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<http://ehs.eeipsy.org>DOI: <https://doi.org/10.38014/ehs-ss.2022.1.03>**Sergiy SOTNIKOV**

## Language as a determinant of the formation of thinking' ways

**SERHIY SOTNIKOV. Language as a determinant of the formation of thinking' ways.** *The article analyzes the main types of thinking characteristic of modern man and society in general. An analysis of spatial thinking as a mental activity of a person is proposed and carried out. The definition of "cosmic thinking" is introduced, the process of its formation and features are characterized. Qualified thinking operations and the main functional functions provided by them. Synthesis and analysis are characterized as the main mechanisms of human cognitive activity. It is illustrated that both man and society operate with the word as the main unit of speech and the main unit of thinking, which participates in operations of synthesis and analysis of both the development of speech and the systematization of language. A word as a unit of objective language, on the one hand, has a conditional meaning and enters into conditional relationships with other words, reflecting the patterns of relationships that exist in language, and on the other hand, as a unit of subjective language, it contributes to the expression of the author's principle and has an individual content that reflects the vision of the world by a specific person. Logical operations of synthesis and analysis, which are the main ways*

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*of thinking, contribute to the formation of a linguistic personality and the formation of a linguistic structure in the thinking of an individual, form regular and reproduce conditional connections between linguistic units, verify the acquired linguistic experience, and also determine historical procedural changes in the linguistic system . Bidirectionality (implementation of processes of synthesis and analysis) of human thinking provides the most complete reflection of reality in language through the verbalization of the main phenomena and processes of the surrounding world, concepts and categories of thinking. As a result, language as a phenomenon of human activity is capable of expressing all human concepts and thoughts, being a universal and at the same time unique way of communication of the biological species homo sapiens.*

**Keywords:** *language, ways of thinking, cognitive activity, spatial and cosmic thinking, bidirectionality of human thinking.*

## 1. Introduction

The left and right hemispheres of the brain perform different functions. The left hemisphere carries out logical operations that are realized in the identification and understanding of cause-and-effect relationships. In the language, this is expressed in the structuring of ideas about the language system, in the operation of the laws of the use of language units, in the implementation of language development trends. The right hemisphere carries out figurative-abstract operations. It forms imagery and goes beyond stable categories, that is, it constitutes probabilistic deviations from the general system of the language and the general line of its development. The work of each of the hemispheres is significant in its own way in the process of understanding the phenomena of the world by a person. Left hemisphere and right hemisphere cognitive processes determine different ways of linguistic representation of the world and form regular (deterministic) and probabilistic (indeterministic) connections of phenomena. The study of these processes contributes to the identification of cognitive mechanisms that influence the language and its development. The purpose of the proposed study is to identify the mechanisms carried out by the work of the left hemisphere and influencing the formation of the general line of language development and systematizing the language.

Thinking is considered as a process of mediated and generalized reflection of reality, which consists in the knowledge of the essence and laws of things and phenomena. In turn, cognition is the process

of acquiring knowledge about the objective world. And knowledge is information that falls into the cultural field of a particular era and a particular space.

This is the reason for the relevance of this work.

The purpose of the work is to analyze thinking: the main types of thinking and mental operations.

Based on this goal, the following tasks of the work can be distinguished:

- designate spatial thinking as a mental activity;
- to identify the process of formation of cosmic thinking and its features;
- consider the improvement of the system of mental operations and cognitive interest;
- designate synthesis and analysis: operations of thinking and mechanisms of cognitive language activity.

## **1. Basic types of thinking**

### **1.1. Spatial thinking as a mental activity**

Spatial thinking is a specific type of mental activity that takes place in solving problems that require orientation in practical and theoretical space.

The term “spatial thinking” is defined by psychologists and methodologists in different ways, but they all reduce spatial thinking to thinking in images.

Kaplunovich I.Ya. considers spatial thinking an important part of the intellect, since it serves as a means of cognition of a wide variety of objects and phenomena of reality, as well as a necessary condition for the successful implementation of labor activity, the development of labor skills and abilities. Kaplunovich I.Ya. defines spatial thinking as the process of operating with spatial images when solving problems based on existing ideas [1].

Stoletnev V.S. defines spatial thinking through its functions, the main of which are mental operations on images to transform the shape, size and spatial relationships between the elements of geometric space objects [2].

