

Cognitive Mechanism of a Metaphor

D. U. Ashurova* and M. R. Galieva†

Tashkent State University of Uzbek Language and Literature named after Alisher Navoi, Tashkent, Uzbekistan

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Abstract. This article analyses metaphors from a cognitive perspective, exploring their role in conceptualisation and interpretation of world knowledge. We argue that, despite extensive research, the cognitive mechanisms underlying metaphors remain under-studied. This study primarily focuses on the cognitive processes involved in constructing and interpreting conceptual metaphors. It highlights critical aspects of Cognitive Linguistics, including the theory of conceptual integration and blending, and the interpretative potential of linguistic expressions. The central hypothesis suggests that metaphorical projection is facilitated by various cognitive mechanisms. Furthermore, conceptual metaphors represent different types of knowledge structures, marking them as an interpretative type of linguistic signs. Their interpretative potential is due to the interplay of linguistic and cognitive mechanisms, instrumental in metaphor construction and the emergence of new meanings.

1 INTRODUCTION

Metaphor is a unique phenomenon that has captured the attention of philosophers and philologists since ancient times. Initially, metaphor was studied within the realm of rhetoric and was seen as a rhetorical device based on "hidden comparison." The primary function of metaphor was considered to be the enhancement of speech, increasing the artistic value of literary works. In traditional stylistics, metaphor is regarded as a figurative stylistic device (trope) that relies on the interplay between two types of meanings: dictionary and contextual (Gal'perin I.R. 1977.). It involves the interaction of direct and figurative meanings and arises from the relationship between word meanings (Gak V.G. 1988). In other words, metaphor was studied in terms of its structural, semantic, and stylistic characteristics. The traditional theory, as highlighted by A.A. Richards, viewed metaphor "solely as a linguistic means, resulting from word substitution or contextual shifts" (Richards I. 1990.).

A comprehensive analysis of different viewpoints and approaches to the study of metaphor in the past and present is provided in the collection of scientific articles "Theory of Metaphor," edited by N.D.

Arutyunova (Arutyunova N. D. (1990)), and in the monograph by E.E. Yurkov (Yurkov Ye. 2012.). These sources examine various aspects and approaches to metaphor, including logical-philosophical, psychological, linguistic, linguocognitive, and linguoculturological perspectives. They acknowledge characteristics of metaphor such as anthropocentrism, subjectivity, intuitionism, imagery, implicitness, and elements of poetic thinking (Arutyunova N. D. (1990)).

Currently, with the development of cognitive linguistics, interest in the problem of metaphor has significantly increased. From the standpoint of the cognitive theory of language, metaphor is seen as one of the fundamental processes of human consciousness, serving as a distinctive way and outcome of thinking. It is a means of conceptualizing, categorizing, and interpreting knowledge about the world, based on the principles of analogy and knowledge projection from one conceptual domain to another (Ashurova D.U. (2018)).

The theory of conceptual metaphor was developed by J. Lakoff and M. Johnson (Lakoff G., Johnson M. 1980.) and further expanded upon by researchers such as Z. Kövecses, R.W. Gibbs, E. McCormack, V. Petrov, N.D. Arutyunova, and others

* Corresponding author

(3,14,16,24,27). Notably, N.F. Alefirenko has proposed a conception of cognitive metaphor, asserting that metaphor is a cognitive-semiotic phenomenon that reflects human cognition. It is based on "conceptual shift," leading to the emergence of new (unexpected) meanings during the process of metaphorization. An important conclusion is that metaphor analysis requires a dual approach encompassing both linguistic and cognitive perspectives. Considerable attention is devoted to metaphor interpretation, with the author outlining various types of metaphor interpretation, suggesting that interpretation depends on an individual's age and cognitive-nominative experience (Alefirenko N.F. (2006).). Here are several definitions of metaphor from the cognitive theory of language:

- Metaphor is a form of conceptualization, a cognitive process that generates and shapes new knowledge.

- Metaphor is a way of describing one aspect of the world through another, comprehending the essence of one kind in terms of another (Lakoff G., Johnson M. 2008.).

- Metaphor involves transferring a portion of the knowledge structure from the source domain to the target domain (Yurkov Ye. 2012.).

- Metaphor is a fundamental tool of cognition, resulting from a cognitive process that correlates two (or more) referents, often incompatible, leading to a semantic conceptual anomaly (MacCormack E. 1990.).

