






Classification of Regional Metaphors from the Standpoint of Invariant Semantics

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Abstract: A new approach to the phenomena of polysemous words integrity called the invariant-component method is developed in the article. The presented study attempts to determine the nature of meanings in the semantic space of the lexicon by revealing the content of metaphors. A three-level classification of metaphors is presented within the scope of the article. Its main criterion is the degree of difficulties in their comprehension. The metaphors are arranged according to the principles of fluent and crystalized intelligence. A semantic structure of a word is viewed as a multi-level configuration of meanings. It is fixed by a dominant invariant meaning. The analysis of the English substantive “a leg” is presented. As a result, the obtained semantic metaphorical clusters have lead to the lexical invariant definition. The latter is viewed as a set of basic dominant components that form the semantic core of a polysemous word. The results of the study led to the conclusion that lexical invariants make it possible to successfully decode metaphors of the first basic level according to our classification.

1 INTRODUCTION


In the process of mental and speech-thinking activity, individual consciousness is equally prone to both generalizations and personal interpretation of incoming information that refracts the objective perception of the surrounding world. A person is driven by the desire to streamline the received symbolic connections and relations between them under the influence of historical, socio-economic, cultural and other factors, which give rise to the need for new nominations.


Technical and general progress continuously leads to the development of languages whose vocabulary can be changed dynamically, reaching up to 30% per century. The use of the means available in the language is of great importance, since it makes it


possible to use them to designate something for which there has not yet been a special nomination.


Languages in which word formation is poorly developed fill gaps by adding new meanings to already existing polysemous words. At the same time, there is a process of renewal within the structures of polysemous words: the meanings perceived as the main ones cease to be direct meanings over time, moving into the category of figurative ones (for example, English *a coach* - first *a carriage*, then *a bus*).


The most frequent figurative meanings in the composition of polysemous words are metaphors and phraseological units. In modern cognitive linguistics, a metaphor is interpreted not only as a means of giving the text a special emotional and evaluative expressiveness, but also as a mechanism for

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generating new cognitive scenarios. Among the reasons for word structures expanding there are extra linguistic factors (for example, the new metaphors appearance in Russian of 1980s: *стенка* – a wall (as modular sectional furniture), *двойка* – *deuce* (TV and a video recorder), *приставка* – *console* (a tape recorder), etc.

A metaphor is an applicable tool for nominating new artifacts in any area of human life. It is also almost the only way to meaningfully define objects of a high degree of abstraction. The change of paradigms towards the virtual construction of entities is characterized by a change in the vector of metaphorization towards the objectification of the world. For example, only a user with a deep understanding of the computer system can be called a root, as if being a part of a plant deeply buried in the ground.

2 MATERIALS AND METHODS

The conscious use of lexical invariants allows us to see not only the “raw material” from which a certain figurative meaning is formed, but also to understand the logic of the formation of the entire structure of the word. The lexical invariant has a dynamic nature and is formed as a result of frequent use of the metaphor in question. Lexical invariants unite metaphors into a single structure

As an illustration of the lexical invariant functioning, we propose an empirical invariant-component analysis of the word “*a leg*”. With the help of introspection, linguistic observation, empirical invariant-cluster method, description and comparison, the dominant elements of this polysemous word will be defined. Thus, the algorithms of the secondary meanings decoding will be revealed. We also apply semantic reduction as a basic analysis. It presupposes the gradual removing of the trivial semantic components of each figurative meaning.

In our analysis, we adhered to the following methodology for determining the lexical invariant of a polysemous word:

1. On the basis of the most frequent components of several explanatory dictionary definitions, the first nominative-non-derivative meaning is formulated.
2. The invariant-component analysis of each figurative meaning by comparing it with the obtained averaged nominative-non-derivative meaning. As the analysis proceeds, there is a

consistent disposal of components of a trivial nature.

3. Further reduction of the word meaning. We single out the most relevant dominant nuclear semantic components in the obtained interpretations of each metaphorical meaning. At the same time, we carry out a consistent reduction of each interpretation to the minimum necessary bundle of nuclear features, necessary and sufficient for recognizing the specific meaning of the word.
4. Based on the identity of the core dominant semantic components included in the semantics of each metaphor, we group the latter into clusters. These clusters greatly simplify the decoding of metaphors that are perceived in them as a whole.
5. Based on the dominant semantic components identified in each metaphorical cluster, a lexical invariant is formulated. It includes core basic semantic components, which in any of the configurations underlie all the metaphorical meanings of this polysemous word.