Shardakov M.N. determines the main property of spatial thinking is the meaningful perception of spatial relationships necessary for the assimilation of educational material in mathematics, geography and other subjects. He believes that a meaningful perception of spatial relations and

an understanding of the relative nature of the concepts of spatial relations are formed throughout all the years of a child's education at school and reach a level in older students when they correctly determine the spatial relations between objects in three dimensions from any point in space [3].

Yakimanskaya I.Ya. believes that spatial thinking has all the characteristic features of figurative thinking, but has its own specific features, which is associated with the content of the images themselves, the conditions for their creation and operation with them. The main operational unit of spatial thinking is spatial images, which reflect not all properties, signs of the objective world, but only spatial properties and relationships [4].

According to I.S. Yakimanskaya and other teachers and psychologists, spatial thinking is formed on a graphical basis, therefore visual images are the leading images for him. The transition from some visual images, reflecting spatial properties and relationships, to others is constantly observed in solving problems where different types of graphic images are used. On their basis, not only separate images arise, adequate to each image, but also their integral system. The ability to think in the system of these images characterizes spatial thinking.

The activity of spatial thinking is mainly aimed not so much at creating, but at operating with spatial images created on a different graphic basis. This is ensured by the use of special representation techniques. Spatial representations are the canvas on which logical processes unfold.

Spatial thinking, operating with an image, needs expression, interpretation of figurative transformations. The word is such a means of expression. In spatial thinking, the very movement of thought, the search for and finding a solution to a problem is carried out in the form of an alternation of images, their transformation, and the receipt of new ones. Work on images is hidden from the observer. It's hard to objectify. Therefore, the main way in the study of this process is a verbal or graphic self-report. Spatial thinking in images proceeds quickly, curtailed, the decision comes as if suddenly, the grasping of the visual situation is carried out simultaneously. The figurative task is solved both based on the image, and in the verbal and debatable expression of thought with a constant mutual transition from the verbal to the figurative form of the thought process.

Spatial thinking is a complex and independent process. It is not a direct function of the reflection of space, so learning, according to

I.S. Yakimanskaya, should be built in such a way as to ensure the comprehensive development of the child's mental processes [4].

Spatial thinking I.S. Yakimanskaya considers it as a multi-level, hierarchical whole, polyfunctional in its basis. This is a specific type of mental activity that ensures the creation of spatial images and their operation in the process of solving various graphic tasks [4].

Creating images and operating them are closely interrelated processes. Each of them is based on the activity of representation, however, the structure of this activity, the conditions for its implementation in both cases are different. In one case, this activity is aimed at creating a spatial image. In the other – for its processing (mental modification, transformation) in accordance with the task. The conditions for this activity are different when relying on graphic clarity. From this, of course, it does not follow that the creation of an image is only a reproducing, reproductive activity, and the operation of an image, carried out with a distraction from the original visualization, is always a productive process. In both cases, the activity of representation is of a transformative nature, but it is carried out under different conditions and on different material.

When creating any image, including a spatial one, a visual basis is subjected to mental transformation, on the basis of which the image arises.

When operating with an image, an image already created on a visual basis is mentally modified, often under the condition of complete abstraction from it.

By separating the operation of images into a special type of representational activity that does not coincide either in content, or in conditions of implementation, or in results with the process of creating an image, we thereby get the opportunity to determine the main function of spatial thinking. Spatial thinking, in accordance with our understanding of its features, means the free operation of spatial images created on a different visual basis, their transformation, taking into account the requirements of the task.

### **1.2. The process of formation of cosmic thinking and its features**

Thinking is considered as a process of mediated and generalized reflection of reality, which consists in the knowledge of the essence and laws of things and phenomena. In turn, cognition is the process of acquiring knowledge about the objective world. And knowledge

is information that falls into the cultural field of a particular era and a particular space. Thus, knowledge is a systematized, ordered and in some way explained knowledge.

At the turn of the 19th–20th centuries, two main trends in cognition should be noted: scientific and non-scientific (meta-scientific, super-scientific). The scientific direction includes mainly empirical materialistic science and an experimental method of cognition. The metascientific system of cognition uses speculation or evidence that came through the spiritual world of a person from other being or from the space of matter of other states and dimensions. This information was prophetic. Dreams, visions and other evidence, despite the subjective channel of interaction, are quite objective and practical. In other words, metascientific cognition, permeated with cosmism, exists in a spiritual space, the boundaries of which are wider than those usually available to empirical science operating in a three-dimensional field of dense matter [2].

