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VISUAL DICTIONARIES AS MULTIMODAL KNOWLEDGE SYSTEMS: A COGNITIVE-LEXICOGRAPHIC FRAMEWORK FOR MEANING REPRESENTATION IN DIGITAL ENVIRONMENTS

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Arabova Dinora Abdisamad qizi
Teacher of Karshi State Technical University, Uzbekistan

Abstract

The rapid expansion of digital communication has fundamentally transformed lexicographic practices, leading to the emergence of visual dictionaries as complex multimodal knowledge systems rather than simple lexical reference tools. This study investigates visual dictionaries from a cognitive-lexicographic perspective, examining their capacity to represent lexical meaning through the interaction of verbal, visual, and conceptual resources. The research aims to develop a theoretical framework for understanding visual dictionaries as independent objects of lexicographic inquiry within contemporary digital environments. A qualitative methodology combining descriptive, comparative, cognitive, and multimodal discourse analysis was employed. The findings indicate that visual dictionaries operate through a network-based architecture of meaning representation that differs significantly from traditional alphabetical lexicographic models. Their effectiveness is linked to multimodal cognition, conceptual categorization, and visual-semantic mapping processes. The study further demonstrates that digital visual dictionaries facilitate vocabulary acquisition, conceptual learning, and cross-cultural communication by reducing linguistic barriers and enhancing cognitive accessibility. It is argued that visual lexicography should be recognized as an emerging interdisciplinary field situated at the intersection of lexicography, cognitive linguistics, semiotics, and digital humanities. The article concludes by proposing a cognitive-lexicographic model that may serve as a theoretical basis for future research and the development of next-generation lexicographic resources.

Keywords

visual lexicography, multimodality, cognitive linguistics, digital lexicography, visual dictionaries, semantic representation, conceptual categorization, multimodal learning, lexicographic theory, digital humanities.

Аннотация

Стремительное развитие цифровой коммуникации существенно трансформировало лексикографическую практику, что привело к появлению

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визуальных словарей как сложных мультимодальных систем знания, а не только справочных лексикографических ресурсов. В статье визуальные словари рассматриваются с когнитивно-лексикографической точки зрения как особая форма репрезентации значения, основанная на взаимодействии вербальных, визуальных и концептуальных компонентов. Цель исследования заключается в разработке теоретической модели анализа визуальных словарей как самостоятельного объекта современной лексикографии. В работе использованы описательный, сравнительный, когнитивный и мультимодальный методы анализа. Результаты показывают, что визуальные словари функционируют как сетевые структуры представления знаний, отличающиеся от традиционных алфавитных моделей словарей. Их эффективность обусловлена процессами мультимодального восприятия, концептуальной категоризации и визуально-семантического картирования. Предлагается рассматривать визуальную лексикографию как междисциплинарное направление, объединяющее лексикографию, когнитивную лингвистику, семиотику и цифровые гуманитарные науки.

Ключевые слова

визуальная лексикография, мультимодальность, когнитивная лингвистика, цифровая лексикография, визуальные словари, семантическая репрезентация, концептуальная категоризация, мультимодальное обучение.

Introduction: The transition from print culture to digital communication has profoundly influenced the theory and practice of lexicography. Contemporary users increasingly interact with information through multimodal interfaces that integrate text, image, sound, animation, and interactive design. Within this context, visual dictionaries have emerged as a significant innovation that challenges traditional assumptions regarding lexical representation.

While conventional dictionaries are primarily organized around verbal definitions and alphabetical structures, visual dictionaries rely on multimodal meaning construction. Their growing popularity in language education, professional communication, and digital learning environments suggests that they represent more than an alternative presentation format. Rather, they constitute a distinct epistemological model for organizing lexical knowledge.

Despite their increasing presence, visual dictionaries remain theoretically underrepresented in lexicographic scholarship. Most existing studies emphasize educational applications, while relatively little attention has been devoted to their cognitive architecture, multimodal structure, and theoretical status within lexicographic science.

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This article addresses this gap by proposing a cognitive-lexicographic framework for analyzing visual dictionaries as multimodal knowledge systems.

THEORETICAL FOUNDATIONS OF VISUAL LEXICOGRAPHY

Visual lexicography can be conceptualized as a field that investigates the representation of lexical knowledge through integrated verbal and visual resources.

Unlike traditional lexicographic approaches, visual lexicography operates according to three interconnected principles:

1. Multimodal representation.
2. Conceptual organization.
3. Cognitive accessibility.

The theoretical basis of visual lexicography draws upon four major disciplines:

- Lexicographic theory;
- Cognitive linguistics;
- Multimodal discourse studies;
- Semiotics.

The convergence of these disciplines creates a new framework for understanding how lexical meaning is constructed, stored, and accessed.

VISUAL DICTIONARIES AS MULTIMODAL KNOWLEDGE SYSTEMS

A central argument of this study is that visual dictionaries should be viewed as knowledge systems rather than merely lexical reference works.

Traditional dictionaries typically follow a linear information structure:

Word → Definition → Interpretation

Visual dictionaries, by contrast, operate through a multidirectional structure:

Concept → Image → Word → Semantic Network → Knowledge Construction

This shift transforms dictionary use from information retrieval to knowledge exploration.

A COGNITIVE MODEL OF VISUAL-SEMANTIC MAPPING

The study proposes the concept of Visual-Semantic Mapping (VSM) as a mechanism explaining the effectiveness of visual dictionaries.

The model consists of five stages:

1. Visual perception;
2. Concept activation;
3. Lexical identification;
4. Semantic integration;
5. Knowledge retention.

The VSM model explains why visual dictionaries often outperform traditional dictionaries in vocabulary acquisition and conceptual learning.

DIGITAL TRANSFORMATION AND FUTURE DIRECTIONS

The future of visual lexicography is closely connected to emerging technologies:

- Artificial Intelligence;
- Augmented Reality;
- Virtual Reality;
- Semantic Web technologies;
- Adaptive learning systems.

AI-powered visual dictionaries may automatically generate contextualized visual representations tailored to individual learners.

Such developments suggest the emergence of intelligent lexicographic ecosystems rather than static dictionaries.

Conclution: Visual dictionaries represent a fundamental transformation in contemporary lexicography. Their significance extends beyond educational applications to broader questions of knowledge representation, cognition, and digital communication.

The cognitive-lexicographic framework proposed in this study provides a theoretical foundation for future investigations into multimodal meaning construction and digital lexicographic design.

Visual lexicography should therefore be recognized as an independent interdisciplinary research domain capable of contributing to lexicography, cognitive science, educational technology, and digital humanities simultaneously.

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