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Human Language as a Natural Artifact of Planetary-Noospheric Mind: Coevolutionary-Macromutational Reinterpretation

Людська мова як натуро-артефакт планетарно-ноосферного розуму:
коєволюційно-макрмутатійна реінтерпретація

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Abstract

The article discusses a new hypothesis of coevolutionary-macromutational origin of human language, through the prism of which this planetary-noospheric phenomenon is proposed to be considered as a natural artifact of holistic-synergetic coevolution of nature, society and culture.

The following assumption has been suggested: the proposed hypothetical idea is a resonance of the former two philosophical theories: the fusion theory and the thesis theory, which were regarded by scientists either as natural or artificial (conventional / conditional) nature of human language. At the same time, they did not completely deny the origin of the human language as a result of various types of activities.

The represented arguments helped to confirm the views of anthropologists, culturologists and other scholars. The creation of various artifacts (tangible and intangible) took place in all stages of evolution: geogenesis – biogenesis – psychogenesis – anthropogenesis and at a subsequent stage of Homo sapiens. However, language as the most important product of global evolutionism was formed at the stage of anthropogenesis, in particular as a corollary to the molecular mutations of human brain.

The term “coevolution” has been transferred to the sphere of linguoanthropogenesis. In conjunction

Анотація

У статті обговорюється нова гіпотеза коєволюційно-макрмутатійного походження людської мови, крізь призму якої цей планетарно-ноосферний феномен пропонується розглядати як натуро-артефакт холістично-синергетичної коєволюції природи, соціуму й культури.

Зроблено припущення про те, що запропонована гіпотетична ідея є резонансом колишніх двох філософських теорій: теорії фюсей і теорії тесей, представники яких дискутували навколо або природного, або штучного (конвенціонального/умовного) характеру походження людської мови, але водночас не заперечували цілком появу мови в людини як результат різних видів її діяльності. Наведено аргументи для підтвердження думки антропологів, культурологів й інших дослідників про те, що творення різних артефактів (матеріальних і нематеріальних) відбувалося на всіх стадіях еволюціогенезу: геогенезу – біогенезу – психогенезу – антропогенезу й на більш пізній стадії Homo sapiens, проте найголовніший продукт глобального еволюціонізму, яким є мова, утворився на стадії антропогенезу, зокрема і внаслідок молекулярної мутації мозку людини. Здійснено трансфер терміна “коєволюція” до сфери лінгвоантропогенезу й разом з гіпотезою

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with the hypothesis of macromutation the natural artifact origin of human language is consistently explained under the scenario of biogenesis – sociogenesis – culturogenesis.

The essence of the hypothetical result is that a qualitatively new driving force for the continuation of this scenario can be noospherogenesis, which is determined by historical and cultural development of mankind, its activities in all spheres of life and, most importantly, by the planetary high-tech mind.

Key Words: natural artifacts, human language, anthropogenesis, noospherogenesis, coevolution, macromutation.

Introduction

The modern conceptions of linguoanthropogenesis (glottogenesis) offer various hypotheses to get the answers to the question of the human language origin, which one way or another discuss it in terms of identifying the relationship between the triad of the following notions: “nature – society – culture” (Ye. O. Belov, P. S. Gurevich). In favour of the chosen vector, a somewhat new explanation (reinterpretation) of the main provisions of the theory of glottogenesis is found at the intersection of the relationship of nature and culture. It can be explained by the right thoughts of Ye. O. Belov, who writes about the bifurcation point that separates the *Homo sapiens* from other members of the Homo and their ancestors (Kapranov 2018; Korolyova 2018).

If to determine the degree of this hypothesis novelty, its problematics was raised by the Ancient Greek thinkers, who had discussed the natural (fusion theory) and artificial / conditional (thesis theory) nature of the human language origin. They, jointly with their successors did not deny the human language origin as a result, firstly, of different types of man’s activities, mainly labour, secondly, “coevolution of the brain and articulatory-acoustic organ of a human-being” (S. A. Burlak), and thirdly, if to look more deeply at both theories, we can trace the ideas of N. Chomsky on the so-called “accidental mutation”, “probable / possible irradiation by cosmic rays, which affected the reorganization of the brain” (Chomsky, 2000), creating the organs of speech in the brain of the Australopithecus. Their communication system was not fundamentally different from ordinary primates. It should be recalled that N. Chomsky was a fierce critic of the evolution theory in general.