It is well known that mankind in its history has gone through three types of thinking or consciousness – mythological, religious, scientific. Each species was formed in the depths of the previous one. It should be noted that the mythological consciousness did not have a basis in the form of previous thinking. The main characteristics of mythological thinking are its integrity, imagery, the wise depth of this imagery and the mysterious language of symbols. It is surprising that mythological knowledge turned out to be common for peoples that were far apart from each other. There is a hypothesis that the original mythological information is cosmic information that came to Earth from other being and laid down fundamental knowledge and basic types of thinking [5].

Religious thinking clearly separates the ruling principle (God, connecting man with the Supreme) and the subordinate principle (man). A striking example is Catholicism, where the church represents God on earth and is empowered to speak and act on His behalf. It is difficult to overestimate the role of the Inquisition, which not only personified the struggle of the church for the faith, but also persecuted dissent in all its manifestations. The arbitrariness of the church and the growth of feudal oppression contributed to the emergence and development of free-thinking, which was reflected in the French Revolution (1789–1799) and laid the foundation for the liberation of scientific thinking from the theological tendencies of the Middle Ages. Outright atheism, mechanistic materialism, the absence of a cosmic concept in the theory of knowledge – these are the main features of the new scientific thinking.

It is paradoxical that in doing so, the church itself cut the connection between scientific thinking and the Supreme.

The end of the 19th – the beginning of the 20th century was marked by such a significant and turning point as the Spiritual Revolution in Russia. Its result is the Silver Age – a period of unprecedented flowering of art, literature and philosophy. The essence of the Spiritual Revolution was in the energy processes that take place inside the person himself, linking together the earthly and the heavenly. It was within the framework of the Spiritual Revolution that a new cosmic thinking was formed, which was based on the synthesis of scientific and non-scientific methods of cognition.

The philosophers of the Silver Age (V. S. Solovyov, P. A. Florensky, S. N. Bulgakov, N. A. Berdyaev, I. A. Ilyin and others) studied the problems of the spiritual development of the individual. In the center of their attention was a person, and his spiritual state, as well as philosophers tried to assess the significance of the Higher in the fate of a person [1].

In the 1920s, there was a crisis in the natural sciences. Therefore, the thoughts of the ancient sages about the interaction of man and the Cosmos, about the fundamental unity of the macrocosm and the microcosm have again become relevant, and the accumulation of metascientific fields of knowledge is again in demand. Such scientists as V. I. Vernadsky, K. E. Tsiolkovsky, A. L. Chizhevsky, Albert Einstein came to the rescue.

The first work that reflects the basic principles of cosmic thinking is the teachings of V. I. Vernadsky about the biosphere and noosphere ("Scientific thought as a planetary phenomenon"). The noosphere is the highest stage in the development of the biosphere, according to Vernadsky, the noosphere is the result of a person's conscious mental activity.

The judgments of K. E. Tsiolkovsky about the Cosmos, about the presence of intelligent forces in it, about the will of the Universe gained immense popularity. "The will of man," he argued, "and of all other beings, higher and lower, is only a manifestation of the will of the Universe. The voice of man, his thoughts, discoveries, concepts, truths and delusions, is only the voice of the Universe" [3].

A. L. Chizhevsky's research on the interaction between human organisms and the Sun, which is based on the idea of the integrity of man and the Cosmos, is truly priceless. "From what has been said,



it should be concluded that there is some extraterrestrial force that influences the development of events in human communities from the outside. The simultaneity of fluctuations of solar and human activity is the best indication of this force" [4] – A.L. Chizhevsky claimed.

Summing up, we can say that the cosmic type of thinking considers the Cosmos as a special kind of energy and promotes the idea of a plurality of matters; claims that man is a part of the Cosmos and Cosmos is a part of man, the microcosm and the macrocosm are distinguished by integrity, and also that through such a concept as the Spirit, a person can contact the Cosmos; shows the relationship of the Cosmos and human existence. The result can be a change in the consciousness of a person, an improvement in the quality of his life, and a leap in the progressive development of mankind as a whole.

## **2. Thought operations**

### **2.1. Improvement of the system of cognitive operations and cognitive interest**

Interest, as psychologists traditionally note, is a kind of fusion of intellectual, emotional and volitional processes. The core of interest is the cognitive and emotional components, which are closely interconnected and interdependent. In addition, "interest is a positive emotion experienced by a child more often than other emotions" [4].

