A NAIVE PICTURE OF THE WORLD AND A BIOSEMANTIC APPROACH TO DESCRIBING THE LEXICAL STRUCTURE OF A WORD

UMA IMAGEM INGÊNUA DO MUNDO E UMA ABORDAGEM BIOSEMÂNTICA PARA DESCREVER A ESTRUTURA LEXICAL DE UMA PALAVRA

UNA IMAGEN INGENUA DEL MUNDO Y UN ENFOQUE BIOSEMÁNTICO PARA DESCRIBIR LA ESTRUCTURA LÉXICA DE UNA PALABRA

Svetlana A. PESINA[1]
e-mail: spesina@bk.ru
Irina R. PULEKHA[2]
e-mail: irinapulekha@mail.ru
Svetlana A. VINOGRADOVA[3]
e-mail: svetvin@mail.ru
Nella A. TROFIMOVA[4]
e-mail: nelart@mail.ru
Svetlana V. SHUSTOVA[5]
e-mail: lanaschust@mail.ru
Yuliana L. VTORUSHINA[6]
e-mail: julievtorushina@mail.ru
Svetlana S. VELIKANOVA[7]
e-mail: vss200975@mail.ru

Editor: Profa. Dra. Rosangela Sanches da Silveira Gileno
Executive Assistant Editor: Prof. Dr. José Anderson Santos Cruz

[1] Nosov Magnitogorsk State Technical University, Magnitogorsk – Russia. Doctor of Philology, Doctor of Philosophy (Professor at the Department of Linguistics and Translation).

[2] Nosov Magnitogorsk State Technical University, Magnitogorsk – Russia. Candidate in Philology (Associate Professor at the Department of Linguistics and Translation).

[3] Murmansk Arctic State University, Murmansk – Russia. Doctor of Philology (Professor, Head of the Foreign Languages Department, Institute of Social Sciences and Humanities

[4] St. Petersburg state university, St. Petersburg – Russia. Doctor of Philology (Professor at the Department of German).

[5] Perm State University, Perm – Russia. Doctor of Philology (Professor at the Department of Linguistics and Translation).

[6] Nosov Magnitogorsk State Technical University, Magnitogorsk – Russia. Candidate of Pedagogical Sciences (Associate Professor at the Department of Linguistics and Translation).

[7] Nosov Magnitogorsk State Technical University, Magnitogorsk – Russia. PhD (Head of the Department of Pedagogical Education and Records Management).

ABSTRACT: The problems of studying the lexical structure of a word have a way out into various areas of cognitive science, including biosemiotics. In the article, the biosemiotic approach is reframed into a biosemantic approach based on decoding specific lexical structures. The lexical invariants of polysemous words are shown to be meaningful cores of their figurative meanings. It is a set of dominant semantic components that are stably associated with each lexeme's meaning. In the process of semiosis, the individual is guided by these invariant components. These components are formed over time in the individual's cognitive niche as a result of observations of the relationship between language signs. The practical part of the article includes an empirical invariant-component analysis of the English polysemous substantive "a hood" from the standpoint of invariant semantics. Given the results, biosemiotics has an advantage over traditional semantics in describing the semantics of lexical units.

KEYWORDS: Biosemiotics. Meaning. Polysemy. Cognitive linguistics. Lexical invariant.

RESUMO: *Os problemas de estudar a estrutura lexical de uma palavra têm saída para várias áreas da ciência cognitiva, incluindo a biossemiótica. No artigo, a abordagem biossemiótica é reformulada em uma abordagem biossemântica baseada na decodificação de estruturas lexicais específicas. Os invariantes lexicais de palavras polissêmicas são mostrados como núcleos significativos de seus significados figurativos. É um conjunto de componentes semânticos dominantes que estão associados de forma estável com o significado de cada lexema. No processo de semiose, o indivíduo é guiado por esses componentes invariantes. Esses componentes são formados ao longo do tempo no nicho cognitivo do indivíduo como resultado das observações da relação entre os signos da linguagem. A parte prática do artigo inclui uma análise empírica de componentes invariantes do substantivo polissêmico inglês "a hood" do ponto de vista da semântica invariante. Diante dos resultados, a biossemiótica tem vantagem sobre a semântica tradicional na descrição da semântica das unidades lexicais.*

PALAVRAS-CHAVE: *Biossemiótica. Significado. Polissemia. Linguística cognitiva. Invariante lexical.*

