COGNITIVE MECHANISMS OF COMPOUND POLYSEMY

Gaffarova Roxila Yusupovna
2nd year master degree student at Uzbekistan State World languages university
Yuldashev Akmal Gulamjanovich
Uzbekistan State World languages university
head of the department of Theoretical aspects of English language №1
professor (DSc)

Abstract. Compound words constitute an essential part of vocabulary development in many languages and often demonstrate polysemy, where a single compound form acquires multiple related meanings. This article examines the cognitive mechanisms underlying compound polysemy from the perspective of cognitive linguistics. The study focuses on conceptual metaphor, metonymy, conceptual blending, and semantic extension as key processes contributing to the emergence of multiple meanings in compound words. Through the analysis of selected English compounds such as *blackmail*, *greenhouse*, *laptop*, and *brainstorm*, the research demonstrates how human cognition shapes semantic development. The findings suggest that compound polysemy arises from dynamic conceptual interactions and reflects speakers' cognitive abilities to structure experience and create meaning. The article contributes to the understanding of semantic evolution in compound formation and highlights the importance of cognitive mechanisms in lexical development.

Keywords: compound polysemy, cognitive linguistics, conceptual metaphor, metonymy, conceptual blending, semantic extension, compound words, lexical semantics, mental spaces, meaning construction.

Introduction. Polysemy is one of the most significant features of natural language, reflecting the dynamic nature of meaning and its dependence on human cognition. In particular, compound words frequently demonstrate polysemy due to their complex semantic structure and the interaction of multiple conceptual elements. Compound polysemy refers to the phenomenon where a compound word develops several related meanings based on cognitive processes and contextual usage [5].

This study aims to analyze the cognitive mechanisms that contribute to compound polysemy. The research focuses on identifying key cognitive processes and illustrating them through examples from English compound words. The findings of this study may contribute to a better understanding of semantic development and lexical creativity in language.

Literary review. The cognitive approach to polysemy has been widely discussed in linguistic research. Lakoff introduced the idea that polysemy reflects conceptual structures in human cognition and is organized around prototype meanings [2]. According to Lakoff, lexical items develop multiple meanings through metaphorical and metonymic extensions.

Fauconnier developed the theory of mental spaces, which explains how speakers construct meaning through conceptual domains. Later, Fauconnier and Turner proposed conceptual blending theory, which describes how two or more mental spaces combine to create new meanings. This mechanism is particularly relevant for compound polysemy, as compound words often involve the integration of multiple conceptual domains [4].

Geeraerts further emphasized that lexical semantics should be studied from a cognitive perspective, focusing on semantic networks and conceptual relationships [3]. Evans and Green also highlighted that conceptual metaphor and metonymy play a central role in

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semantic extension and polysemy formation [6]. Previous studies show that compound words often develop new meanings beyond their literal interpretation.

Discussion and results. Compound interpretation heavily relies on encyclopedic knowledge, which includes cultural, social, and experiential information. For instance, *silver spoon* in *born with a silver spoon* refers not to a literal object but to wealth and privilege. This interpretation depends on cultural knowledge about wealth symbolism. Likewise, *red tape* refers to bureaucracy, a meaning that cannot be derived solely from the literal meanings of “red” and “tape” without background knowledge. Thus, encyclopedic knowledge plays a crucial role in activating and stabilizing polysemous meanings in compounds.

The compound *blackboard* originally denotes a board that is black in color. However, in actual usage, its meaning extends beyond this literal interpretation to refer to a teaching tool used in classrooms. This semantic shift is based on a metonymic relationship, specifically object → function, where the physical object comes to represent its typical use in an educational context.

The compound *headphone* literally refers to a device worn on the head for listening to audio. Over time, its meaning has expanded to denote a broader category of audio technology and personal listening devices. This extension is motivated by a combination of profiling and metonymy. Profiling highlights the functional aspect of the device (listening), while metonymy allows the object to represent a wider technological category associated with that function.