Noting the importance of the emotional aspect in the process of cognitive activity, K.D. Ushinsky wrote: "... a child is happy not when he is amused, but when he is completely seriously engaged in the business that captivates him" [11]. Emotional manifestations woven into cognitive interest were designated by G.I. Schukin [7].

As M.V. Gamezo, interest is a specific form of "manifestation of a cognitive need, which ensures the orientation of the individual to the realization of the goals of activity and thereby contributes to the orientation of the individual in the surrounding reality" [3]. The scientist notes that interest includes emotional, intellectual and behavioral components.

In this peculiar fusion of psychological processes underlying cognitive interest, a step-by-step approach to successful learning activity is hidden.

Thus, by cognitive interest (following L.I. Bozhovich, N.G. Morozova, G.I. Shchukina) we understand precisely a special case of interest – interest in learning activities, in acquiring knowledge, in science.



As G.I. Shchukin, "the core of cognitive interest is mental processes" [7]. Consequently, it is interest that gives emotional coloring to mental activity and increases its productivity. The positive emotions experienced at the same time of surprise, joy of success, pride in the case of solving the problem create self-confidence and encourage a new search.

Since cognitive interest activates mental processes, this is extremely important for the effective flow of the process of mastering knowledge and skills in the Russian language. A high level of development of cognitive interest encourages the student to constantly search for ways to improve cognitive activity and contributes to the activation of thought processes. Thanks to thinking, we learn that "objects and events perceived here and now are a small part of everything that exists in the boundless real world" [1].

According to many researchers, in order to solve the so-called mental tasks, which include cognitive tasks in their structure, one must also be able to reason logically, to guess. In some cases, when a logical conclusion from existing premises does not lead to a solution, creative thinking is necessary. At the same time, experience shows that "even an episodic solution of mental problems stimulates the development of schoolchildren's thinking" [4], which undoubtedly contributes to the development of cognitive interest.

As S.L. Rubinstein, towards an increasingly adequate knowledge of his subject and the solution of the problem facing him, "thinking proceeds through diverse operations that make up various interconnected and passing sides of the thought process. These are comparison, analysis and synthesis, abstraction and generalization. All these operations are different aspects of the main operation of thinking – "mediation", i.e. revealing more and more significant objective connections and relationships" [5].

In our article, we would like to indicate the relationship between the level of formation of the cognitive interest of younger students and the level of development of the system of mental operations.

The most important role in the system of mental operations is played by analysis and synthesis. Analysis and synthesis are inextricably linked and are in unity with each other in the process of cognition. Analysis and synthesis only in their unity provide a complete and comprehensive knowledge of reality. Analysis provides knowledge of individual elements, and synthesis, based on the results of the analysis, combining these elements, provides knowledge of the object as a whole. Analysis

is the mental dismemberment of an object, phenomenon, situation and the identification of its constituent elements, parts, moments, sides; by analysis we isolate phenomena from those random, unimportant connections in which they are often given to us in perception. Synthesis restores the whole dissected by analysis, revealing more or less significant connections and relationships of elements identified by analysis. Analysis dismembers the problem; synthesis combines data in a new way to resolve it. Analyzing and synthesizing, thought goes from a more or less vague idea of the subject to a concept in which the main elements are revealed by analysis and the essential connections of the whole are revealed by synthesis.

If in the content of scientific knowledge, in order for it to be true, analysis and synthesis must act as two sides of the whole, then during the thought process they, remaining essentially inseparable and continuously passing into each other, can alternately occupy the foreground. The dominance of analysis or synthesis at a particular stage of the thought process may be due primarily to the nature of the material. If the material, the initial data of the problem are not clear, their content is not clear, then at the first stages, analysis will inevitably prevail in the thought process for a more or less long time. If, on the contrary, by the beginning of the thought process, all data appear before thought with sufficient clarity, then thought will immediately go predominantly along the path of synthesis [5].

Cognitive tasks (PC) aimed at mastering the mental operations of analysis and synthesis by younger students.

This is what ensures visibility for younger students of the essential features of a particular concept or a particular linguistic phenomenon. The cognitive tasks formulated by us for this purpose enable the teacher, when studying word formation, to develop a system of mental operations in younger students, which contributes to a conscious and effective process of solving cognitive problems on word-formation material and, as a result, the formation of cognitive interest of younger students in the study of word formation.