щодо макромутації послідовно пояснюється натуро-артефактне походження людської мови за сценарієм біогенез – соціогенез – культурогенез.

Підведено гіпотетичний підсумок, суть якого полягає в тому, якісно новим рушійним етапом для продовження названого сценарію, може бути ноосферогенез, детермінований історико-культурним розвитком людства, його діяльністю у всіх сферах буття і, головне, планетарним високотехнологічним розумом.

Ключові слова: натуро-артефакти, людська мова, антропогенез, ноосферогенез, коеволуція, макромутація.

The similar opinion is expressed by the anthropologists, culturologists and other scholars who connect the labour activity of hominids (L. Noire’s hypothesis, according to which language arose as a way to optimize and harmonize the labour work of primitive people) with subsequent creative and mental activity of the *Homo* and emphasize that their language as the most common product was formed in the stage of anthropogenesis.

It affords grounds to assume that at different stages of evolutiogenesis under the scenario of *geogenesis – biogenesis – psychogenesis – anthropogenesis* as well as at the subsequent stage of *Homo sapiens* the creation of various objects (tangible and intangible) continued up to nowadays. Speaking about the stage of anthropogenesis and its species, without the development of the artificial world, the transition to it was hardly possible at all. This assumption shows that language is one of the most important artifacts, i.e. the product of natural / artificial origin that was formed as a result of various activities of human ancestors and hominids (the Homo) and, of course, mental, due to rapid brain development that is confirmed by two mutations in FOXP2 genes on the chromosome 7. It distinguishes the human FOXP2 protein from the primate FOXP2 protein (Enard et al., 2002). There is even archaeological and molecular evidence that these differences have already been found in the Neanderthals (Krause et al., 2008). However, some scholars express skepticism as to these explanations and do not trust the obtained data. They believe that there is currently very little evidence of symbolic behaviour of this population, which could support the results of the above-mentioned studies.

Turning to the general formulation of the problem, it should be noted that these considerations do not contradict the assumptions of T. S. Tolcheyeva. In the monograph she writes that “artifacts cannot be considered outside of a human being, because they are in close contact with him / her, and especially with the moment of Homo’s evolution into an independent genus; thanks to it the civilizational cultural evolution became possible in general” (Tolcheyeva, 2009).

Theoretical framework

Considering human language as an artifact of nature, society and culture in the synergistic interaction of pre-anthropo-, anthropo-, socio- and culturogenesis, we are convinced that the key issue is the coevolutionary spiral of the human mind. In our opinion, it should be studied both in the context of various types of human planetary activity and from the standpoint of the theory of the noosphere, which was put forward by E. Leroy, the mathematician and philosopher, P. Teilhard de Chardin, the palaeontologist, philosopher and theologian and V. I. Vernadskiy, the academician.

Interpreting the artifact as an information (sign), semantic (content) and functional product (T. S. Tolcheyeva) of the above-mentioned processes, it is possible to comprehensively approach the disclosure of the synergy of human mental activity with all its other types and kinds. Of course, this approach, first of all, makes it possible to consider (Belov, 2014) a human being, according to Ye. O. Belov, as a “biosociocultural phenomenon” who is formed as a result of long-term evolutionary interaction of three complex systems: nature, society and culture, as well as a result of some probable macromutation (molecular evolution and, possibly, revolution). Culture, the last link in the triad, is an artificial system or artificial environment that was created in the process of human activity as a continuation of nature and socialization of human groups. If we consider culture, society and nature as complex systems, we can find the general patterns of development in them, as well as trace different characteristics of each of them. First and foremost, the three systems consist of structural dynamic-holistic components, which determine the properties of every system. The natural system consists of cells and living organisms (which are not the result of human activity, since a human being is a living organism), the social system is comprised of human associations (family), the cultural system is made up of artifacts, the hyperonym to which is language. Even for the

first, natural system language became one of the driving tools for survival in a changing environment. Therefore, we are convinced that all these systems are closely related to the human activity and exist only together with it and in different relations and interrelations.