RESUMEN: *Los problemas de estudiar la estructura léxica de una palabra tienen salida en varias áreas de la ciencia cognitiva, incluida la biosemiótica. En el artículo, el enfoque biosemiótico se reformula en un enfoque biosemántico basado en la decodificación de estructuras léxicas específicas. Se muestra que las invariantes léxicas de las palabras polisémicas son núcleos significativos de sus significados figurativos. Es un conjunto de componentes semánticos dominantes que se asocian de manera estable con cada significado de lexema. En el proceso de semiosis, el individuo se guía por estos componentes invariantes. Estos componentes se forman con el tiempo en el nicho cognitivo del individuo como resultado de las observaciones de la relación entre los signos del lenguaje. La parte práctica del artículo incluye un análisis empírico de componentes invariantes del sustantivo polisémico inglés "a hood" desde el punto de vista de la semántica invariante. Dados los resultados, la biosemiótica tiene una ventaja sobre la semántica tradicional al describir la semántica de las unidades léxicas.*

PALABRAS CLAVE: *Biosemiótica. Significado. Polisemia. Lingüística cognitive. Invariante léxica.*

Svetlana A. PESINA; Irina R. PULEKHA; Svetlana A. VINOGRADOVA; Nella A. TROFIMOVA; Svetlana V. SHUSTOVA; Yuliana L. VTORUSHINA and Svetlana S. VELIKANOVA

Introduction

In the process of human ontogenesis, within the framework of a subjectively emerging structural language plan, a person chooses for his further comfortable existence those parts of the surrounding world that correspond to his internal cognitive organization. At the same time, the cognitive world of one person, formed within the framework of one common culturally and nationally conditioned picture of the world, can differ significantly from the cognitive world of another person (MATTHIESSEN *et al.*, 2022).

From the point of view of biosemiotics, as an approach to the study of living systems, speech activity is nothing more than the production, storage and exchange of signs, including, of course, their interpretation. Researchers of sign systems believe that the phenomenon of "meaning" is not exclusively a property of human language or the human psyche, it is present everywhere in organic nature (ALVES; JAKOBSEN, 2021; ZHAI *et al.*, 2019; MENANT, 2019).

The language consciousness of a person, biologically concentrated in the brain as the higher nervous activity of the body, performs the function of encoding and decoding signs at the mental, linguistic and sensory levels. People, as well as animals, are viewed as living systems, the structure of which is determined by the areas of their internal and external interactions (domain of interactions). They are in constant interaction with their niches in order to adapt to the environment (ENDARA *et al.*, 2017; PESINA *et al.*, 2019). They are Observers who observe the actualizations of the niches of other living systems. One of the tools for adapting to the environment is a natural language, thanks to which the Observer interacts with another living system as an element of his own niche. Thus, the ability to speak is determined by the structure of the human body (MENANT, 2019; PESINA; LATUSHKINA, 2015).

In general, the supporters of biosemiotics somewhat downplay the phenomenon of the ability for human language activity, putting it on a par with other biological manifestations of a person. They interpret language as one of the biological needs of a person or another living system that functions in its own niche and is aimed at survival.

This cognitive-semiotic interpretation of the inner and outer world of a person brings to the fore the adaptive function of language. It is expressed in the relationship between the cognitive consciousness of a person and his external environment. The adaptive function is based on the conformity of the structural plan of his consciousness to that part of the external world that he singles out at a particular moment in time.

The description of the language use from a biological point of view is interpreted quite logically: this need is expressed in joint communication, in which orienting mutual influence takes place. Interaction participants become isolated in the consensual area of their interpersonal interactions (in the case of communication between people), in which they experience the mutual influence of similar mental logical and emotional stimuli (TAKAHASHI, 2019; MENANT, 2019). Interestingly, a complete "closure" to the area of the other does not always occur. Each of the communication participants are exclusively enclosed in the framework of their cognitive area, and one can speak of mutual influences only conditionally. This is another biocognitive postulate that is in conflict with the statement about "closure" in interpersonal interaction (PESINA; LATUSHKINA, 2015).

The researchers claim that under the influence of communication, a joint communicative space common to two or several Participants of language interaction is formed. But these states are characteristic of the individual cognitive areas of the communicants, and only for this reason a "field of mutual understanding" appears to take place. The very expression "the field of mutual understanding or mutual influence" is metaphorical.