## **2.2. Synthesis and analysis: operations of thinking and mechanisms of cognitive language activity**

The left and right hemispheres of the brain perform different functions. The left hemisphere carries out logical operations that are realized in the identification and understanding of cause-and-effect

relationships. In the language, this is expressed in the structuring of ideas about the language system, in the operation of the laws of the use of language units, in the implementation of language development trends. The right hemisphere carries out figurative-abstract operations. It forms imagery and goes beyond stable categories, that is, it constitutes probabilistic deviations from the general system of the language and the general line of its development. The work of each of the hemispheres is significant in its own way in the process of understanding the phenomena of the world by a person. Left hemisphere and right hemisphere cognitive processes determine different ways of linguistic representation of the world and form regular (deterministic) and probabilistic (indeterministic) connections of phenomena. The study of these processes contributes to the identification of cognitive mechanisms that influence the language and its development. The purpose of the proposed study is to identify the mechanisms carried out by the work of the left hemisphere and influencing the formation of the general line of language development and systematizing the language.

In the left hemisphere, which is responsible for the performance of logical operations, the implementation of the main methods of logical thinking – synthesis and analysis is concentrated. The mechanisms of synthesis and analysis are responsible for the implementation of regular actions in human thinking and, consequently, in language and speech. Synthesis and analysis are the principles of logic, the main ways of knowing and systematizing the world. Thanks to them, people have a language – a unique means of communication, which is a complex non-linear system, and not a nomenclature of its constituent units. Synthesis and analysis realize, first of all, determinism in the functioning of the elements of the language system and regularity in its development. They determine the reproducibility of language elements under certain conditions, the repeatability of functions, the typicality of conditions, the analogy of use, and the filling of gaps according to models known in the language.

Synthesis and analysis are general scientific and philosophical terms: “analysis and synthesis (from the Greek. analysis – decomposition, dismemberment, synthesis – connection) are two universal, oppositely directed operations of thinking. Analysis (A.) is a procedure of mental (sometimes real) division of the object under study into its constituent parts, sides, properties and their study. Synthesis (S.) is the union of the parts of objects, their sides or properties obtained as a result of A.

into a single whole" [2]. Analysis and synthesis play a huge role in the formation of both language and speech, since "A. and S. are used both in mental and practical, in particular experimental, activities" [Ibid.]. Analysis participates in the process of dividing real and unreal reality into significant parts, contributes to the formalization of ideas about the world and their verbalization, determines the entry of new units into a common language system in which "certain relationships and dependencies can be established between them" [Ibid.]. As a result, new concepts either organically enter the language system or are rejected by society as unacceptable. The subsequent synthesis restores the integrity of the representation of the language as a system, since the verification of causal and stochastic relationships and relations of linguistic elements contributes to a more complete understanding of the structure of this integrity: "there is a restoration of the original integrity of the object under study and simultaneous verification (verification) of the knowledge gained about previously unknown properties and relationships given object in scientific theory" [1]. Consequently, analysis is carried out through synthesis – "one of the main mechanisms of the thinking process, which consists in identifying the properties of a cognizable object by the subject (analysis) by including the object in a system of relations with other objects (synthesis). This mechanism is necessary for the discovery of essential, new properties of objects and phenomena and provides a person's knowledge of the surrounding world and himself" [3].

In its pure form, it is practically impossible to single out synthesis and analysis in the language and speech activity of people, since these processes are carried out in parallel and complement each other in human thinking. In general, "the most important mental processes are not clearly isolated from each other, but are realized one by means of the other in a single analytical-synthetic cognitive activity" [Ibid.].

In considering the processes of synthesis and analysis, it is necessary to rely on the distinction between language and speech, since the activity of a person as a linguistic personality can be linguistic and speech. Language activity should be understood as the presentation by the individual of the language system, its structure, the filling of this system, the processing of the received language experience, the adherence to language orientation, language reflection and self-reflection, that is, purely individual processes that can be carried out both in direct interaction with people and remotely. from them. Speech

activity should be understood as the implementation in speech of ideas about language, the process of communication in society, the experience of communication, the speech environment in which a person carries out his activities, that is, socially conditioned processes that cannot be implemented outside of society. Language and speech activity are inextricably linked, since "the personality is influenced by external processes – the language environment – and internal processes – language reflection and self-reflection" [5].