Undoubtedly human language as an artifact (anthropogenic product) arose as a result of the performed physiological functions (various systems of the human body, i.e., musculoskeletal system, acoustic-articulatory system, digestive system, morphophysiological system, respiratory, cardiovascular, reproductive, immune, hormonal, nervous, etc. systems). A human being realises these functions in the environment, creating a morphological substrate of culture in the form of various artifacts. And such types of artifacts as society, religion and art expanded the evolutionary possibilities of Being and created a qualitatively new environment not just for a human being, but for a *Homo sapiens*. Continuing to argue in favour of the hypothesis formulated in the title and at the beginning of the article by reinterpreting existing concepts of the human language origin, we will focus on those that discuss two key issues of N. Chomsky: 1) whether grammar and syntax are embedded in the human brain and whether they are encoded by genes and 2) whether human speech arose as a result of some random mutation?

Concerning the last question, N. Chomsky in his latest works suggests that the language ability may have arisen as a result of minor changes in the neural networks of the brain, but its consequences were enormous. It took only a few thousand generations for this change to take root in selection, i.e. a “moment”, according to the evolutionists. In this period the language ability spread to all populations and has become the most important difference between the *Homo sapiens* and other *Homo* populations (Chomsky, 2000).

Archaeological findings still cannot put an end to these discussions, because the soft tissues of the organs, with the help of which people articulated sounds have not preserved any relicts in the fossils. But the fact that human language necessarily went through two evolutionary stages is not disputed, in particular 1) the stage of coevolution of the brain, articulatory and acoustic organs of the first people, who were already tuned to articulate speech; 2) the stage of movement of hominids from tropical forests to savannas, which coincided with the transition to other food strategies (mainly protein food) and

caused rapid exchange of information about the environment.

We consider coevolution as a component of global evolutionism along with self-organization. Evolution of the first human beings, which primarily had natural causes, later acquired an artificial character as a result of the first artifacts of spiritual culture (ritual in the form of prohibitions, precepts, traditions typical for tribes and first societies), as well as the languages that launched sociogenesis and culturogenesis.

Since a human being is a living organism it is logical to consider the structural elements of organic nature, which function according to the laws of biology. Various strategies for the survival of species are currently being discussed: the most probable one is the so-called K-reproduction strategy, which helped to centralize the body's adaptive response mechanisms in the main regulatory module, i.e. in the central nervous system to construct strategy of behaviour.

An elementary unit of biological evolution is a population: the association of homogeneous cells that have common origin from a single cell or a group of cells in a tissue culture. A cell is a genetic unit of all living things (the chromosomes of a cell contain information about an organism). If the elementary unit of biological evolution is a population of organisms or cells that are formed from the "mother" individual, a similar elementary unit of social evolution is the population of people that are formed in the stages from the punaluan family to the nuclear one. The relationship between family and society is established on the basic communicative acts, which play the same role as genetic processes in a cell. It forms the basics of behaviour and communication in the family and society, as well as the norms, rules and so on in the individual.

The emergence of the *Homo sapiens* in the biosphere was an inevitable / natural stage, because the "evolution took place in the process of conscious release of the organism from the power of random phenomena in the environment". This process had a directed character, which was typical for *Homo sapiens* as the only one reflexive organism. And it is no coincidence that the global coevolutionary scenario of *geogenesis – biogenesis – psychogenesis – anthropogenesis – Homo sapiens* was supplemented by another stage, which was called noogenesis by P. Teilhard de Chardin in his work "The human phenomenon"

(Teilhard de Chardin, 1987). Accordingly, the noosphere should be considered not purely because of the presence of reason in the interaction of nature and society, but as a dominant in this dichotomy. In essence, the noosphere emphasizes the necessity for reasonable organization of the interaction of nature, society and culture.

According to the coevolutionary conception, the noosphere is a natural reflection of the co-development of a dynamic natural environment, human society (Frankl, 1990) and culture.

Methodology

To verify the formulated provisions of the coevolutionary-macromutational conception of the human language origin as an artifact of the noosphere-planetary mind, a new methodological approach i.e. the onto-gnoseo-epistemological (three-dimensional) and methods that ensure its implementation were elaborated. The ontological component of this method is based on the principles of evolutionism, determinism and holism, which reflect the most important general provisions of the theory of cognition (epistemology) and provide for the interpretation of the object (coevolutionary-macromutation hypothesis of human language) as interconnected and interdependent elements.