If the context of the discourse produced by the speaker or writer is perceived by another Participant in such a way that there can be a different content behind the perceived form. In case two deep structures do not match, misunderstanding arises. The destination experiences a different value than intended because the destination outputs a different value. This happens quite often and serves as a topic of scientific research for entire psycholinguistic fields of knowledge. Much more often, communicants form a field of partial mutual understanding. In biosemiotics, such interaction is terminologically referred to as "orienting influence".

Proponents of biosemiotics do not make the distinction between language and speech, between deep and surface structures, postulated by generative grammar. This circumstance speaks in favor of a mirror match of the units of language and speech in form and content, which is not accepted in fundamental linguistics. On the other hand, from the point of view of brain biochemistry, which, in fact, correlates here with behavioral processes, there cannot be such a division. The human brain functioning does not presuppose a division into speech material and mechanisms for its use, i.e., what we mean by speech and language.

In biosemiotics, the emphasis is on the fact that in the process of communication Participants are actually engaged in decoding information and producing signs. They correlate the forms of signs with the contents available in their thesauri, correlate the received signs with the conditions of the speech context. There is also extra linguistic correlation, including facial

expressions, gestures, body movements and intonation nuances, which is actively studied in the theory of speech acts, especially indirect ones.

Communication participants constantly form in their minds linguistic signs and correct them, correlating with the mode and conditions of communication. The individuals constantly correlate sign forms with the suitable content or what in linguistics is called meanings. At the level of brain biochemistry, these processes correspond to the neuroplasticity of the brain.

In biosemiotics, a notion of a lexical meaning is understood broadly, as the formation of a relationship between a receptive system and a specific object. This semiotic correlation follows from the essence of the sign, which "is itself somehow connected with this very object" (CARRERA-CASADO *et al.*, 2021; PESINA; LATUSHKINA, 2015). That is, an element of a niche or a linguistic form becomes a sign of another entity, as if acquiring a meaning that arises as a result of cognitive correlations. Here we should recall another postulate of biosemiotics: all associative interactions can occur exclusively in the cognitive area of the Communication Participant.

In biosemiotics, understanding of a meaning as a set of circumstances or an event, takes us from the biological or biochemical realm to behaviorism. The sign itself is interpreted not as a physical object or concept, but as a relation, through which the Participant, as it were, systematizes his surrounding reality. The interpretation of a sign as an event or phenomenon distributed among the elements of a situation, again, goes against the postulate of an action exclusively in its cognitive domain, always advocated by cognitivists.

It is difficult to argue with the fact that the meaning of a linguistic sign is generated in the mind of the Participant of communication in real space and time as a result of the perception and interpretation of the shape of the sign as a significant element of a niche or environmental factor. The communication participant acts in accordance with the current sign situation. All elements of a sign situation are perceived in real time and space and serve as signaling agents or hints of the contextual refraction of contextual meanings. Thus, the meaning of the sign is contextually determined by a subjectively perceived event online.

By reporting something, we only "excite" similar signals in a communicant. In the process of communication, the speaker often hopes in vain that his words are perceived by all listeners in the same way. However, in real life, each recipient of a particular message tries to fit it into the context of their own subjective reality.

The essence of the orienting behavior of a communication participant is to set similar neural signals or tracks in the cognitive area of the addressee. As a result of the stereotyped use

of the same language forms in similar sign situations, the Communication Participant begins to associate a specific language form more and more steadily with similar neural circuits produced by the nervous system. Then the meaning can be interpreted as a habitual natural state experienced by the Participant of communication upon presentation of a specific form of a linguistic sign. The latter is associated in the cognitive area based on the previous communicative-perceptual experience of using this sign form as a tool for cognitive interaction orienting.

At the same time, the language system of communicants is open to change, since it is based on conjecture and constant experimentation, i.e., on the heuristic behavior of communicants. In its ontogenesis, both the heuristic and the personality-oriented system of meanings are formed for a long time by a certain age and are subject to change. It is not static and improves throughout the experience of human communicative activity. This is what in cognitive linguistics is meant by the formation of concepts and the concept sphere.

A natural question arises about the place of polysemy as a consequence of constant changes in the knowledge system and, specifically, in the structures of polysemous words. The latter are a classic example of a single form of a sign with a variable content.

Hypothesis

This study proposes the refraction of the biosemiotic approach into a biosemantic one based on the processes of decoding specific lexical structures. Within the framework of the angle of view on communication and language proposed in the article, namely biosemiotics, polysemy can be described differently than it is proposed in traditional linguistic literature.