The aforementioned definitions, while emphasizing the cognitive nature of metaphor, do not fully uncover the cognitive mechanism of conceptual metaphor. The research material encompasses conventional metaphors associated with the metaphorical model of "Vegetable metaphors." The primary research method employed is conceptual analysis, with the aim of: a) identifying interconceptual connections between the two conceptual structures involved in metaphorical projection; b) defining the image and propositional schemas that underlie conceptual metaphors; c) establishing a network of associative links activated by mechanisms of analogy and contrast.

2 RESULTS AND DISCUSSION

The study of linguistic literature, as well as our own observations and reflections on this issue have led to the conclusion that the process of metaphorical

projection is provided by such cognitive mechanisms as: the interaction of conceptual-mental spaces (domains), conceptual integration and blending, image and propositional schemas, cognitive principles of analogy and contrast, mechanisms of focusing and defocusing, inference and emergence.

Mental-conceptual domains. A conceptual domain is defined as a set of cognitive entities, as conceptual complexes, knowledge structures embedded in the semantics of linguistic units (Langacker R.W. 1998.). Conceptual domains structured in a certain way, form a hierarchically organized set of conceptual layers and conceptual features included in the nuclear and peripheral zones. The nuclear zone makes up the base layer, which includes a set of basic, stereotypical, standard features fixed in the language system, transmitting the collective, established in a certain culture, knowledge about the object. Nuclear conceptual features are of a prototype, sensory-visual character and in most cases are fixed in the dictionaries and other lexicographical sources. The peripheral zone includes additional conceptual features, which are mostly of an abstract, implicit, associative, evaluative and interpretive character. In this regard, the conceptual metaphor should be viewed as the result of the interaction of two domains, source and target, as a projection of one domain onto the other. The source domain usually represents concrete entities: Human, Flora, Fauna, Specific Objects, Foods, Natural Elements. As for the target domain, it expresses more abstract categories: Emotions, Thoughts, Ideas, Time, Human Relations. It is important to emphasize that the source domain includes well-known, objective knowledge structures motivated by the collective experience of a certain society. The target domain, as a result of the projection of knowledge structures of the source domain onto the target one, generates new, unknown knowledge of an individual, subjective-evaluative nature with the elements of hyperbolization and imagination (Ricoeur P. 1990.).

Image and propositional schemas. The conceptual basis of metaphorical projections is formed by image schemas, which are defined as recurrent patterns of the perception process (Maslova V. A. 2004.), as "analogue representations deriving from experience" (Evans V., Green M. (2006)). Image schemas are characterized by abstractness, conceptual complexity, analogue representations of knowledge, the ability to structure and model information about the world (Boldyrev N.N. (2019)).

Propositional schemas are no less significant in terms of conceptual metaphor construction. A proposition is defined as "a semantic invariant

common to all members of the model and communicative paradigms of sentences”. According to N.N. Boldyrev propositional schemas single out some elements, their characteristics, their interconnections (Boldyrev N.N. (2019)). In the process of metaphorical projection, a certain redistribution of conceptual features is observed due to their transference from one conceptual domain onto the other, thus forming propositional schemas underlying metaphor interpretation. Propositions are mental constructs that do not have an explicit externalization, since they are embedded in the deep structure of metaphor based on the so-called “deep predication”. Many researchers point out the predicative nature of metaphor. N.D. Arutyunova believes that metaphors “perform, as a rule, the function of characterization and occupy the position of a predicate in the sentence” (Arutyunova N. D. (1990)). V.G. Gak notes that the structure of metaphor consists of the semantic subject and semantic predicate (Gak V.G. 1998). E.E. Yurkov proposes to consider metaphor as a thematic-rhematic unit (Yurkov Ye. 2012.), thereby emphasizing the predicative nature of metaphor, which, on the one hand, nominates an object (theme), on the other, assigns (predicates) certain features to it, thus performing evaluative and characterization functions. P. Ricoeur, considering the metaphorical process as an act of cognition, as a creative process, introduces the notion of “predicative assimilation”, which means making the terms that metaphorical expressions bring together similar or semantically close (Ricoeur P. 1990.). Thus, the propositional schemas based on the act of predication, on the one hand, contribute to metaphorical meaning construction, on the other – serve as the main strategies for understanding and interpreting conceptual metaphor.

