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MENTAL SPACES: THE COGNITIVE STRUCTURE OF HUMAN THOUGHT

Abstract

This article explores the theory of mental spaces, a framework within cognitive linguistics that elucidates how individuals structure and manipulate mental representations to facilitate various cognitive processes. Mental spaces theory, rooted in principles such as conceptual blending and cognitive projection, provides insights into the dynamic nature of human thought and imagination. Drawing from foundational works by Fauconnier and Turner, as well as contemporary research in cognitive science, the article discusses the practical applications and theoretical implications of mental spaces across domains such as language processing, problem-solving, creativity, and metaphorical reasoning. By elucidating the cognitive mechanisms underlying human cognition, mental spaces theory offers valuable insights into the nature of human thought and its implications for fields ranging from psychology and neuroscience to artificial intelligence and human-computer interaction.

Keywords: *mental spaces, cognitive linguistics, conceptual blending, language processing, human thought, imagination*

Səidə Əhmədova

Mental məkanlar: İnsan təfəkkürünün koqnitiv strukturu

Məqalədə müxtəlif idrak proseslərinin təfəkkürdə necə struktur yaratdığını və dəyişdiyini aydınlaşdıran və koqnitiv dilçiliyə daxil olan mental məkanlar nəzəriyyəsi araşdırılır. Konseptual blendlər və təfəkkür prinsiplərinə əsaslanan mental məkanlar nəzəriyyəsi insan düşüncəsinin və təxəyyülünün dinamik təbiəti haqqında konseptləri təmin edir. Fauconnier və Turnerin araşdırmasına əsaslanaraq, eləcə də idrak elmindəki müasir tədqiqatlardan istifadə edərək, məqalədə dil prosesi, problem həlli, yaradıcılıq və metaforik əsaslandırma kimi sahələr üzrə mental məkanların praktik tətbiqləri və nəzəri nəticələri müzakirə olunur. İnsan idrakının əsasını təşkil edən mental məkanlar nəzəriyyəsi insan təfəkkürünün mahiyyətini göstərərək, onun psixologiya, nevrologiya, süni intellekt kimi müxtəlif sahələrə təsirləri haqqında dəyərli fikirlər təklif edir.

Açar sözlər: *zehni məkanlar, koqnitiv dilçilik, konseptual qarışdırma, dil emalı, insan düşüncəsi, təxəyyül*

Introduction

Cognitive linguistics is a branch of linguistics that explores the relationship between language and cognition, emphasizing the role of mental structures and processes in shaping language use and understanding. It searches to understand how language reflects and influences human thought patterns, perception, memory, and conceptualization (Lakoff, Johnson, 1980)

Cognitive linguistics researches different fields:

Conceptual metaphor: This theory suggests that abstract concepts are often understood and expressed through metaphorical mappings from more concrete domains. For example, we might understand "time" in terms of "money" (e.g., "I wasted a lot of time on that project").

Mental Spaces and Conceptual Blending: This theory posits that the mind creates new conceptual structures by blending elements from different mental spaces or domains. These blends help us understand complex ideas or create novel meanings.

Prototype Theory and Radial Network: Prototype theory proposes that categories are organized around central prototypes, which represent the most typical or salient members of a category. For instance, when we think of "bird," we might first think of a robin or sparrow before considering less typical examples like penguins or ostriches (Rosch, 1973: 328-350).

Construction grammar: This approach focuses on how language is built from smaller units called constructions, which are pairings of form and meaning. Constructions can range from simple phrases to complex sentences and are seen as the building blocks of language (Langacker, 2008).

Cognitive semantics: Cognitive semantics investigates how meaning is constructed in the mind, emphasizing the role of cognitive processes such as categorization, metaphor, and image schemas in shaping linguistic meaning. (Goldberg, 2006).

Cognitive linguistics has applications in various fields, including language teaching, artificial intelligence, and cognitive science. It offers insights into how language reflects human cognition and how cognition shapes language use across different cultures and contexts.

Human cognition is a multifaceted phenomenon, encompassing various mental processes that underpin our ability to perceive, understand, and interact with the world around us. One intriguing framework that sheds light on the structure of human thought is the theory of mental spaces. Developed within the realm of cognitive linguistics, mental spaces offer a powerful conceptual tool for analyzing how individuals construct meaning, reason about abstract concepts, and engage in imaginative processes. In this article, we delve into the fascinating realm of mental spaces, exploring their fundamental principles, applications, and implications for our understanding of the human mind (Fauconnier, Turner, 2002).

Understanding Mental Spaces: At its core, the concept of mental spaces posits that individuals create mental representations, or spaces, to organize and structure their thoughts (Fauconnier, Turner, 2002). These mental spaces serve as cognitive frameworks that facilitate various cognitive processes, such as perception,

categorization, inference, and analogy. Importantly, mental spaces are not static entities but dynamic constructs that evolve and interact as individuals engage in cognitive activities (Coulson, Oakley, 2005:261-271).