3 RESULTS AND DISCUSSION

The presented classification is based on the degree of difficulty of metaphors comprehension and decoding. The typology is also based on the principle of using the type of intelligence: flexible (mobile) and crystallized (Cattell, 1971). The classification includes simple basic intuitive metaphors, expanded associative non-trivial metaphors and nested multi-stage metaphors.

The first class of metaphors includes basic intuitive metaphors, which are usually perceived instinctively and automatically. They are used without much cognitive effort and are so common that they seem to be natural and self-evident descriptions of everyday life. Here is an example of English basic intuitive metaphors: *coat/ knee/ sleeve of a pipe, nose of a ship, head of a mountain/ river/ bay, branch of a company, chain of events/ circumstances*, etc.

Compared to English, metaphorization is not that extensive in Russian: thus, for the Russian word *голова* – a head there are many lacunas: *coat of a pipe and head of a mountain / river / bay*, etc. Thus, about 103 metaphorical meanings are found in the structure of the English polysemous word “a head”. The Russian analogue, even including the derivatives of “a head”, contains only 15-20 metaphors. Even in Russian, where word-formation models and direct

nomination prevail, there are quite a lot of intuitive metaphorical transfers.

From the typology proposed by G.Lakoff and M. Johnson (Lakoff, 1980), the orientational metaphors, such as *to feel up/down*, were included to our classification of metaphors as the simplest and most obvious. By the way, orientational metaphors can be supplemented with the following mechanism: “being important is always good, being unimportant is bad”. For example, all metaphors with a component *head* can illustrate this mechanism. Thus, if we refer to a part of an object as *head*, be it the top or the beginning, it will always be the important part of it. For example, in metaphor *the head of a table* “head” is any place at the table that the owner considers the most important: it can be either the end of the table or its center.

The first group of basic intuitive metaphors also includes synesthetic metaphors, such as a green old age (happy age), yellow silence, green envy, humid green, pale sound, bitter tone, low sound, bright sound, sweet sounds, cold / warm light, light creaking, heavy hum, etc. Synesthetic metaphors based on the level of tactility are quite common. It is obvious that hugs or any physical closeness can create a feeling of warmth or cold: a warm / cold friendship or handshake. These metaphors, although of linguo-cultural nature, are usually perceived without much effort and cognitive dissonance.

The first group of basic intuitive metaphors also includes synesthetic metaphors, such as a green old age (happy), yellow silence, green envy, humid green, pale sound, bitter tone, low sound, bright sound, sweet sounds, cold / warm light, light creaking, heavy hum, etc. These metaphors, although they are of a linguo-cultural nature, are usually perceived without much difficulty and cognitive dissonance for individuals with imagination.

From around the age of four, children display an ability to transfer metaphorical meanings from one modality to another (Marks, 1966). In this respect, metaphor is classed as the earliest cognitive function that directly affects language acquisition. As for synesthesia, color synesthetic metaphors also come from childhood.

The first class of metaphors also includes numerous anthropomorphic metaphors. They are usually not difficult for comprehension either. Anthropomorphism serves as an umbrella term for such phenomena as animism (personification), animatism (personification with endowing inanimate objects or animals with human emotions and abilities): a devouring prairie; Notre’Dame squats in the dusk; Mother Nature blushes before disrobing, etc.

As is demonstrated in our studies (Pesina, 2021), the vector of anthropomorphism is bidirectional. We distinguish centrifugal-nominative and centripetal-nominative anthropomorphism. The first is focused on likening the surrounding objects and phenomena to the structure and functioning of one's own body. The second one is focused on the reverse process: the nomination of personal properties like character, appearance, etc., on the analogy of the appearance and qualitative characteristics of the surrounding objects and phenomena.

We use basic intuitive metaphors so often that we don't even notice that they are figurative meanings that imply overthinking. Their decoding involves a crystallized type of intelligence that involves reasoning (usually verbal) based on the prior knowledge and the ability to infer secondary relational abstractions by applying previously comprehended primary abstractions.

In contrast to the crystallized type of intelligence, flexible intelligence (also mobile or fluid) includes reasoning (often non-verbal) about new problems. Flexible intelligence is able to “produce” knowledge different from the existing one, solve new problems. It is associated with the acquired critical skills as understanding, interpretation and learning (Cattel, 1971).

In the understanding of the next type of metaphorical rethinking, which we called “leveled expanded associative non-trivial metaphors”, both these forms of intelligence are involved.

