COGNITIVE MECHANISMS OF EVALUATIVE CATEGORIES IN THE AGE OF ARTIFICIAL INTELLIGENCE: A THEORETICAL OVERVIEW

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Annotation. This article explores the theoretical foundations of evaluative categories in cognitive linguistics, with a focus on metaphor, frame, and prototype mechanisms. It highlights how artificial intelligence, particularly natural language processing tools, enhances our ability to analyze and simulate these cognitive processes. By integrating AI-assisted methods, researchers can uncover patterns in evaluative language across large corpora, revealing how language shapes social values and ideologies.

Keywords: cognitive mechanisms, artificial intelligence, evaluative categories, metaphor, frame semantics, prototype theory, NLP

Аннотация. В статье рассматриваются теоретические основы оценочных категорий в когнитивной лингвистике, акцентируя внимание на таких механизмах, как метафора, фрейм и прототип. Отмечается роль искусственного интеллекта, особенно технологий обработки естественного языка, в выявлении и моделировании когнитивных процессов. Интеграция ИИ в лингвистический анализ позволяет исследовать модели оценочной лексики и понять, как язык формирует общественные ценности и идеологии.

Ключевые слова: когнитивные механизмы, искусственный интеллект, оценочные категории, метафора, фреймовая семантика, теория прототипа, ОЕЯ

Annotatsiya. Ushbu maqolada kognitiv tilshunoslikdagi baholovchi kategoriyalarning nazariy asoslari, xususan, metafora, freym va prototip kabi mexanizmlar yoritiladi. Sun'iy intellekt, ayniqsa tabiiy tilni qayta ishlash texnologiyalari, bu kognitiv jarayonlarni tahlil qilish va modellashtirish imkoniyatlarini kengaytirayotgani ta'kidlanadi. AI yordamida tilshunoslar katta korpuslarda baholovchi til birliklarining naqshlarini aniqlab, til orqali ijtimoiy qadriyatlar va mafkuralarning shakllanishini o'rganish imkoniga ega bo'lmoqda.

Kalit so'zlar: kognitiv mexanizmlar, sun'iy intellekt, baholovchi kategoriyalar, metafora, freym semantikasi, prototip nazariyasi, tabiiy tilni qayta ishlash

Introduction. The study of evaluative categories within the framework of cognitive linguistics has become increasingly prominent in recent years, as scholars have sought to understand the intricate cognitive processes through

which people assign value to concepts, behaviors, and entities (Kovecses, 2010; Lakoff & Johnson, 1980). Evaluative language is not merely expressive or subjective in nature; it is rooted in systematic cognitive patterns that are shared across linguistic communities. This language allows speakers to make sense of complex moral, social, and cultural realities through structured conceptual tools such as metaphor, frame, and prototype (Fillmore, 1982; Rosch, 1978). These mechanisms are deeply embedded in human cognition and provide insight into how evaluative judgments are formed, communicated, and understood within different social contexts.

The integration of these mechanisms is crucial for a full account of evaluative language, as each contributes to the framing, articulation, and understanding of judgments. Moreover, these mechanisms interact dynamically. A metaphor may evoke a particular frame, which in turn highlights or suppresses certain prototypical traits. Consider the phrase "a rotten politician": the metaphor "rotten" activates a moral decay frame, which reinforces a prototype of a corrupt official. Through repeated usage in discourse, such associations become normalized and embedded in cultural narratives. As AI tools increasingly analyze such patterns, they assist linguists in identifying how these mechanisms manifest across different genres and languages (Zhou et al., 2020; Baker, 2006).

Methods. This research employs a theoretical approach grounded in the principles of cognitive linguistics, focusing on the analytical potential of three primary cognitive mechanisms: conceptual metaphor, frame semantics, and prototype theory. These tools are used to explore how evaluative categories are constructed, maintained, and communicated through linguistic expression. Rather than relying on empirical data collection, this study synthesizes foundational theoretical frameworks and illustrative examples from discourse to highlight the explanatory power of cognitive mechanisms in evaluative language.

First, conceptual metaphor theory is applied to examine the mappings between concrete and abstract domains that underlie many evaluative expressions. According to Lakoff and Johnson (1980), metaphor allows for the understanding of abstract concepts—such as morality, justice, or success—through more tangible experiences. For example, the metaphor "justice is balance" presents fairness as a measurable equilibrium, influencing how laws, penalties, and reparations are perceived. Similarly, metaphors like "crime is a virus" imply that criminal behavior is contagious and must be quarantined, fostering punitive attitudes (Semino et al., 2018).

Second, frame semantics is used to investigate the cultural and cognitive contexts that are activated by evaluative expressions. Frames are structures of knowledge that provide coherence to language use. For instance, the word "charity" activates a frame that includes notions of generosity, social obligation, and economic disparity. This frame shapes how charitable acts are evaluated—not merely as isolated events but as part of a broader moral narrative (Baker, 2006).

Finally, prototype theory is applied to assess how categories such as "hero," "villain," "victim," "patriot," or "criminal" are structured around central examples. This analysis includes an exploration of how media and cultural narratives reinforce or challenge prototypes. AI-based tools such as semantic vector modeling and topic modeling assist in quantifying the salience of traits associated with evaluative categories (Bamman et al., 2014).

Results/ A synthesized model of how these cognitive mechanisms interact in evaluative language is provided in the table below:

Mechanism	Function in Evaluation	Example Expression	AI Application
Metaphor	Maps abstract to concrete	"Dirty politics"	Metaphor detection algorithms
Frame	Provides cultural context	"Freedom"	Frame analysis via NLP models
Prototype	Defines typicality	"Ideal citizen"	Semantic clustering tools

Table 1. AI-Aided Analysis of Evaluative Mechanisms

These results demonstrate how metaphor, frame, and prototype each contribute to evaluative meaning. Moreover, AI enables large-scale pattern recognition across corpora, facilitating deeper insights into the cultural shaping of values through language.

Conclusion. This theoretical overview has demonstrated that metaphor, frame, and prototype are not merely linguistic ornaments or rhetorical strategies, but essential cognitive tools for the construction and transmission of evaluative meaning. Each mechanism contributes uniquely to how value is structured in language. Their interaction produces layered and often implicit evaluative messages that can significantly shape public opinion, social attitudes, and even policy. As language continues to evolve with social change, so too must our tools for understanding its evaluative dimensions. AI technologies offer promising pathways to enhance this understanding, particularly through corpus linguistics and natural language processing. Future research could expand this framework by applying it to multimodal discourse and cross-linguistic studies to further investigate how evaluative categories are cognitively and culturally constructed.

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