Conceptual Metaphor: Before mental spaces theory, cognitive linguists such as George Lakoff and Mark Johnson had already proposed the idea of conceptual metaphor, which suggests that abstract concepts are often understood and expressed through metaphorical mappings from more concrete domains. This laid the groundwork for understanding how the mind processes and structures abstract thought.

Gilles Fauconnier and Mark Turner began their collaboration in the late 1970s, exploring how language and thought are intertwined. Building on previous research in cognitive linguistics, they sought to develop a comprehensive framework that could explain a wide range of linguistic phenomena.

Conceptual Blending Theory: One of the key components of mental spaces theory is conceptual blending theory. Fauconnier and Turner introduced this concept in their influential book "The Way We Think: Conceptual Blending and the Mind's Hidden Complexities" (2002). They proposed that the mind creates new conceptual structures by blending elements from different mental spaces or domains. These blends help us understand complex ideas or create novel meanings.

Development of Mental Spaces Theory: Mental spaces theory expanded upon the idea of conceptual blending, focusing on how the mind constructs and manipulates mental spaces to comprehend language and thought. Mental spaces are temporary, context-dependent structures that allow individuals to mentally represent different perspectives, scenarios, or hypothetical situations. These spaces are interconnected and can interact through processes such as conceptual integration, allowing for the creation of new meanings and interpretations.

Method of research. The method used in the article is primarily literature review and conceptual analysis. The article synthesizes existing research and theoretical frameworks within cognitive linguistics, particularly focusing on the work of scholars like Fauconnier and Turner, to elucidate the principles and applications of mental spaces theory. It draws upon key concepts, empirical findings, and theoretical discussions to provide an overview of mental spaces and their relevance to understanding human cognition. Additionally, the article discusses the practical implications of mental spaces theory across various domains, highlighting its potential impact on fields such as psychology, neuroscience, artificial intelligence, and human-computer interaction.

Conceptual Blending: A central tenet of mental spaces theory is the notion of conceptual blending, wherein individuals merge distinct mental spaces to create new meaning. This process allows for the integration of disparate concepts, leading to novel insights and creative thinking. For example, when we metaphorically describe time as a "river," we blend the mental spaces of time and a flowing body of water to convey the abstract concept of temporal continuity (Evans, 2006: 491-534).

Mental spaces enable individuals to project themselves into hypothetical scenarios, allowing for the simulation of alternative realities (Fauconnier, Turner, 2002). Individuals can anticipate future events, envision potential outcomes, and navigate complex decision-making processes through cognitive projection. For instance, when planning a vacation, we mentally project ourselves into different destinations, considering various factors such as climate, activities, and logistics (Turner, 2014).

The theory of mental spaces finds applications across diverse domains, including language processing, problem-solving, creativity, and metaphorical reasoning. In linguistics, mental spaces theory provides insights into how language structures reflect underlying cognitive processes, such as metaphorical mappings and conceptual blending (Fauconnier, Turner, 2002). Moreover, mental spaces offer a framework for understanding the role of imagination and mental simulation in creative endeavors, such as art, literature, and innovation (Kövecses, 2010).

By elucidating the cognitive mechanisms underlying human thought, mental spaces theory has profound implications for fields ranging from psychology and neuroscience to artificial intelligence and human-computer interaction. Understanding how individuals construct and manipulate mental spaces can inform the design of cognitive interfaces, educational interventions, and therapeutic interventions aimed at enhancing cognitive abilities and fostering creative thinking.

While mental spaces theory originates from cognitive linguistics and is primarily a theoretical framework for understanding human cognition, its actuality is evident in various empirical studies and practical applications across disciplines. Here are some ways in which the actuality of mental spaces is demonstrated (Thagard, 2010).

Neuroscientific research has provided evidence supporting distinct neural networks associated with different mental spaces. For example, studies using functional magnetic resonance imaging have shown that engaging in tasks requiring conceptual blending or cognitive projection activates specific brain regions associated with imagination, memory retrieval, and semantic processing.

Mental spaces theory has been applied to the analysis of language comprehension and production. Studies in psycholinguistics have demonstrated how individuals dynamically construct mental spaces during language processing, particularly when interpreting metaphorical expressions, understanding narratives, or reasoning about abstract concepts.

Experimental studies have shown that individuals leverage mental spaces to solve problems and generate creative solutions. For instance, research on analogical reasoning has revealed how people use conceptual blending to transfer knowledge from familiar domains to novel contexts, facilitating problem-solving and innovation (7).

Mental spaces theory has inspired computational models aimed at simulating human-like cognitive processes. Researchers in artificial intelligence have developed algorithms and systems that utilize principles of conceptual blending and cognitive

projection to perform tasks such as natural language understanding, creativity support, and decision-making.

