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ОЛИЙ ВА ЎРТА МАХСУС ТАЪЛИМ ВАЗИРЛИГИ

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<b>А.Абдурахмонов</b> Яшил рангнинг миллий шеъриятда ўзига хос ифодаси (испан ва ўзбек лирикаси мисолида) .....	79
<b>О.Абобакирова</b> Ўзбек болалар ҳикоячилигининг бадиий хусусиятлари.....	83
<b>Д.Турдалиев</b> Рус фольклоршунослигида анъанавий лингвистик формулалар.....	92
<b>И.Ҳабибуллаев</b> Хуршид Дўстмуҳаммад қиссаларида руҳий-психологик тасвир (“Нигоҳ” қиссаси асосида).....	98

#### ТИЛШУНОСЛИК

<b>А.Муҳиддинов</b> Нутқ актини биомолекуляр ва ментал кодлаштириш жараёнларининг изоморфлиги ва алломорфлиги .....	103
<b>Р.Сайфуллаева, Ҳ.Ҳамроева</b> Ўзбек рақс терминларининг лингвокультурологик таснифи.....	108
<b>З.Акбарова</b> Турли функционал услублардаги матнларда тил воситаларидан фойдаланган ҳолда оламни моделлаштириш.....	113
<b>Н.Шарафутдинова</b> Ўткир Ҳошимовнинг “Тушда кечган умрлар” асарида қўлланилган мифоним ва теонимлар таҳлили.....	118
<b>Ў.Исламов</b> Адабий тил - нутқ маданиятининг олий шакли.....	122
<b>Л.Абдуллаева</b> Аббревиация-ўзбек ва инглиз тилларида сўз ясаш усули сифатида.....	126

#### ПЕДАГОГИКА, ПСИХОЛОГИЯ

<b>С.Абдурахмонов, Ш.Ибрагимов</b> Талабаларнинг мустақил ишларини ташкил этишнинг ташкилий усуллари.....	129
<b>У.Абдуллаева</b> Чет тили бўйича кўникмаларни баҳолашда ёш хусусиятларига кўра ёндашув принциплари.....	134

#### ИЛМИЙ АХБОРОТ

<b>Ў.Омонова</b> Алмаштириш операторларини қуришнинг композицион усули ҳақида.....	139
<b>А.Раҳматжонзода</b> Баъзи умумлашган гипергеометрик функцияларнинг интеграл кўринишини топиш масалалари.....	143
<b>Б.Каримов, Р.Эргашев, А.Сирождидинов</b> Sn асосида шаффоф ўтказувчи электродлар.....	147
<b>А.Урунов, С.Элмонов</b> Тишли-ричагли механизмлардан тузилган комбинацион механизмнинг параметрларини асослаш ва кинематик текшириш .....	150
<b>Д.Аббосова, А.Ибрагимов, О.Назаров</b> Ephedra equisetina bunge ўсимлиги баргларида олинган эфир мойи таркибий қисмларининг ГХ-МС таҳлили.....	154
<b>М.Ахмадалиев, И.Асқаров, Н.Юсупова, М.Икромова</b> ЗФАМЭД смоласининг олиниши.....	158
<b>С.Маматқулова, Ш.Абдуллаев, Р.Деҳқонов</b> Helianthus tuberosus L. (Топинамбур) ўсимлиги илдиз мевасидан турли муҳитларда пектин моддасини ажратиш олиш ва функционал гуруҳларини аниқлаш.....	161

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## ISOMORPHIC AND ALLOMORPHIC PROCESSES OF BIOMOLECULAR AND MENTAL CODIFICATION OF SPEECH ACT

## НУТҚ АКТИНИ БИМОЛЕКУЛЯР ВА МЕНТАЛ КОДЛАШТИРИШ ЖАРАЁНЛАРИНИНГ ИЗОМОРФЛИГИ ВА АЛЛОМОРФЛИГИ

## ИЗОМОРФНОСТЬ И АЛЛОМОРФНОСТЬ ПРОЦЕССОВ БИМОЛЕКУЛЯРНОЙ И МЕНТАЛЬНОЙ КОДИФИКАЦИИ РЕЧЕВОГО АКТА

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**Annotation**

The article deals with the problem of isomorphism of the processes of biomolecular codification of information in the deep structures of the brain and mental codification in the sphere of consciousness. An attempt is made to identify the mechanisms of language based on linguistic and neuro-linguistic studies.