Meaning in biosemantics can be viewed as an associative chain retrieved from the memory of an individual as formed ideas about the previous uses of a particular sign. As a result of the constant updating of the signs, the speakers form stable and ordered associative links, which are formed due to the previous interaction of the organisms of the Communication Participants with a specific environment, but only in their cognitive areas or domains.

Over time, speakers who belong to the same linguistic and cognitive picture of the world form similar stereotypes of the use of certain linguistic signs. In other words, as a result of a close to identical interpretation of signs, representatives of the same language community form the same orienting behavior, which serves to mutual understanding between the Participants of communication through a reference to this cognitive experience.

Language, as a tool for orienting interaction, is thus a set of associative tracks corresponding at the biochemical level to a particular neuroplasticity.

In the process of communicative and cognitive activity, the Participant of communication constantly interacts with various zones of the surrounding reality, transforming them into elements of his niche, reconstructing or re-creating semantic interpretations of meanings. We are talking about their decoding and attributing certain semantic components to them.

The essence of the process of meaning actualization within the framework of biosemantics assumes that the Participant of communication identifies the most significant, in his opinion, semantic components of the niche element being described. It is these features that he associates with the form of the sign within a specific sign situation. As a result of the Participant's comprehension of the results of linguistic interaction with another communicant, the meaning becomes an element of the language system.

The interaction of the Participant of communication with the elements of the area of the surrounding reality allocated by him, from the point of view of biosemantics, means the use of specific meanings of words within the semiotic continuum in a specific space and time. The communication participant compares these semantic elements, using the form of a linguistic sign as a niche element well known to him to designate new semantic areas.

At the same time, the Participant of communication fixes a new state of his cognitive area or nervous system, caused by the influence of a form known to him. This is how the formation of a new, including the most common, metaphorical meaning is carried out. This is how the language system, formed as a result of the uniform use of linguistic signs, becomes the basis for the formation of new meanings.

In the case of the primary nomination or the use of an occasional language unit, the Communication Participant makes a greater cognitive effort to search for content for the form of the sign perceived by him. This new cognitive work also takes place when the form of the sign is familiar to the individual but is in an alien contextual environment. If the meaning in the new semantic context is accepted by the language community, then it is fixed in the language as a neologism.

In the process of the recurrent actualization of the word form, which is well known to the Participant of communication, he easily finds its denotative meaning in his thesaurus or lexicon, without resorting to additional cognitive efforts, which we call heuristic. The state that

arises in an individual in the process of semiotic activity is habitual, and communication proceeds without cognitive breakdowns and failures.

In this regard, studies of polysemy face the most difficult problems: on the one hand, these are the reasons for the difference in the individual meanings of a polysemous word, and, on the other hand, with the likelihood of a common semantic core that would unite all the meanings of one word. The last idea is relevant, since there must be some semantic force that keeps all meanings within the same word structure, otherwise, a homonymous break is possible.

Our hypothesis is based on the postulate that in the process of communicative time pressure, the communicant actually does not have time to update all the semantic information behind a particular language form. In reality, a communicant is always after searching in his cognitive niche or consciousness the most general and approximate content that would minimally, but sufficiently correspond to the perceived visually or auditory form of the word.

The essence of the proposed approach is to determine the minimum essential semantic features of the word, the content core of the word and to establish its place and function in the language system and in speech. When determining the meaningful core of a word, it is necessary to take into account its invariant nature, since it should be the basis for the formation of all meanings of the word. It is necessary to take into account the perception of the average native speaker so that the goal of its search, oriented to the average user, is not lost.

In this paper, the term "a lexical invariant" is used as an essential property of the language. It is understood as a set of semantic components that, in one of their configurations, underlie all or a number of polysemous word meanings in accordance with the intuition of the average native speaker. In this sense, a lexical invariant is an abstraction. The concept of an invariant is opposed to the concept of a variant as a specific implementation of a language unit. This opposition is correlated with the dichotomy of language and speech: an invariant is a unit of language, and a variant is its specific implementation in speech.

In the linguistic literature, there is no common opinion about what constitutes the semantic basis of a polysemous word. These difficulties are exacerbated by the fact that modern linguistics does not give an unambiguous answer to the question of how to store linguistic forms of polysemous words and their interaction with cognitive mechanisms. Therefore, the study of the meaningful core of a polysemous word is one of the most difficult tasks in lexical semantics, where its solution determines how many and what meanings will be allocated from a particular word structure.