Conceptual metaphor theory is closely related to the theory of conceptual integration developed by J. Fauconnier and M. Turner (Fauconnier G., Turner M. (1998)). Conceptual integration is a cognitive process that involves the interaction of two or more conceptual structures (domains), resulting in the emergence of new conceptual meanings. In other words, conceptual integration is not simply a combination of conceptual features from each domain, but rather a complex cognitive structure that generates novel meanings and senses. The mechanism of conceptual integration involves the blending of at least four conceptual mental domains:

1. Input I: the mental space projected onto the focal mental space.

2. Input II: the focal mental space (the target domain) interpreted in terms of input I (the source domain).

3. The generic space: containing abstract information common to both inputs and providing the basis for integrating the two spaces based on their similarities.

4. The blend: the outcome of the metaphorical projection, characterized by the emergence of new structures.

Emergence, as known, refers to the appearance of new meanings and senses in a complex system that are not inherent in its constituent components. This phenomenon is observed in various complex systems across different domains such as philosophy, physics, biology, economics, politics, and certainly in linguistics. According to N.N. Albekov, emergence manifests itself at all levels of language and is directly related to processes of meaning construction, transformation, and modification (Al'bekov N.N. (2015)). T.V. Zhrebilo, considering emergence at the level of the text, argues that it should be regarded as one of the text's categories, alongside cohesion, informativity, modality, etc. (Zhrebilo T.V. 2010).

In our view, emergence is most evident at the level of a literary text, particularly within the category of imagery, which is predominantly represented by metaphors. In metaphor, emergence occurs through metaphorical mapping, wherein two mental spaces interact to generate conceptual meanings characterized by novelty, unexpectedness, and non-triviality.

It is worth noting that there are two ways in which meaning is constructed in metaphor: a) the emergence of new meanings that are not inherent in the mental structures of the interacting spaces; b) the construction of new meaning through the processes of focusing and defocusing. For instance, in idiomatic expressions such as "book worm," "big mouth," and "hot potato," emergent properties manifest themselves through conceptual features that are distinct from the constituent components. The study of lexicographic sources has allowed us to identify the following emergent elements in these idiomatic expressions:

- book worm: addicted, enthusiastic, fond of (about a person)
- big mouth: indiscreet, tactless, boastful, talkative, obnoxious (person)
- hot potato: difficult, challenging, awkward (situation)

However, in most cases, the emergence of "new" features arises from the opposing processes of defocusing and focusing. The phenomena of defocusing and focusing are extensively explored in O.K. Iriskhanova's monograph "Games of Focus in Language" (2014), which posits that "the semantics of linguistic expressions is described as a process of focusing on certain aspects of the referent" and that "focusing is always accompanied by defocusing" (15, p. 64-66), implying the removal of certain object properties from the semantic focus. Of particular significance to our research is the author's claim that the processes of focusing and defocusing, as well as the distribution and redistribution of primary and secondary focus, are crucial for metaphorical and metonymic projections.

In conceptual metaphor, the process of "focus shift," accompanied by the defocusing of the primary focus in the source domain and the focusing on properties and features within the defocused zone, creates a cognitive salience effect that "renews" these features. In our view, these renewed features can be considered as emergent elements.

Before delving into the processes of focusing and defocusing with specific examples of metaphorical projections, it is important to bear in mind that the conceptual space, as previously noted, consists of the cognitive structure of nuclear and peripheral conceptual layers and features. During metaphorical projection, there is a redistribution and reconstruction of the nuclear and peripheral components, resulting in the defocusing of nuclear features, which move towards the periphery, while peripheral features are brought to the forefront in the nucleus area. In other words, nuclear features are defocused, and peripheral features are focused. A similar notion is expressed in the work of J. Lakoff and M. Johnson, who describe these processes as "highlighting" and "darkening," suggesting that metaphor highlights certain properties while simultaneously concealing others (Lakoff G., Johnson M. 2008.). The focal elements of the blend, in our opinion, can be seen as new or "renewed" conceptual meanings.