**Аннотация**

Мақолада нутқ актини онгсизлик соҳасида биомолекуляр ва онг борлигида ментал кодлаштириш жараёнининг изоморфлиги ва алломорфлиги масаласи ёритилган. Бу жараён механизмлари нейролингвистика ва тилшунослик нуқтаи назаридан таъсифланган.

**Аннотация**

В статье рассматривается проблема изоморфности и алломорфности системы биомолекулярной кодификации в сфере бессознательного и ментальной кодификации в сфере сознания. Механизмы кодификации характеризуются с точки зрения нейролингвистики и сугубо лингвистического подхода.

**Keywords and expressions:** deep structure, surface structure, the Gestalt of a pyramid, consciousness, the unconscious, mental representation.

**Таянч сўз ва иборалар:** чуқур структуралар, юза структуралар, гештальт-пирамида, онг, онгсизлик, ментал репрезентация.

**Ключевые слова и выражения:** глубинные структуры, поверхностные структуры, гештальт-пирамида, сознание, бессознательность, ментальная репрезентация.

The emergence of a new anthropocentric paradigm for studying the phenomenon of language is often associated with a turning point at the point of critical bifurcation in the development of linguistics - the so-called "khomskian revolution". Within the framework of N. Chomsky's theory of generating grammar, attention was first drawn to the calculus of all deep and surface structures, as well as to the establishment of a strict correspondence between them. In generative grammar, language is interpreted as the transformation of some abstract objects - "meanings" - into objects of a different nature - "texts" and back. [Chomsky N.1972] Within the framework of the theory of generating grammar, mathematical models and real utterances are considered as mental constructs that appear at different levels of the psyche: deep signatures at the level of the subconscious, and language signs at the level of consciousness (mental representation).

Language and verbal communication, including the mechanisms of deep and surface structures of language, are considered as the most important object and subject of research in neuro - linguistics, a modern science that originated at the intersection of neurology and linguistics. Within the framework of this science, language is studied primarily as a product of the interaction of various brain regions, i.e. the speech act is considered from the point of view of the functioning of various brain centers, mainly three sections of the left hemisphere:

- Broca's zones that control human speech;
- Wernicke zone that coordinates oral comprehension;
- the occipital part of the brain responsible for logical and grammatical connections.

Neuro-linguistic studies prove that language is not only an important factor of socialization, but also a tool for forming neural

connections that are responsible for normal human development. [Chernihiv T. V. ,2004]

Applied language research in neuro-linguistics arose after the substantiation of the theory of generating grammar by N. Chomsky. Most often, attention is drawn to the works of Eric Lenneberg, which substantiate the following conceptual provisions:

- Language is determined by innate characteristics, special features of each species, and biological characteristics (cerebral functions of each species).

- Some features of the human language are universal (there is a basic basis for all languages).

- Ontological development occurs through physical maturation to adolescence (the Position of the language and its progressive differentiation).

- Contact with other people only acts as a trigger that triggers an innate mechanism. [Biological foundations of language, 1967]

The study of the surface and deep structures of language will be associated with a number of problems related to the scientific interpretation of the relationship between the conscious and unconscious levels of the psyche. As you know, despite numerous attempts to scientifically identify the phenomenon of the unconscious, which were reflected in separate concepts, it has not yet been possible to build a complete theory that explains the mechanisms and structure of the unconscious.

[ Freud Z.,2006]

However, research in the biological Sciences sheds some light on the study of the superconscious and the unconscious. "In thinking," writes academician P. V. Simonov, "superconsciousness gives samples of the new, projects and offers the unexpected and, perhaps, even the improbable...The purpose of superconsciousness is to "break new paths". This "inclusion of superconsciousness in thought work is usually called intuition, and the state in which it is boldly and generously included-inspiration...This "over" is fundamentally new information that does not flow from previously received impressions." In contrast to the subconscious, the activity of the superconscious "is not controlled by consciousness and will under any circumstances." [Simonov P. V., 1993]

The idea of the independence of the superconscious from consciousness fully applies to the unconscious. Here it is necessary to Express a paradoxical idea about the physiological mechanisms of language: the process of installation, activation and functioning of the material substratum of language - the neural network is carried out without the participation of consciousness. The subject of the language consciously performs only certain cognitive operations (word selection, phrase formulation, sequential actualization of the locative act of speech in oral or written form, regulation of the process of illocutive and perlocutive speech act, understanding the impact of speech on the interlocutor, management and correction of articulation, intonation, etc.). in the process of speech act, a person can not consciously control the most complex mechanisms of speech generation: according to neuro-linguistics, for 1 second. in the substance of the brain and speech apparatus, about 140 thousand occur. neuromuscular movements.