In psychology and psychotherapy, mental spaces theory has informed therapeutic interventions aimed at cognitive restructuring and emotional regulation. Techniques such as metaphor therapy and guided imagery leverage the principles of mental spaces to help individuals explore and reframe their experiences, leading to positive psychological outcomes.

Educators have incorporated principles of mental spaces theory into instructional practices to enhance students' learning experiences. By encouraging students to engage in imaginative activities, make connections across domains, and construct mental models, educators can foster deeper understanding, critical thinking, and creativity.

Another complex type of mental space is blending. Blendings can combine different metaphoric models and introduce different concepts in this way. Blendings are known as a conceptual integration theory. Blendings are mixed forms of mental spaces (Nordquist, 2019:107; Harder, 2003:91-96).

Grady, Oakley, and Coulson explored blendings and metaphors together. Some resources accept metaphors as a type of blending. However, the noted researchers claimed that they are separate theories. Concepts can emerge in different forms. Some are introduced by metaphors, and some are reflected as mental spaces (Joseph, Grady, Oakley, Coulson, 1999: 111).

Mental spaces theory provides a framework for understanding how individuals mentally represent and manipulate different perspectives, scenarios, or hypothetical situations. Here are some examples of mental spaces in action (Ritchie, 2008):

Understanding Humor: Consider the joke: "Why did the scarecrow win an award? Because he was outstanding in his field."

In this joke, there are two mental spaces: one for the literal meaning of a scarecrow in a field and another for the figurative meaning of "outstanding" as exceptional or remarkable.

By blending these mental spaces, the joke creates humor through the unexpected connection between the literal and figurative meanings.

Interpreting Ambiguous Statements: Imagine a statement like: "He saw her with the telescope."

Depending on the mental space activated, this sentence can be interpreted in different ways. If we activate the mental space of a person using a telescope to observe someone from a distance, we might interpret the sentence literally. However, if we activate the mental space of a person using a telescope to look at stars or planets, we might interpret the sentence metaphorically as referring to romantic interest.

Problem-Solving: Consider a problem-solving scenario where someone needs to find a solution to a complex issue at work.

Different mental spaces might be activated for various potential solutions or approaches. These mental spaces can be manipulated and combined to generate innovative solutions or perspectives.

Reading Fiction: When reading a novel or short story, readers often create mental spaces for different characters, settings, and events. These mental spaces allow readers to immerse themselves in the narrative and understand the characters' motivations, emotions, and relationships.

Creative Thinking: In creative thinking processes, individuals may manipulate mental spaces to generate new ideas, concepts, or perspectives. For example, an artist might blend mental spaces related to different art styles to create a unique artistic expression.

These examples illustrate how mental spaces theory can be applied to various contexts, from understanding humor and interpreting ambiguous statements to problem-solving and creative thinking. By analyzing the interaction between different mental spaces, researchers can gain insights into how individuals conceptualize and represent complex ideas and phenomena (Forceville, Urios-Aparisi, 2009).

Conclusion.

Overall, while mental spaces theory is grounded in theoretical constructs, its actuality is demonstrated through empirical research findings and practical applications across diverse domains, highlighting its relevance and utility in understanding and harnessing human cognition.

In summary, mental spaces represent a powerful conceptual framework for exploring the architecture of human cognition. By elucidating how individuals create, manipulate, and blend mental representations, mental spaces theory offers valuable insights into the nature of human thought and imagination. As researchers continue to investigate the intricacies of mental spaces, we gain a deeper understanding of the cognitive processes that shape our perceptions, beliefs, and behaviors, ultimately enriching our appreciation of the human mind.

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САИДА АХМЕДОВА

МЕНТАЛЬНЫХ ПРОСТРАНСТВ: КОГНИТИВНОЙ СТРУКТУРЫ ЧЕЛОВЕЧЕСКОГО МЫШЛЕНИЯ

Резюме

В этой статье исследуется теория ментальных пространств — основа когнитивной лингвистики, объясняющая, как люди структурируют мысленные представления и манипулируют ими для облегчения различных когнитивных процессов. Теория ментальных пространств, основанная на таких принципах, как концептуальное смещение и когнитивное проецирование, дает представление о динамической природе человеческого мышления и воображения. Опираясь на основополагающие работы Фоконье и Тернера, а также современные исследования в области когнитивной науки, в статье обсуждаются практические приложения и теоретические последствия ментальных пространств в таких областях, как обработка речи, решение проблем, творчество и метафорическое рассуждение. Выясняя когнитивные механизмы, лежащие в основе человеческого познания, теория ментальных

пространств предлагает ценную информацию о природе человеческого мышления и его значении для самых разных областей - от психологии и нейробиологии до искусственного интеллекта и взаимодействия человека с компьютером.

Ключевые слова: *ментальные пространства, когнитивная лингвистика, концептуальное смешение, языковая обработка, человеческое мышление, воображение*

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