipativity, fractal organization, self-regulation, self-organization.*

Introduction. The study of linguistic objects through the extrapolation of synergetic analysis is currently up-to-date. It is appropriate, since the attraction of synergetic ideas contributes to the integrative study of linguistic dynamics. The nature of speech reproduces physical, biological, social and cultural aspects, therefore understanding of its essence requires interdisciplinarity. For the analysis of language dynamics, more and more natural disciplines, as well as transdisciplinary knowledge are involved [25, p. 7].

As a result, in modern linguistic studies the idea of involving a synergetic paradigm that spread in the second half of the twentieth century dominates. Synergetics is an interdisciplinary branch of scientific knowledge, the emphasis of which is on the processes of self-organization and ordering in complex nonequilibrium nonlinear systems of different nature and purpose. Preferably, these systems consist of heterogeneous components, agreed structurally or functionally. The microlevel of these systems is represented by a homogeneous material, microparticles [12, p. 8]. Such principle is characteristic of the structure of self-organizing complex systemic organisms, which is the language.

Numerous scientific publications indicate the prospects of synergetics as a science, whose results are extrapolated into the field of various scientific studies [19, p. 63]. Indeed, the integrity of scientific disciplines with the involvement of the synergetic conceptual apparatus change radically the vector of linguistic researches. In contrast to traditional methods, synergetic ideas enable the study of language as a complex dynamic self-organizing megasystem.

Synergetics introduces the general theory of self-organization into the modern scientific picture of the world. Given the integration method of combining various scientific knowledge, the synergetic science makes it possible to comprehend the process of self-organization and self-regulation. This is due to the symbiosis of methodological approaches of different scientific cognition, as well as through the use of a synergetic conceptual base [20; 28]. Thus, cross-disciplinary researches obtain the priority [17, p. 151]. In accordance with the synergetic paradigm, self-organized systems are endowed with such characteristics and concepts as openness, non-linearity, order, chaos, attractor, repeller, fractal, coherence, fluctuation, bifurcation, dissipation.

The self-organized system must obtain a spatial, temporal or functional structure on its own [21, p. 11]. All elements of the system should be considered in interaction with each other, when disordered processes become ordered within the integral mechanism. In this case, the opposite situation is fixed as the order is reincarnated into chaos. Chaos is a constructive constituent and progressive coordinator of the evolutionary process [21, p. 13].

From the position of synergetics, the language is a systemic mechanism with hierarchical structure, represented by multiple endosystems (macro-, microsystems). In turn, these endosystems explode phonetic, morphological, lexical, syntactic, and text levels. Therefore, language is nothing but a megasystem [7, p. 50].

A brief review of publications on the subject. Initially, synergetic ideas were used by physicists H. Haken and I. Prigogine to describe physical, chemical, and biological phenomena. However, it was H. Haken who introduced the definition of "synergetics" into scientific circulation and compared the language with the order parameter presented by the subsystem with the subjects of communicative activity in the plane of a holistic organization [18, p. 381-382]. As a result, there were works where the conceptual apparatus and methodological approach of synergetic science are extrapolated into the field of linguistics. Thus, the foundation for the integrative transdisciplinary direction - linguistic synergetics or linguosynergetics was laid.

The linguosynergetic studies of Ukrainian scientist L. Pikhovnikova, which productively and effectively implements the synergetic concept in linguistics, in particular, when studying the synergetic nature of texts of small genre forms deserve the particular attention. At the same time, other domestic philologists are also successfully developing synergetic ideas. Thus, T. Dombrovan [4] examines the language and speech phenomena of English language in the aspect of synergetics; M. Dorofeeva [5] studies a synergetic paradigm for the translation of German-language professional texts; O. Tarasova [16] studies a functional field of temporality in a synergetic perspective; O. Semenets [14] studies poetry from the standpoint of synergetics; O. Selivanova [13] studies synergetic nature of consciousness, concept, discourse. Such multidimensional range of the synergetic paradigm

implementation in linguistics leads to the actualization of synergetics as a transdisciplinary scientific direction.

Among foreign researchers whose range of scientific interests is in the focus of synergetics, one should recall H. Eiger [6], I. Hermann [3], R. Köller [24; 25], G. Altman [26], K. Hoffmann, A. Krott [22], R. Piotrovsky [11], M. Alefirenko [1], K. Belousov [2], L. Kiyaschenko [8], N. Olizko [10].

The assertion of Russian scientist R. Piotrovsky about the exclusive role of synergetics is osculant. In the opinion of R. Piotrovsky, it is interesting to study the synergetic mechanisms that explicate the verbal activity of a person [9, p. 95]. The scientist asserts that this also determines the tendency to study languages in the XXI century [11].

The goal of the paper. There is no need to reject the fact that the language explodes the psychological, biological, physical, and sociological factors [24, p. 101]. At the same time, the language is coordinated by internal processes as well. Therefore, the analysis of speech dynamics should be carried out in correlation with the system approach, when the priority is a comprehensive study taking into account categorical synergetic apparatus. This vision allows us to detect and investigate intralingual-extralingual processes, the results of which affect the functioning of the language system as a fractal object, which determines the goal of this article.

Materials and methods. The material of the analysis was the language system and its constituents, which were considered in a synergetic perspective. The purpose of the study led to the use of methods of inductive and deductive analysis for ordering the theoretical scientific positions as to linguosynergetic scientific positions. The research problem has determined the use of descriptive and comparative methods in order to identify, describe, characterize, and compare specific synergetic features of the language system.