The paradox of language is that all the most complex processes occur smoothly, so that the language becomes understandable to both the speaker and the listener. Therefore, in the brain substance there is a unique, independent of consciousness and thinking, physiological mechanism for coordinating the processes of speech act, functioning at the level of biomolecular encoding of information. This hypothetical proposition has received theoretical justification and experimental confirmation in the framework of research on biophysiology and the theory of semiotic systems.

In 1966, J. von Neumann's book "the Theory of self-replicating automata" justified the concept of cellular automata that are capable of self-reproduction, similar to a living cell. [Neumann J. von, 1966 ].

In 1994, experiments by the American scientist L. Edlman showed that DNA molecules can solve computational problems of the highest complexity, which present the greatest difficulties for human intelligence and traditional computers. The Adleman biocomputer determined the optimal route of traversal for 7 vertices of the graph. But the more vertices of the graph, the more DNA material the biocomputer needs. The use of DNA calculations helped the scientist calculate the shortest and optimal path of a traveling

salesman. [Adeleman L. M., 1998] here it is necessary to clarify the question of the ability of the brain and a specific level of the psyche-the unconscious-a purely biophysiological instance of the psyche in recognizing highly intelligent social information that reflects the achievements of cultural content.

Here it is necessary to clarify the question of the ability of the brain and a specific level of the psyche-the unconscious-a purely biophysiological instance of the psyche in recognizing highly intelligent social information that reflects the achievements of the content of culture. In the instance of the unconscious, criteria specific to mental representation cannot serve as a basis for determining the relevance of information. It can be assumed that the main criteria for determining the relevance of all types of information, including natural information coming through the channels of the first signal system, and second-signal social information, the unconscious operates with genetically determined mechanisms of biomolecular encoding. In all probability, the relevance of social information, its reliability, and its adequacy to the vital needs of the individual as a biological creation are established by comparing them with noetic intentions that manifest themselves in the deep brain (presumably in the thalamus).

Such information is extracted by the brain from the sphere of consciousness (cortex) through afferent connections unilaterally (without conscious effort of the individual) from the Wernicke center, which recognizes its own speech and the speech of other people. Impulses emanating from the thalamus flow through channels of efferent communication simultaneously to the Wernicke associative center, where structures of phrases and sentences are created, and the Broca motor zone, which reproduces speech by controlling the muscles of the speech apparatus.

The identification of many concepts and scientific arguments based in biophysiology and neuro-linguistics can be based on philosophical concepts that reflect the essential characteristics of language. Among such philosophical concepts can be attributed to the doctrine of E. Husserl about noesis (Greek. νόησις — "thinking"; ADJ. "noetic") and noeme, reflected in the phenomenology Of E. Husserl.[Husserl, E.,1999]

Noesis is characterized as a concept that reflects the real content of the experience of consciousness, considered as an experience taken as such-outside of its connection with the transcendent reality (pure existence). The concept of noema (from the Greek. νόημα — "thought"; ADJ. "noematical", a synonym - cogitatum ) By E. Husserl is interpreted as a mental representation of an object, the subject content of thought; the representation of an object in the mind of a person. We can assume that all units of the language represent a peculiar form of noema. Noetic intentions play an important role in the restructuring of the neural network, in the transformation of genetically determined neural formations that provide perception into signatures of language signs that function as material substrates of language signs. In all probability, Gestalt pyramids and Gnostic neurons play a major role in the implementation of all changes in the cortex associated with the appearance of language signs (E. N. Sokolov's term). A well-known psychophysicologist noted that "the activated Gestalt pyramid of hierarchically organized neurons represents the basic mechanism of acts of consciousness." [Sokolov E. N., 1996]

It can be assumed that thanks to the Gestalt pyramid, noetic intentions are localized, and Gnostic neurons contribute to the transformation of intentional motives into NOEMS - mental representations of objects and phenomena that are clothed in a language form.