3 DISCUSSION

Let us consider the metaphor expressed by the compound word "cabbage-head" from the perspective of cognitive mechanisms. This example belongs to the linguistic embodiment of the anthropocentric metaphorical model "Vegetable metaphors," which includes various expressions such as "two peas in a pod," "carrot and stick," "couch potato," "to be full of

beans," "to dangle a carrot," "to be as cool as a cucumber," "small potatoes," "turn into a vegetable," "big potatoes," "to spill the beans," and others. Firstly, it is important to note that this lexeme represents the conceptual fusion of metaphor and metonymy, known as metaphonymy in linguistics. It involves expressing two images created through metonymic projection: "Head" represents the Human, where the component "Head" signifies not only knowledge motivated by associations of contiguity (part-whole) but also peripheral properties associated with positive evaluative stereotypes. In this case, we observe a defocusing on the features related to a person as a biological being and a focusing on the features of an intelligent person, their mental abilities, and intellect (CCELD, 1998).

Furthermore, the compound word represents the metaphorical projection: "Head is Cabbage," where the source conceptual space contains core features that convey collective knowledge about cabbage. Additional peripheral features are associated with concepts of inactivity, indifference, and passivity. These features have an implicit associative character and are expressed in statements such as: "If you say that someone is a cabbage, you mean that they are not interested in anything," "Cabbages, whose heads tightly folded see and hear nothing," and "Instead of going to class, Jason 'cabbaged' all day" (Sinclair John.).

The generic space, which serves as the basis for conceptual integration through analogy, contains one conceptual feature derived from physical collective experience – the shape of the head and that of a cabbage. Through metaphorical projection, conceptual features associated with mental abilities are attributed to a person, but in a negative sense. The processes of focusing and foregrounding highlight the features of "mental retardation" while defocusing the features associated with both "man as homo sapiens" and "cabbage as a vegetable." As a result of these cognitive processes, new conceptual meanings emerge in the blend, aiming at a negative evaluation of a person as someone stupid, limited, and mentally retarded.

The cognitive nature of metaphor lies in its ability to evoke a network of associations in a person's consciousness, motivated by the principles of analogy, which find similarities between seemingly incompatible entities, as well as by the principles of contrast, which highlight the opposition of these entities. It should be emphasized that the principle of contrast, embedded in the cognitive structure of metaphor, plays an equally significant role alongside the principle of analogy. This view is supported by

many researchers who highlight the incompatibility and opposition of the compared concepts. For instance, N.D. Arutyunova, when considering metaphor in terms of "categorical shift," argues that metaphor encompasses both "compressed comparison" and "compressed opposition" (Arutyunova N. D. (1990)). This perspective is also supported by researchers who discuss semantic inconsistency, "deep" negation (Wierzbicka A. 1990.), violation of categorical boundaries (Miller G.A. 1990.), semantic deviations, and anomalies (Levin S. 1990.), as well as categorical errors (Ricoeur P. 1990.).

Considering the problem of contrast in conceptual metaphor, we start from the assumption put forward by McCormack that metaphor should be seen as a semantic, syntactic, and cognitive process (MacCormak E. 1990.). Accepting this view, we believe that the stylistic aspect should also be added, which plays a significant role in metaphor, especially in poetic metaphor. Each of these aspects or levels has its own peculiarities, particularly evident in the diversity of contrast at each level. For example, at the semantic level, contrast is represented by binary oppositions such as concrete - abstract, animate - inanimate, person - non-person; at the syntactic level, by propositions of affirmation and negation; and at the stylistic level, by oppositions such as neutral - stylistically marked meanings, direct - indirect meanings, objective - subjective evaluations. At the cognitive level, contrast is expressed through oppositions such as the principle of analogy - the principle of contrast, old information - new information, and collective knowledge - individual knowledge. In the example of "cabbage head," the principle of contrast is likely realized based on the mental experience of a person, in whose consciousness the combination of incompatible entities in the process of metaphorization is represented by opposing schemas: Man - Plant, animate - inanimate, person - non-person, smart - stupid, with the latter being the result of inferred new knowledge obtained based on what is already known.

Considering the above, we can infer a complex, multi-aspect, and multi-level structure of metaphor that combines linguistic and mental processes, as well as linguistic and cognitive approaches to its study. It is important to emphasize that the distinction between these aspects of metaphor is somewhat relative, as all these levels, closely interacting, are part of a unified cognitive process of metaphorization, serving as a fundamental mechanism for cognition and interpretation of knowledge about the world (Boldyrev, 2019).