Results and discussion. The interdisciplinarity in linguistics is a logical manifestation of the methodological principle of expansionism, which consists in expanding the subject field of the study, where synergetic approaches prevail in the study of language and speech phenomena. The intensification of expansionist tendencies explains attempts to increase the range of linguistic research through the introduction of transdisciplinary methods of study that promote broad-spectrum scientific polylogue [22, p. 4-5].

A concept according to which the language is a complex hierarchical organized megasystem composed of components mutually conditioned by coherent relations is developed in linguosynergetics. It states the domination of the methodological direction, where the linear (consecutive) type of connections (one follows from another) is replaced by a set of whole spectrum of interdisciplinary prospects.

So, in accordance with the synergetic toolkit, the language is distinguished by a system organization capable of openness. This attribute is identified by dissipativity. The term "dissipation" comes from the English "to dissipate" and means "to disperse". Open nonlinear systems with dynamic equilibrium due to constant exchange with the environment have a dissipative character. Therefore, the tendency for

interaction determines their essence. The process of metabolic function is the most significant feature of all living systems. They also have the property of reformatting, self-organization, and self-improvement. Thus, the language can maintain a dynamic equilibrium due to the constant exchange of the main motive components of matter - substance, energy, information. These constituents determine the evolution of linguistic matter, as well as its nature and organization principles [27, p. 98].

The positions of scientific studies show the idea of the equivalence of relations between substance, energy, and information. This statement reflects the basic foundations of many scientific disciplines. In particular, the language is also coordinated with the triunity of the three main components of matter, indicating a fractal, fractional organization of the linguistic space. It is believed that the fractal (Latin "*fractus*" - crushed) identifies a geometric figure, which is distinguished by the principle of fractal self-similarity. Each part of the fractal reflects the organization of the entire figure in general, that is, it accumulates information about the entire fractal [15, p. 361]. It should be noted that in the modern transdisciplinary scientific paradigm the fractals is considered as a dominant component and as a universal measurement model that can continuously develop and create self-similar structures at every point of its development.

From the standpoint of the aforementioned triunity of matter, it is interesting to consider the language at different levels. Considering the phoneme as the minimum unit of the phonetic level, we must distinguish certain regularities. In our case sound, graphic or other material form is substance for phoneme; merisms are energy; code, way of reading with a hearing, visual or other analyzer is information.

If characterize the system of language, then its substance is the elements at the level of its structure: phoneme, morpheme, word, phrase, sentence, text. The energy for the language system is its functions: cognitive, communicative, pragmatic, perceptual, delimitative, significative, nominative, communicative; and information is provided by the unit of perception, which is signaled by the appropriate format (phonetic, graphic, semantic, syntactic, communicative) [15].

The researcher S. Enikeeva emphasizes the importance of using the principles of fractal geometry to understand the coherence of the structural organization of the word-building system of contemporary English. Based on the statement on the possibility of "the use of fractal geometry taking into account its fractional dimension to understand more "refined" topological properties of investigated objects", the scientist presents a system of word formation as a huge macrofractal, structurally similar to microfractals. These complex systems of word formation are represented by word-formation models, word-formation rows, word-formation chains, word-formation clusters and alligatures [4, p. 180].

Thus, the principle of triunity of substance, energy, information represents the multidimensional nature of linguistic matter, determines its fractal nature and actualizes the interactivity of scientific prospects. In particular, it highlights the significance of the synergetic

scientific paradigm, which enables a systematic study of speech activity and speech dynamics in the light of modernized approaches.

Conclusions. The extrapolation of the synergetic paradigm in the study of various phenomena of living and inanimate nature gave synergetic scientific theory of transdisciplinarity. Synergetics as an interdisciplinary trend explores the principles of self-organization of systems that arise evolutionarily and react both to internal and external factors. In this case the system is able to change independently its parameters, structure, function. In accordance with the synergetic concept, the language is a complex, dynamic self-organized megasystem. Principles of its architectonics, processes of evolution and functioning are characterized by synergetic nature and essence. It is the consequence of the influence of various types of lingual and extralingual factors on the linguistic system. In this way, the language has an integral status and needs transdisciplinary research. It envisages the involvement of multifarious integration researches, which occupy a prominent position in the focus of synergetics.

From the synergetic point of view, the language is composed of the hierarchical structure with multiple endosystems in the form of macro- and microsystems constructed by constituents of the phonetic,

morphological, lexical, syntactic, and text levels. Except that it is coordinated with synergetic connections and mechanisms, the language is open for the intensive exchange of substance, energy, information between its constituents and external factors. Such trend is identified by dissipation, the ability to exchange processes. The substance for the language system is elements at the level of its structure. The energy for the language system is its function. The role of information is played by the unit of perception, which is reproduced in the appropriate format (phonetic, graphic, semantic, syntactic, communicative). The equipollence of relations between substance, energy, information determines the statement about fractal, fractional organization of the language system. Thus, language as a geometric figure has the properties of self-similarity and interdependence between all constituents. Moreover, it is coordinated by the mechanisms of self-regulation, self-organization, therefore chaotic processes obtain constructive, generative character.

Consequently, the language is a highly organized dissipative megasystem with a fractal structure capable of self-organizing and reaching homeostasis, that is a state of dynamic balance, in which ordering and structuring on the background of lingual and extralingual factors are determined.

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