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As will be shown below with a concrete example, the lexical invariant is independent of the context and ensures the semantic integrity of the word, being a convenient form of storing the entire structure of the word in the cognitive area of the Communication Participants.

Methods

The proposed semiotic-semantic analysis involves the study of words structures of as sign systems, revealing the features of lexical means through which successful communication takes place. The main research methods in the field of opposing the "language-speech" dichotomy are linguistic observation, a descriptive method and comparison as a universal linguistic means.

Modeling of speech-and-thinking and sign processes is carried out on the basis of introspection as an intuitive reproduction of scenarios of the speech-and-thinking activity of the sender and the recipient of the message. The semantic analysis is carried out on the basis of the intuitive reproduction of the scenarios of the speech-and-thinking activity of the alleged communicants.

As an illustration of the functioning of the lexical invariant, an empirical invariant-component analysis of polysemous English words is used, when a lexical invariant is formulated on the basis of the semantic components identified in each meaning. The latter includes core dominant semantic components that in any of their configurations underlie all meanings words.

Results and discussion

It is well known that a number of traditional linguists of the past and present did not recognize the polysemy at the speech level, that is, in the process of communication (PELKEY, 2016). This hypothesis does not contradict the approach presented in this article. Indeed, in each contextual use of a language form, an individual associates with it only one content. That is, one sign form in speech is always associated in consciousness with only one meaning. Based on the subjective cognitive experience of operating with signs, an individual in each specific speech context uses the desired content or derives the correct meaning. In this context, it is appropriate to quote M. Breal who claimed that that communicants do not even have to suppress other meanings of the word as they do not exist for us, they do not cross the threshold of our

consciousness. Thus, when a doctor or pharmacist writes out a prescription, the listener does not have an image of a recipe in his mind (ZHAI *et al.*, 2019).

The work of the individual's consciousness in decoding and interpreting linguistic signs in the process of communication is based on the previous bodily communicative-perceptual experience, on the basis of which the Communication Participant interprets the meanings. That is, this experience partly exists in advance, partly formed in the process of sign interaction. Lexical meanings, which are based on previous experience of using a linguistic sign, are formed, so to speak, *ad hoc*. At the same time, there are also so-called intermediate variants of meanings due to the fact that the speaker creates a new fuzzy description in a new environment (PELKEY, 2016). This means that, theoretically, the number of actual meanings of a lexeme can be much larger than is presented in dictionaries.

As stated above, the participant in the communication singles out only the most significant features for the given situation from the described entities and only as a last resort, if necessary, resorts to further more detailed descriptions. With repeated actualization of the same meaning of a particular language form, a stable associative series or cluster of the most significant dominant components associated with this form and the sign situation as a whole is formed in the memory of the Communication Participant. These associations form a lexical invariant of the polysemous word structure, which allows the Communication Participant to effectively use this language form, that is, successfully decode meanings and create new meanings based on it (NOVIKOV; PESINA, 2015).

The lexical invariant, as the meaningful core of the word, should certainly be associated with deep structures. Carrera-Casado & Ferrer-i-Cancho, recalled the need to oppose the language system to the forms of its implementation in speech, believing that before any consideration of the contextual meaning of any form, it is necessary to restore the system, of which it is an integral part. Its constituents the source from which it takes its main meaning – the meaning that already exists in thoughts (although we cannot be directly aware of this, since we do not have direct access to these deep operations). It precedes any contextual meaning that emerges in speech (CARRERA-CASADO; FERRER-I-CANCHO, 2021).

The proposed systemic meaning or lexical invariant exists as a part of the cognitive world of the Communication Participant, therefore it is hidden from direct access. However, it can be deduced from the recorded actual meanings of the word according to the history of their use. Establishing a systemic meaning involves searching for a minimum set of stable, dominant

semantic components sufficient to achieve the maximum recognition of a given meaning, while the possible subjectivity of the results obtained is quite acceptable (PELKEY, 2016).