Speech activity is a material expression of the cognitive processes of analysis and synthesis of language units. Actual and correct processes of analysis and synthesis automate the process of generating and perceiving speech and the process of representing the structure of the language, in the center of which is the idea of the word as an autonomous unit of the language system with a unique content, connected with other units by regular or stochastic relationships. The word is the result of a person's verbalization of ideas about the world. It is the most obvious element of the picture of the world, since the lexical-semantic aspect underlies the reflection of the categories of thinking in the language and the formation of the linguistic picture of the world. Knowledge of the linguistic meaning of a word leads to an understanding of the functioning of the word in the process of context formation, the synthesis of which is the union of autonomous words with an independent meaning, taking into account their lexical-semantic, grammatical-semantic and stylistic valences and limitations. This understanding corresponds to the idea of the subject of study of semantics as the meaning of a word. But there is also an understanding of the word as a component of the utterance, an understanding that the information side of the message is an analysis of the use of its components as a result of updating the connotation or clarifying the meaning of the linguistic sign. However, "it is hardly necessary to find out which representation is more important – from word to text or from text to word. Arguing about what is more important – semasiology or onomasiology, meaning or meaning, is the same as finding out which way of thinking is most important – synthesis or analysis" [4].

The analysis of the message is connected with the definition of the functioning of words and the study of their semantic load within the context. As a result of extracting (singling out) the meaning of a word, which is directly related to certain conditions of its functioning, its meaning is singled out, which underlies all uses of the word as an

initial understanding. Thus, “knowledge of the conventional meaning of a word and its connotations – additional meanings – helps to construct an utterance or, in the process of constructing an utterance, to verify the conventionality of the original meaning and additional meanings” [Ibid.]. When forming an utterance, a person synthesizes the units available in the arsenal of the language, and when considering a ready-made text, he analyzes it. Consequently, when coding speech, synthesis is carried out to a greater extent, and when decoding, analysis is carried out: information is synthesized that is implied by the speaker when forming an utterance, information that is perceived by the listener when interpreting the utterance is analyzed. Consequently, “to separate the processes of synthesis and analysis in human thinking is as senseless as it is senseless to separate the processes of the appearance of meaning in a word (semasiology) and the use of a word in a certain sense (onomasiology)” [Ibid.].

The word is a link in a logical operation. The unity of synthesis and analysis in linguistic mental activity is expressed through a linguistic construct – an evaluation system that is used to classify objects of the linguistic space, a system of linguistic convention, agreement to follow certain conditional rules of language and speech. This process is characterized by the synthesis of speech with its integral analysis for compliance / non-compliance, satisfactory / unsatisfactory communication, social requirements, rules, traditions, communication situation, personal motivation. Thus, synthesis is a verification of analysis, and vice versa, analysis is a verification of synthesis. Their interaction and interdependence are expressed in the fact that they “do not oppose each other, but exist in common forms of mental activity” [3].

The duality of thinking, the combination of analysis and synthesis, leads to the fact that a person operates with each linguistic sign both as a unit of synthesis and as a unit of analysis, since he connects words with natural relationships. As a result, each language unit, as an element of an objective language, has a conventional meaning, due to the action of regularity and determinism in the language, and as an element of a subjective language, it has an individual content and connotations, due to the action of probability and indeterminacy. The first should be correlated with the concept of meaning, the second with the concept of meaning. Meaning is objective, universal, conventional, it is for everyone. The meaning is subjective, individual, distinguishes the idea of an object or phenomenon of one person from the ideas of another.



Each modern word already has a specific and unique lexical meaning. When using a word, a person certainly assumes precisely this conventional meaning (general mean), which, on an individual basis, can be supplemented with meanings (private mean). An autonomous word is recognizable, its meaning has already been formed, settled, and the context actualizes the connotations, the meaning of which must be guessed. In this regard, the data of dictionaries indicate the conventional meaning of the word, and the contexts determine the semantic content, which often has a probabilistic nature. As it appears, it is involved in the process of awareness – initially analysis, and then synthesis. Thus, there is a place in the language for both determinism and indeterminism. These phenomena contribute to the expression of basic concepts both within the framework of regular (deployment of already known models) and within the framework of probabilistic (deviations from the main line) processes. Stochastic deviations in most cases go beyond the logical operations of analysis and synthesis, while regular deviations confirm them.