So the second class of metaphorical meanings includes extended associative non-trivial metaphors, which, unlike intuitive ones, require the activation of voluntary attention. They assume a significant distance between the source and target domains. These are expanded non-trivial metaphors. They are fresh and often perceived as a shock of recognition, since they contain a paradox, a search for similarities in dissimilar objects. To decipher extended associative non-trivial metaphors, an individual needs several interconnected cognitive processes. It is necessary due to the high density of embedded information.

When creating such levelled metaphors, several or at least two initially poorly correlated domains can be used. From them a single domain is subsequently constructed. If the cognitive dissonance arising from the perception of associative non-trivial metaphors or the delay in decoding information is critical, then understanding does not occur.

This class of metaphors includes structural, ontological and polymodal (multimodal) metaphors, for the understanding of which at least two semiotic

channels of information perception are used, for example, verbal and visual. Mixed verbal-graphic metaphors form one idea from two or more domains. This is, for instance, embodied in metaphorical memes, various kinds of promotional products containing figurative rethinking on condition that metaphors should not be trivial.

The polymodal metaphors are often analyzed with the help of the theory of conceptual integration developed by J. Fauconnier and M. Turner. Instead of the two-term scheme of Lakoff and Johnson, they rely on a system of four basic components, in which two concepts project their components onto each other, and do not replace one concept with another, as in the theory of conceptual metaphor. Moreover, the complete replacement of one domain by another rarely occurs as through one meaning, as a rule, "shines through" another (the effect of oscillation or palimpsest).

Internet communication is often metaphorical and polycodal. For example, at least two cognitive processes occur if you see a picture of a tiger preparing to jump and read the inscription: "This is how your wife is waiting for you when you say that you will come in 10 minutes, but come in 2 hours ...". We are witnessing an anthropomorphic, or rather animate rethinking, when the qualities of an animal are transferred to a person and, therefore, it must be attributed to the first type of a simple intuitive metaphor. However, at least two cognitive processes are involved here: the perception and combination of graphic and linguistic information. Based on this criterion, such example of recategorization is more difficult to perceive and can be attributed to the second class of metaphors.

Nevertheless, we recognize that there is a field for discussion here, as graphic perception may serve as means of linguistic content understanding. In addition, metaphors are so diverse and rooted in our lives that it is extremely difficult to draw a clear demarcation line of classification between them.

Finally, the third class of metaphors includes folded multi-stage metaphors with multiple degrees of understanding. In such transfers, the semantic arrow in turn points to the semantic movement as a multi-level (double, triple, etc.) rethought of information, occurring in someone's imagination.

This type of metaphors can cover the entire literary work - a poem or prose (cf. F. Wheelwright's diaphora, meaning the combination of the most diverse details into a single new perspective). At the same time, semantic information can be packed into a number of metaphorical images that interact with each other in the most unusual way. We are talking

about the formation of new complexes by successive fusion of some impressions that are difficult to commensurate.

Critical thinking, a high level of culture, a good working combination of flexible and crystallized intelligence are needed to understand nested metaphors. The individual must see a generalizing idea and be able to produce ideas.

In connection with the foregoing, it is important to find the key to decoding at least basic intuitive metaphors, to learn to see the commonality that unites the contextual realizations of the figurative meanings of the same word.

We have proposed a hypothesis for the effective decoding of basic intuitive metaphors in order to rely on the common thing that unites the contextual realizations of the figurative meanings of the same word. To do this, we use the concept of "lexical invariant", which we understand as an abstract linguistic entity, a cluster of semantic components. This cluster underlies all or a number of meanings of the polysemous word in one of its configurations in accordance with the intuition of the average native speaker.

In the process of a metaphor decoding as part of a speech context, the lexical invariant can make it easier and faster to understand the metaphor. The context metaphor implements one of the dominant semantic components of the lexical invariant. Or, in other words, the latter is embodied in one of its combinatorial variants (Solonchak, 2015).

Let us illustrate what has been said by presenting below the results of the analysis of the English polysemous substantive *a leg*. The following are the invariant components that hold together the semantics of the English word *a leg* which we call a lexical invariant: a long straight, often lower and branching off part of an object which acts as a support or a distinct portion or a stage between two stops or positions (long straight, often lower and a branching part of an object that acts as a support or separate part or step between two stops or positions).

This lexical invariant includes the most significant integral and differential semantic components and is formed at the level of the language system through numerous contextual realizations of meanings (in particular, metaphorical ones). It is opposed to the term "variant", which functions at the speech level as a contextual realization of the invariant. This opposition is built into the language-speech dichotomy (Kostina, 2015; Pesina, 2021).