Among all possible figurative meanings metaphors can be semantically the farthest from the first non-derivative meaning. In the case of a metaphor, as is known, one cognitive source domain is projected onto another target domain. As a result, the second domain is treated in connection with the first one, and both domains always belong to different higher order domains. The cognitive domain is understood as the totality of all knowledge about something. For example, the metaphor "love is a journey" (NOVIKOV; PESINA, 2015) is interpreted as a domain of journeys, which belongs to a domain of a higher order (superordinate domain) – the domain of movement superimposed on the domain of love, which belongs to the domain of emotions (KULL, 2022). In the case of a metaphor, the source is not superimposed on the entire target area, but only on that part of it, or subdomain, which is common to the source and the target. The metaphor is also characterized by the absence of restrictions on complexity, which is associated with the heuristic nature of language activity.

Let us move on from the domains of entire semantic fields to the structures of polysemous words, which were discussed above and which we use daily. So, for the English noun "a hood" as the initial nominative non-derivative meaning, dictionaries give definitions that, using empirical invariant-component analysis, can be reduced to the following formulation: *a part of a coat which covers the head so that can hang down at the back when not in use, presumably functioning at the level of ordinary consciousness*.

As an example of the narrowing of the first meaning, let us consider the following meaning: "an ornamental cloth hung from the shoulders of an academic robe". This meaning contains all the components of the main meaning.

The appearance of the metonymic meaning "an aggressive young criminal" can presumably be interpreted as follows: jackets with hoods, as an attribute of young people's clothes, allow them (including offenders) to hide their appearance. As a result, the hood acquires a symbolic meaning. This metonymic meaning is emerged on the "part-whole" model.

There are some metaphorical meanings based on likening of the appearance and function of the hood of a jacket or a coat: "a covering for a horse's / prisoner's / hawk's head". These meanings are based on the semantic components *a cover for a head, that hides*.

The following metaphorical meanings are no longer associated with animate objects: "a metal cover for a stove", when a folding cover over a stove chimney is likened to a hood. The metaphor is based on the components *a cover, can hang down when not in use*. The same

components underlie the meaning "a carriage top", as well as the metaphorical meanings: "the convertible top of the car", "the hatch on the boat / vessel / motor cover".

In the process of coining such metaphors, someone compared various covers and caps with a hood in full accordance with anthropocentric stereotypes and a naive picture of the world. In metaphorical meanings, abstraction of content is observed. As metaphors "move away" from the main meaning, their images become more schematic. Thus, the image of a stove cover or a metal engine cover is less consistent with the hood of a coat than a bag on the head of a prisoner, a horse or a falcon, given their size and the material from which they are made.

In this regard, let's pay attention to the following meaning: "something resembling a hood in shape or use; a part of which covers or shelters a piece of equipment". This metaphor involves a wide range of referents and is based on likening a hinged lid covering any part of the mechanism to a hood covering a person's head. Although the dictionaries show the presence of only one component to cover an object, all such metal covers must recline on hinges or, as it were, on them, so we also select the component can hang down when not in use.

The results of the analysis demonstrate that in the process of metaphorization, only the most general features of similarity to the main meaning are used. However, we are ready to formulate the lexical invariant of a polysemous word "a hood": ***a movable protective covering for the upper part of an object which can hang down when not in use***. The components *covering* and *movable* are classed as integral or common for all metaphorical meanings and *can hang down when not in use* is a differential component, since it is relevant only for some metaphors.

This lexical invariant can be interpreted as an invariant associative-semantic complex, assigned to the word in the minds of communicants and formed based on not only the semantic structure of the word, its grammatical arrangement, word-formation structure, motivational connections, but also the usage traditions existing in society. This is the result of comprehending of all the actual meanings of a polysemous word, which is a minimal set of the most significant, from the point of view of the Communication Participant, semantic components, minimally sufficient for an adequate interpretation of the contextual realization of the meaning. Being a systemic meaning of a polysemous word, it ensures the functioning of the word in speech, since it is the derivational basis for the formation of all contextual implementations of this word, which, in turn, constantly supplement the invariant (ANDREWS, 2019; KULL, 2022).

The analysis shows that the formulated lexical invariant is a unit of the semantic system of the language, and metaphorical rethinking is actualized at the speech level. The result of its

"application" to the conditions of speech situations causes the appearance of metaphorical meanings. The performed analysis is an attempt to confirm the thesis about the non-mirror nature of the relationship between units of language and speech.

Conclusion

So, the inner cognitive world of a communicant is determined by his cognitive structural plan, formed in the course of his activity. Cognitive understanding of the phenomenon of polysemy suggests that a polysemous word has a single systemic meaning: at the level of a language system a word is represented by its content core. At the speech level, the polysemous word is represented by contextual implementations, i.e., its meaning.