Language activity contributes to the mental representation of the structure of the language as a result of the implementation of cognitive operations of logic. Analysis and synthesis form the language as a system, since they determine the stability of its state. The phenomena of entropy, on the contrary, temporarily destabilize this state, but do not disrupt the system-wide functioning of the language. Consequently, not only synchrony is systemic, as F. de Saussure argued, but also diachrony. All changes inevitably occur within the system and, therefore, may be natural or probabilistic, but not impossible for this system. Looking at the language from the inside gives us an idea of its structure (private language), this is a private aspect of the language. The view from above gives us an idea of its system (general language), this is the general aspect of the language. Subjective language as a result of mental activity is a subjective reflection of the material and spiritual world, objective language is the result of generalization by agreement of a multitude of subjective languages.

So, both a person and society operate with a word as the main unit of language and the main unit of thinking, which is involved in the operations of synthesis and analysis of both the development of speech and the systematization of language. The word as a unit of objective language, on the one hand, has a conventional content (meaning) and enters into conventional relationships with other words, reflecting the



patterns of relations that are regular in the language, and on the other hand, as a unit of subjective language, it contributes to the expression of the author's beginning and has an individual content (meaning). ), reflecting the vision of the world by a particular individual. The logical operations of synthesis and analysis, which are the main ways of thinking, contribute to the formation of a linguistic personality and the formation of a language structure in the thinking of an individual, form regular and reproduce conventional connections between language units, verify the obtained language experience, and determine historical procedural changes in the language system. The bidirectionality (implementation of the processes of synthesis and analysis) of human thinking provides the most complete representation of reality in language through the verbalization of the main phenomena and processes of the world, concepts and categories of thinking. As a result, language as a phenomenon of human activity is able to express all the concepts and thoughts of a person, being a universal and at the same time a unique way of communication of the biological species homo sapiens.

### **3. Conclusion**

So, both a person and society operate with a word as the main unit of language and the main unit of thinking, which is involved in the operations of synthesis and analysis of both the development of speech and the systematization of language. The word as a unit of objective language, on the one hand, has a conventional content and enters into conventional relations with other words, reflecting the patterns of relations that are regular in the language, and on the other hand, as a unit of subjective language, it contributes to the expression of the author's beginning and has an individual content that reflects the vision of the world with a specific individual. The logical operations of synthesis and analysis, which are the main ways of thinking, contribute to the formation of a linguistic personality and the formation of a language structure in the thinking of an individual, form regular and reproduce conventional connections between language units, verify the obtained language experience, and determine historical procedural changes in the language system. The bidirectionality (implementation of the processes of synthesis and analysis) of human thinking provides the most complete representation of reality in language through the verbalization of the main phenomena and processes of the world, concepts and categories of thinking. As a result, language as a phenomenon of human activity

is able to express all the concepts and thoughts of a person, being a universal and at the same time a unique way of communication of the biological species homo sapiens.

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### Abstracts

**СЕРГІЙ СОТНІКОВ. Мова як детермінанта формування способів мислення.** У статті проаналізовані основні види мислення, властиві сучасній людині та соціуму загалом. Запропоновано визначення та здійснено аналіз просторового мислення як розумової діяльності людини. Введено дефініцію «космічного мислення», охарактеризованого процес його формування та особливості. Ква-

ліфковані операції мислення та основні діяльнісні функції, які ними забезпечуються. Синтез і аналіз охарактеризовані як основні механізми пізнавальної діяльності людини. Проілюстровано, що і людина, і суспільство оперують словом як основною одиницею мови і основною одиницею мислення, яка бере участь в операціях синтезу та аналізу як розвитку мовлення, так і систематизації мови. Слово як одиниця об'єктивної мови, з одного боку, має умовний зміст і вступає в умовні зв'язки з іншими словами, відображаючи закономірності зв'язків, які є в мові, а з іншого боку, як одиниця суб'єктивного мови, вона сприяє вираженню авторського начала і має індивідуальний зміст, що відображає бачення світу конкретною особистістю. Логічні операції синтезу та аналізу, які є основними способами мислення, сприяють становленню мовної особистості та становленню мовної структури в мисленні особистості, формують закономірні та відтворюють умовні зв'язки між мовними одиницями, перевіряють отриманий мовний досвід, а також визначити історичні процесуальні зміни в мовній системі. Двоспрямованість (здійснення процесів синтезу й аналізу) людського мислення забезпечує найбільш повне відображення дійсності в мові через вербалізацію основних явищ і процесів навколишнього світу, понять і категорій мислення. У результаті мова як явище людської діяльності здатна виражати всі поняття і думки людини, будучи універсальним і водночас унікальним способом спілкування біологічного виду *homo sapiens*.