In order to achieve the result, the synergetic system of scientific knowledge should be optimal. One of the methods that helps to optimize the study is the selection of facts from primary sources. The initial stage of selection involves the segregation and collection of facts in the process of external and internal criticism of the source, comparing it with other reputable information, i.e. during the specific source operations. At this stage the feasibility of the fact is determined by the presence of information concerning the coevolutionary-macromutation hypothesis of the human language origin.

The gnoseological component is realized through logical operations with already accumulated scientific information. Comparison is one of such operating procedures. We presume that science has accumulated so much new evidence to consider the coevolutionary-macromutation approach the most productive. It will enable to reconstruct connections between the stages of planetary life in the scenario of *geogenesis – biogenesis – psychogenesis – anthropogenesis – Homo sapiens – noogenesis*, as well as to make assumptions in what stage the macromutation

occurred. The methodological framework of the study is based on the principle of anthropocosmism (achieving a harmonious balance in the relationship between a human being and the Universe). Assimilation of the anthropocosmic principle by science studies will give warranty to the integration of methodological approaches for different sciences.

Results and discussion

Today the natural artifact essence of the human language is reinterpreted as a new hypothesis, the discussion around which continues and requires new scientific ideas to either confirm it to become a scientific theory, or to refute it. By the devise of V. I. Vernadskiy, K. E. Tsiolkovsky, M. Berdyaev, etc., the noosphere (sphere of reason, interaction of society and nature, and most importantly, values of Being, for which the determining factor of development were all kinds of human activities), and, more precisely the noospheric thinking should become the thinking of the XXI century. The main task of global science in general and the humanities and social sciences in particular, the centre of which is modern interdisciplinary linguistics, is to study molecular mutations in the Homo, as well as changes in the neural networks of the human brain and the development of mental abilities in it, and hence, the subsequent evolution of biosphere into the noosphere.

In order to argue this idea, we briefly outline the views of scholars on the essence of the noosphere and importance of its study for the future life of civilization.

As it is known, E. Leroy introduces the term “the noosphere” into science and develops its terminological field together with P. Teilhard de Chardin, who believed that the Earth’s lithosphere is transformed into biosphere due to the evolution of living organisms, and later through the evolution of *Homo sapiens* it becomes the noosphere. P. Teilhard de Chardin defines the noosphere as a global network of knowledge, research and sense of human interdependence. Considering the main conceptual provisions of these scientists, academician V. I. Vernadskiy interprets the noosphere as a special intangible shape /stratum/ sphere around the globe. It concentrates the spiritual and intellectual energy of all people who inhabit the planet (Vernadskiy, 1944). V. I. Vernadskiy convincingly proves that the noosphere is a qualitatively new stage in the evolution of biosphere determined by the

historical development of mankind, its labour and, most importantly, mind.

Naturally, the phenomenon of the noosphere as a scientific object is currently being studied in close connection with culture and personality. Yu. V. Oleynikov and A. A. Onosov in their works define the noosphere as a cultural type of biosphere, i.e. a conscious stage of the nature and society coevolution (see the beginning of the article) (Oleynikov, Onosov, 1999). In their opinion, the noosphere is a structurally heterogeneous and heterochromic cultural formation, a synthesis (and we would say a synergy) of cultures of different epochs (Ibid.).

The noosphere continuously inherits the cultural concentrate of all time, and therefore the exceptional role is played by the personality that is considered to be the highest value in the genesis of the noosphere. According to M. Yu. Shyshyn, the noosphere is a naturally determined stage of a sole world evolutionary process which is associated with the rhyming activity of the human mind. In the noosphere, the scholar distinguishes two forms, the first one being dense material structures that are created by a human, or in terms of this study, i.e. material artifacts: technosphere, anthropogenic landscapes, cultural formations, among which the main artifact is language; the second form is represented by subtle material structures that are directly related to human thought, i.e. significative artifacts, according to T. S. Tolcheeva. It is the human being that is the creator of the noosphere in two forms and he / she is the engine of noospherogenesis (Tolcheeva, 2009).