The article proves the possibility of functioning of a lexical invariant as a meaningful core of a polysemous word, the existence of which is substantiated from the standpoint of biosemiotics. The invariant approach to the study of the problems of the relationship between the meanings of polysemous words proposed in the article allows us to explore the processes of formation and comprehension of the meanings of words in the English language in a new way. Lexical invariants are formed in memory based on memories of real actualizations of lexico-semantic variants of polysemous words and become the basis for creating derived meanings.

Since the memory of the Participant of communication about the use of meanings includes the functioning of metaphorical and metonymic rethinking, he owns the mechanisms for the formation of meanings corresponding to the area of secondary nomination. Based on this, in the cognitive niche of an individual, not individual meanings are stored in the form of lists, but lexical invariants as generalized knowledge about the semantics of words and about the ways of forming the meanings of their interpretation. This is consistent with the statement that at the level of secondary nominations, the rules of meaningful variation of the direct meaning function. Based on the mechanisms for implementing lexical invariants in the structures of polysemous words, new meanings can be created. The memory of such states, corresponding to the forms of invariants, becomes, over time, an important element of the structure of the organism.

Thus, the lexical invariant is a consequence of natural biosemantic processes that reflect the experience of the previous use of the contextual meanings of polysemous words and provide a further possibility of its use.

REFERENCES

ALVES, F.; JAKOBSEN, A. L. (Eds.). **The Routledge handbook of translation and cognition**. Abingdon and New York: Routledge. 2021.

ANDREWS, E. Semiotic principles in cognitive neuroscience. **Cognitive and Intermedial Semiotics**, p. 1-10, 2019.

CARRERA-CASADO, D.; FERRER-I-CANCHO, R. The advent and fall of a vocabulary learning bias from communicative efficiency. **Biosemiotics**, v. 14, n. 2, p. 345-375, 2021.

ENDARA, L. *et al.* Building the "Plant glossary" - a controlled botanical vocabulary using terms extracted from the floras of North America and China. **Taxon**, v. 66, n. 4, p. 953-966, 2017.

KULL, K. The biosemiotic fundamentals of aesthetics: beauty is the perfect semiotic fitting. **Biosemiotics**, v. 15, n. 1, p. 1-22, 2022.

MATTHIESSEN, C. M. *et al.* Cognition in systemic functional linguistics. *In*: **Systemic Functional Insights on Language and Linguistics**. Singapore: Springer Singapore, 2022. p. 147-195.

MENANT, C. Constraint satisfaction, agency and meaning generation as an evolutionary framework for a constructive biosemiotics. *In*: **Agency and Meaning Generation as an Evolutionary Framework for a Constructive Biosemiotics**, 17 Feb. 2019.

NOVIKOV, D. N.; PESINA, S. A. Biosemiotics and Prototype Semantics in Understanding Lexical Polysemy: Implications for Applied Linguistics. The magic of innovation. **New techniques and technologies in teaching foreign languages**, v. 275, 2015.

PELKEY, J. Chiastic antisymmetry in language evolution. **The American Journal of Semiotics**, v. 29, n.1/4, p. 39-68, 2016.

PESINA, S.; LATUSHKINA, O. Polysemy and Cognition. **Procedia-Social and behavioral sciences**, v. 192, p. 486-490, 2015.

PESINA, S. A.; YUSUPOVA, L. G.; PULEKHA, I. R. Anthropomorphism in language studied through the prism of embodiment. **Вестник Челябинского государственного университета**, v. 10, n. 432, p. 223-227, 2019.

SONESSON, G. Cognitive Science and Semiotics. **Bloomsbury Semiotics**, v. 4, p. 293-312, 2022.

TAKAHASHI, H. Cognitive Linguistics: SAGE Benchmarks in Language and Linguistics Ed. by Masa-aki Yamanashi, SAGE Publications, London, 2016, 1520pp. **English Linguistics**, v. 36, n. 1, p. 115-128, 2019.

ZHAI, Z. *et al.* **Improving chemical named entity recognition in patents with contextualized word embeddings**. 2019. arXiv preprint arXiv:1907.02679.

Svetlana A. PESINA; Irina R. PULEKHA; Svetlana A. VINOGRADOVA; Nella A. TROFIMOVA; Svetlana V. SHUSTOVA; Yuliana L. VTORUSHINA and Svetlana S. VELIKANOVA

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