As an illustration of the functioning of the lexical invariant, let us present an empirical invariant-component analysis of the polysemous English word

leg. All metaphorical meanings can be divided into five clusters. In each of the clusters, the configuration of the semantic components is somewhat different. As a result of the analysis of 16 meanings of the polysemous word *a leg*, the following groups of metaphors can be identified:

- *part of an object, long, straight, acts as a support* (leg of a triangle; leg of a divider/compass – side of a triangle other than base or hypotenuse);
- *part of an object, long, straight, branching off from the main object* (leg of a road (a way radiating from an intersection); leg of antenna (a branch or lateral circuit connecting a communication instrument with the main line); leg of a cricket field (the part of the field to the left of and behind a right-handed batsman and vice versa));
- *part of an object, long, straight, lower, acts as a support* (leg of a plant – the part of a plant stem between the base and the point from which branches arrive; leg of a table/chair/bed (the part of furniture that rests on the floor and helps to support its weight));
- *a distinct portion or a stage between two stops or positions, long, straight* (leg of a long journey/flight – one of the distinct portions or stages of any course or journey; that part of an air flight pattern that is between two successive stops or positions, or changes in direction);
- *part of an object, long, straight leg of a football game/a dart match/races etc – a part of a game, a part of a race, or a game of a pair or series of games.*

The content of the following value is as abstract as possible: something resembling or suggesting a leg in use, position or appearance [ACD]; something resembling a support branch of a forked or joined object [NDWEL]. This metaphorical meaning implies a wide range of referents, suitable for the concept of a support or a long branch from something. This value indicates that over time, as metaphors are used, a certain generalizing construct is formed in the individual, which increases the efficiency of his thinking.

The equivalent of this word in Russian is not rich in metaphors and has less anthropomorphic power than the English one. It is actually only a metaphor, such as “a leg of a chair”. The Russian polysemous word is rich in phraseological units, like its English equivalent, in which the components of the main meaning are realized: *вверх ногами* (upside down), *на широкую ногу* (to live richly, not embarrassed in means), *на короткой (дружеской) ноге* (in close,

friendly relations), *ни в зуб ногой* (not to understand anything), etc.

The marker of the lexical invariant functioning is the appearance of the meanings beginning with the following words: “something resembling or suggesting ...” For the word *a leg* we can present the following meanings of broad semantics: “something resembling a hood in shape or use” [LDCE] (for the polysemantic a hood), “something resembling or suggesting a leg in use, position or appearance” (for the polysemantic a leg), “that part of anything which is considered as forming the top or upper end; the foremost part or projecting end of anything” [NWDEL] (for the a head polysemant), any projection resembling or suggesting a tooth [NWDEL] (for the a tooth polysemant).

Let us consider some other examples of such meanings: “something that resembles a blanket, anything that covers”, “a series of closely linked or connected things, a number of connected things, events etc.” [Oxford St.] (for word *a chain*), “a small piece of something” (for word *a knob*), “something resembling a bridge in form or function” [LDCE] (for word *a bridge*), “a division into usually two parts or one of the parts” [CIDE] (for word *a fork*). The more frequent the word, the more reason to expect it to develop an extended polysemy with a developed metaphor and a subsequent tendency towards broad meaning.

4 CONCLUSIONS

The presented classifications of metaphors testify to the levels of understanding by a person of the world of conventions that he himself creates. It reflects the nuances of the interpretation of refracted reality and the ontological connection between the features of the subjective perception of the surrounding world and the world itself.

The refracted world can be endowed with the same physiological and spiritual properties as the person himself due to the need to create his own comfortable psychological space and explain the laws and mechanisms of functioning of the often hostile environment. A person, in accordance with the anthropic worldview, adapts his habitat to himself, apparently using innate mechanisms of metaphorical categorization of reality.

This refracted world is reflected and embodied in the nuclear information formed behind the structure of the word about the semantics of this word, in what we call the lexical invariant. It functions at the background level, providing an effective quick access

to the semantics of a metaphor, fastens the structure of the polysemous word, preventing it from disintegrating into homonyms. The lexical invariant involves referring directly to the dominant nuclear features of the word, which underlie the metaphors, are learned intuitively and are absolutely necessary for the successful decoding of hidden meanings.

AUTHORS' CONTRIBUTION

S. Pesina performed the research; S. Pitina, A. Taskaeva and E. Kharchenko contributed to the analysis of the results; Y. Vtorushina designed and directed the project. All authors discussed the results and contributed to the final manuscript.

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