The origins of the two forms of artifacts should be sought in the distant times of the human evolution and the products of its activities, as it was discussed at the beginning of the article. What depth of ancientness is it possible to appeal to at least approximately?

Archaeological findings show that in the Paleolithic (100 thsd years ago), according to A. Aliman and F. Bordes, the representatives of *Homo habilis* were the first to start making stone tools that were called the artifacts of Olduvai culture, i.e. the first technology that began the Stone Age (Aliman, 1960; Bordes 1968). Such confirmations are found in the works of O. O. Zubov, who is convinced that the *Homo habilis* learnt this due to a highly developed brain (Zubov, 2011). In this regard, interesting thoughts are expressed by A. Turner, according to whom a human was not biologically a

narrowly specialized being during his / her evolution, and “this was facilitated by a special form of his / her evolution. It, to some extent, presumably allowed to retain morphophysiological stability, in which the stone industry played a significant role” (A. Turner).

According to D. Bickerton, simultaneous rapid changes took place in the neural systems of the brain, even in the “African Eve”, the first representative of modern humanity. The so-called macromutation made it possible to restructure the entire articulatory-acoustic apparatus (mechanism) of the Homo (Bickerton, 1990). According to A. G. Kozintsev, “the language organ” / “module” (cit. by: Chomsky 1984) could become pivotal in the brain of the Homo, which is recorded in both the Homo habilis and Homo neanderthalensis (Kozintsev, 2004). The researcher suggests that this “complex organ” could have arisen immediately...” (Ibid.).

However, at the stage of anthropogenesis, evolutionism also postulates neuroevolution in the Homo as the development of their cognitive abilities, i.e. the evolution of neural systems of the brain, during which natural selection took place by cognitive functions of the brain, since the corresponding selective advantages [...] promoted adaptation and survival of people (Merkulov, 2005).

The cognitive abilities were already developed in the Homo habilis, as it is evidenced by stone tools, which became more and more perfect and which required considerable effort for their manufacture and use: if the Olduvai chopper can be made in about 10 strokes, the Achel requires 60, and in order to create the Upper Paleolithic tools it is necessary to make more than two hundred strokes that are divided into 10–11 different operations.

The *Homo habilis* could have the second signal system. According to O. O. Zubov, the scholar, who studied the relics of muscle attachment on the skulls of these populations (for instance, the skull KNM-ER 1470), restored the morphology of their jaws and stated that this human species had a language. But due to the fact that the lips of the *Homo habilis* did not occlude, they probably could only pronounce such vowels as “i”, “a”, “u”, as well as phonetic variants of the sounds “z” and “t”. (Zubov, 2011). No one has any objections that their language was not fully formed, but the fact is that it accompanied the performance of complex actions, including the manufacture of the stone tools (Calvin, 1993;

Deacon, 1997). Here is at least the reasoning of S. A. Burlak: “if any of the species of the hominids had tools, they had to have a language to teach new offspring to make these tools and use them” (Burlak, 2011).

According to O. O. Tyunyaev, archaeological excavations suggest that the first humans could communicate in the so-called hominid language (Tyunyaev, 2011). The scholar even presupposes that according to its morphological type this language could belong to the root isolating languages, and the corresponding archaeological cultures are the cultures of pebbles and the initial stages of the Abbeville (Shellian, Early Acheulean) culture (Ibid.).

The above-mentioned in general and the latest opinions in particular show that we can convincingly speak about the human language as the same artifact as the artifacts of culture, because together they are the products of human activity, especially at the stage of anthropogenesis. It is a proven fact that a language, like an artifact, is a sign system. The sign as an elementary information carrier is responsible for the transmission and translation of the cultural code. All information about the culture is transmitted through signs and symbols recorded in artifacts and reflected in the language.

Conclusions

Summing up, we should note that the coevolutionary-macromutation hypothesis of the human language origin proposes to consider this planetary-noospheric phenomenon as a nature-artifact of holistic-synergetic interaction of nature, society and culture. The recent discussion in science studies about the key issues of evolution or macromutation can be continued in the direction of discussing the origin of the human language not as a result of the first or second processes, but as a product of the coevolutionary spiral of all human activities and, primarily, as mental mutations in the human brain at the stage of anthropogenesis.

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