**Ключові слова:** мова, способи мислення, пізнавальна діяльність, просторове та космічне мислення, двоспрямованість людського мислення.

**СЕРГЕЙ СОТНИКОВ. Язык как детерминанта формирования образов мышления.** В статье проанализированы основные виды мышления, свойственные современному человеку и социуму в целом. Предложен определенный и анализ пространственного мышления как умственной деятельности человека. Введена дефиниция «космического мышления», охарактеризованный процесс его формирования и особенности. Квалифицированные операции мышления и основные деятельные функции, которые ими обеспечиваются. Синтез и анализ охарактеризованы как главные механизмы познавательной деятельности человека. Проиллюстрировано, что и человек, и общество оперируют словом как основной единицей речи и основной единицей мышления, участвующей в операциях синтеза и анализа как развития речи, так и систематизации речи. Слово

как единица объективного языка, с одной стороны, имеет условное содержание и вступает в условные связи с другими словами, отражая закономерности связей, имеющихся в языке, а с другой стороны, как единица субъективного языка, она способствует выражению авторского начала и имеет индивидуальное содержание, отражающее видение мира конкретной личностью. Логические операции синтеза и анализа, являющиеся основными способами мышления, способствуют становлению языковой личности и становлению языковой структуры в мышлении личности, формируют закономерные и воспроизводят условные связи между языковыми единицами, проверяют полученный языковой опыт, а также определить исторические процессуальные изменения в языковой системе. Двунаправленность (осуществление процессов синтеза и анализа) человеческого мышления обеспечивает наиболее полное отражение действительности в речи через вербализацию основных явлений и процессов окружающего мира, понятий и категорий мышления. В результате речь как явление человеческой деятельности способна выражать все понятия и мысли человека, являясь универсальным и в то же время уникальным способом общения биологического вида *homo sapiens*.

**Ключевые слова:** язык, образы мышления, познавательная деятельность, пространственное и космическое мышление, двунаправленность человеческого мышления.

SERHII SOTNIKOV. **Język jako determinanta kształtowania się sposobów myślenia.** W artykule dokonano analizy głównych typów myślenia właściwych dla współczesnego człowieka i społeczeństwa w ogóle. Zaproponowano definicję i analizę myślenia przestrzennego jako aktywności umysłowej człowieka. Wprowadzono definicję "myślenia kosmicznego", scharakteryzowano proces jego powstawania i cechy. Zakwalifikowano czynności myślenia i główne funkcje czynnościowe, które one zapewniają. Scharakteryzowano syntezę i analizę jako główne mechanizmy aktywności poznawczej człowieka. Zilustrowano, że zarówno człowiek, jak i społeczeństwo operują słowem jako podstawową jednostką języka i podstawową jednostką myślenia, która uczestniczy w czynnościach syntezy i analizy, zarówno w rozwoju mowy, jak i w systematyzacji języka. Słowo jako jednostka języka obiektywnego z jednej strony ma znaczenie warunkowe i wchodzi w relacje warunkowe z innymi słowami, odzwierciedlając prawidłowości relacji w języku, a z drugiej strony jako jednostka języka subiektywnego przyczynia się do wyrażenia przestanki

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*twórczości autora i ma znaczenie indywidualne, odzwierciedlające postrzeganie świata przez konkretnego człowieka. Operacje logiczne syntezy i analizy, które są głównymi sposobami myślenia, przyczyniają się do kształtowania osobowości językowej i powstawania struktury językowej w myśleniu danej osoby, tworzą regularne i odtwarzają warunkowe relacje między jednostkami językowymi, sprawdzają zdobyte doświadczenie językowe, identyfikują historyczne zmiany proceduralne w systemie językowym. Dwukierunkowość (realizacja m.in. procesów syntezy i analizy) ludzkiego myślenia zapewnia najpełniejsze odzwierciedlenie rzeczywistości w języku poprzez werbalizację głównych zjawisk i procesów otaczającego nas świata, pojęć i kategorii myślowych. W związku z czym język jako fenomen ludzkiej aktywności jest w stanie wyrazić wszystkie ludzkie pojęcia i myśli, będąc uniwersalnym i jednocześnie unikalnym sposobem komunikacji gatunku biologicznego homo sapiens.*

**Słowa kluczowe:** *język, sposoby myślenia, aktywność poznawcza, myślenie przestrzenne i kosmiczne, dwukierunkowość myślenia człowieka.*