Speaking about the close relationship and interdependence of biophysiological and mental constructs of language, it is necessary to comment on the thesis of E. Lenneberg that contact with other people acts only as a trigger mechanism. It should be noted that the genetic program provides only mechanisms for using the voice to Express emotions, which are triggered in the individual instinctively. And mechanisms for codifying second-signal verbal information are not provided. In the child's psyche, speech is initially perceived as a continuous noise, as language signs - neurons are formed, these signals begin to undergo mental representation, thanks to which all objects and phenomena acquire a meaningful form. Social information leads to the restructuring of a neural network that is genetically designed to control an individual's behavior based on information processed at the

perceptual level. Social information in the form of an anaphora (pointing to an object by referring to its previous designation in a verbal message) contributes to the restructuring of the Gestalt pyramid

In order to fully identify the process of verbal communication from the point of view of transitivity of biophysiological and mental codification, it is advisable to take into account the peculiarities of the transformation of children's egocentric speech into socialized speech (terminology of Zh. Piaget). [Piaget J. 1994]

During the development of egocentric speech in a child, first of all, the mechanisms of nomination (names of objects and people around them) and incomplete predication (monologue, repetition, and "monologue together") are formed. In the formation of a full-fledged speech, the completed predication associated with the formation of the Self-concept is important (the child voices phrases such as "I fell", "I ate", later he can say "I want/don't want", "I can/can't", etc.)

The formation and functioning of a language is a sequential process of replacing entropy-chaos, a state of disorderliness (term.Clausius in thermodynamics, N. A. Berdyaev used this concept in relation to culture.) negentropy (the term was proposed in 1943 by the physicist E. Schrodinger. )-movement towards ordering, to the organization of the system. Correlation of the "entropy - negentropy" in the speech act associated with finding the right words and expressions: entropy associated with the appearance in the sphere of consciousness darkened areas, and negentropy leads to lighting up these dark areas of consciousness, significance and meaning of words. The transition from entropy to negentropy leads to the restructuring of previously formed or the formation of new Gestalt pyramids. These processes require increased energy supply to the brain. For optimal coordination of the process of energy supply to the neural network of the language, the unconscious activates peculiar mechanisms for saving language resources. This explains the establishment of a balance in the process of derivation: neologisms and new connotations of familiar words are used to denote new realities of life: conceptual metaphors, metalexemes, etc.

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language, the unconscious activates peculiar mechanisms for saving language resources. This explains the establishment of a balance in the process of derivation: neologisms and new connotations of familiar words are used to denote new realities of life: conceptual metaphors, metalexemes, etc. As an example of expanding the semantics of well-known words, we can cite new connotations of the word "culture". To date, the scientific literature contains a number of definitions related to the concept of "culture". it is 250 (French sociologist A. Mol), about 300 (American cultural scientists A. Kroeber and K. Klakhon), about 400 (Russian researcher L. E. Kertman). The ancient Roman orator and philosopher Marcus Tullius Cicero in the treatise "Tusculan manuscripts" (45 BC) used the word "culture" not in the literal sense (cultivation of the soil, cultivation), but in the figurative sense as the cultivation of the human mind in the process of training and education and initiated a complex centuries-old process of rethinking the meaning of this lexeme. The word "culture" was used not in the literal sense (cultivation of the soil, cultivation), but in the figurative sense as the cultivation of the human mind in the process of training and education, and marked the beginning of a complex centuries-old process of rethinking the meaning of this lexeme.

It should be noted that the mechanisms of mental codification of verbal information initially depend entirely on biomolecular codification, but as language skills and speech skills are mastered, these two levels of information processing begin to develop as an isomorphic bipolar system. As the system of mental codification develops, more adequate social information enters the sphere of the unconscious, and the development of the material substratum of language - the neural network-creates conditions for the further development of language competence and speech competence of the individual.

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material substratum of language - the neural network-creates conditions for the further development of language competence and speech competence of the individual. The immanent property of the biomolecular system of codification of noetic intentions is isomorphy (identity of information to the structure of "pure being"), and mental constructs clothed in a language form, along with isomorphy, are endowed with the property of allomorphy, which causes the variability of language units at all levels.

From all this, we can conclude that the scientific identification of language as a

biopsychosocial phenomenon within the modern anthropocentric paradigm of linguistics involves research at the intersection of interdisciplinary Sciences. One of the most important aspects of interdisciplinary research that adequately reflects the Trinity of the ontological status of language is the use of the achievements of modern neuro-linguistics to characterize the essential parameters of the phenomenon of language, taking into account the specific properties of mental constructs (word, sitagma, phrase) and its material substrate - the neural network and its components.

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