Regarding the interpretative function of conceptual metaphor, within the framework of the theory of interpretation and the interpretative function of language developed by V.Z. Demyankov and N.N. Boldyrev, linguistic interpretation is considered a cognitive activity of humans, a process and result of understanding and interpreting knowledge about the world (Boldyrev N.N. (2019)). The main postulates of interpretationism include the idea that language performs not only communicative and cognitive functions but also an interpretative function (6,8), that linguistic cognition and human perception of reality involve interpretation (Dem'yankov V.Z. (1994)), and that linguistic interpretation is based on the interaction of collective and individual knowledge and experience (Boldyrev N.N. (2019)).

Researchers distinguish between different types of interpretation, including structural and discursive interpretation (Belyayevskaya Ye.G. (2017)), as well as primary and secondary interpretation (Boldyrev N.N. (2019)). In the context of our work, the distinction between primary and secondary interpretation is relevant. Primary interpretation represents collective knowledge about the world, which is generally known and objective. Secondary interpretation, on the other hand, is subjective and evaluative, reinterpreting existing collective knowledge. In this sense, conceptual metaphor is the result of secondary interpretation based on the interaction of collective and subjective-evaluative knowledge. Metaphorical interpretation has its own peculiarities. Firstly, it involves the integration of two domains and the projection of one conceptual structure onto the other, leading to the emergence of a new integrated conceptual structure and providing new insights into existing knowledge. Secondly, metaphorical interpretation encompasses opinions, assessments, attitudes, emotions, and values. Thirdly, it aims to achieve figurative and evaluative comprehension of complex concepts in the surrounding world (5, p. 136), such as abstract entities, notions of the spiritual world, emotions, and cultural values. Therefore, metaphorical interpretation, as a particular type of secondary interpretation, incorporates the cognitive mechanism of inference. Inference is defined as the process of obtaining new data and knowledge through reasoning and drawing conclusions. Many researchers consider the process of obtaining inferred knowledge, by decoding implicit information, as "the most important cognitive operation of human thinking" (Kratkiy slovar' kognitivnykh terminov 1996.). The problem of inference has been addressed in numerous studies, including works by T.A. van Dijk, G.P. Grice, J.

Leach, N.D. Arutyunova, E.S. Kubryakova, and M.I. Kiossé. However, linguists primarily focus on analyzing this problem in various text types, as E.S. Kubryakova suggests that understanding these texts is impossible without the processes of inference (Kubryakova E.S. 2001). While fully supporting this viewpoint, we argue that inference processes encompass a wide range of linguistic phenomena, with conceptual metaphor playing a dominant role.

The process of inference in conceptual metaphor aims to understand and interpret its conceptual content and involves the following:

- a) Restoring interconceptual connections between interacting domains in the structure of metaphor.
- b) Identifying image and propositional schemas that form the conceptual basis of metaphor.
- c) Establishing the focal elements of metaphorical projection.
- d) Considering the correlation of different types and formats of knowledge during the process of metaphorization.
- e) Activating the system of associative links, which includes linguistic associations (syntagmatic, paradigmatic, and semantic) as well as extralinguistic associations (situational, evaluative-pragmatic, sociocultural, literary, etc.).

4 CONCLUSIONS

- The cognitive mechanism of conceptual metaphor, regardless of the conditions and spheres of its usage, consists of:

- a) the projection of one conceptual domain onto the other;
- b) the conceptual integration of two interacting domains based on the principles of analogy and contrast;
- c) modelling conceptual content based on image and propositional schemas;
- d) generating new conceptual meanings as a result of focusing/defocusing processes;
- e) activating the system of associative links and mechanisms of inference and emergence.

- Conceptual metaphor, as the most important means and outcome of cognition, encompasses various types and formats of knowledge: linguistic and extralinguistic (encyclopedic), collective and individual (subjective-evaluative), known - unknown (new, emergent), explicit - implicit (inferred).

- Conceptual metaphor belongs to the interpretative type of linguistic signs, and its interpretive potential is determined by:

- a) the interaction of cognitive and linguistic mechanisms in metaphor construction;
- b) structuring one conceptual domain in terms of the other and establishing interconceptual links;
- c) activating the associative potential of metaphor;
- d) the cognitive mechanisms of emergence and inference.

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