In the case of *green light*, the literal meaning refers to a traffic signal indicating permission to proceed. In extended usage, the expression *to give the green light* means to grant approval or permission. This shift involves both metonymy and metaphor. First, a metonymic process (signal → action) occurs, where the traffic signal stands for the act of proceeding. Then, a metaphorical mapping is applied (action is movement), allowing the physical act of moving forward to represent abstract permission or approval.

The compound *cold war* does not refer to a literal absence of heat but instead denotes a state of political tension between nations without direct military conflict. This meaning is derived through conceptual metaphor, specifically emotional or political tension is temperature. In this mapping, “*cold*” signifies a lack of open hostility while still implying underlying conflict, thus creating a nuanced abstract meaning.

Finally, the compound *brain drain* literally suggests the loss of a brain; however, its extended meaning refers to the emigration of highly skilled or educated individuals from one country to another. This semantic development involves both metonymy and metaphor. The word *brain* stands metonymically for intelligence or skilled individuals (*brain → intelligence/person*), while the term *drain* metaphorically conceptualizes loss as physical movement (*Loss is movement*). Together, these processes produce a complex, abstract meaning grounded in human cognition.

The lexeme *“brainstorm”* as a complex (compound) unit in English manifests a very interesting phenomenon from a cognitive-semantic perspective. Its constituent parts *brain* and *storm* initially convey distinct, concrete meanings when considered separately. However, when combined, they generate a new, metaphorical meaning.

In its literal interpretation, *“brainstorm”* can be understood as “*a storm in the brain”*. This transfers the characteristics of a natural storm intensity, speed, and lack of control onto human thought processes. On this basis, the extended meaning emerges as “a sudden and intense flow of ideas,” that is, the rapid generation of multiple new thoughts and solutions within a short period of time. This semantic extension is explained within the framework of

conceptual metaphor theory, which posits that humans understand abstract concepts through concrete experiences.

In the case of *“brainstorm”* the central metaphor can be formulated as:

Ideas are natural forces.

Here, the *storm* component conceptualizes ideas as dynamic, powerful, and sometimes uncontrollable processes. Just as a storm arises suddenly and develops with great energy, ideas in the human mind can emerge unexpectedly and intensively. In cognitive linguistics, this is realized through conceptual mapping: the source domain is natural phenomena, and the target domain is the process of thought and creativity.

Furthermore, when *“brainstorm”* is used as a verb (*to brainstorm*), it also denotes a social-interactive activity. For example: *We need to brainstorm new solutions.* In this case, the unit refers not merely to individual thinking but to a collective cognitive process, where the ideas of multiple people collide, enrich each other, and result in new concepts. This illustrates the broader pragmatic function of the metaphor.

Additionally, the lexeme exhibits a certain degree of metonymic process: *“brain”* (organ) → “thinking process” (function). As a result, metaphor and metonymy operate in an integrated manner within the semantic structure.

Overall, the lexeme “brainstorm” is a complex semantic-cognitive unit in which natural phenomena are used to model the thought process, abstract concepts are expressed through concrete imagery, and individual and collective cognitive activities are intertwined. This makes it a significant and multifaceted object for analysis from the perspective of modern cognitive linguistics.

Conclusion. The analysis shows that compound polysemy is largely shaped by cognitive mechanisms such as conceptual metaphor, metonymy, conceptual blending, and semantic extension. These processes allow speakers to create new meanings and expand lexical resources. Compound words are not static lexical units but dynamic structures influenced by human cognition and experience.

The study confirms that conceptual blending plays a particularly important role in the emergence of non-transparent compound meanings, while metaphor and metonymy contribute to semantic extension. The findings highlight that compound polysemy reflects broader cognitive processes involved in meaning construction.

In conclusion, the cognitive approach provides valuable insights into compound polysemy and lexical development. Further research may explore cross-linguistic differences and the role of cultural factors in compound polysemy formation.

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