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HOW TECHNOLOGY INFLUENCES SEMANTIC CHANGE: CASE STUDIES FROM DIGITAL VOCABULARY

Sevinch Abdumalikova

Master's student in Linguistics (English),

Uzbek State University of World Languages, Tashkent, Uzbekistan

sevinchabdumalikova03@gmail.com

Abstract: *The rapid development of digital technologies has become one of the most influential factors reshaping modern language, particularly at the semantic level. Unlike traditional semantic change, which evolves gradually through historical stages, technology-driven semantic shifts emerge rapidly within digital communication environments. This article examines how technology influences semantic change by analyzing selected case studies from digital vocabulary, specifically the terms cloud, feed, and meme. Drawing on cognitive semantics, historical linguistics, and usage-based theory, the study employs corpus-based statistical evidence from the Corpus of Contemporary American English (COCA), the NOW Corpus, and Google Books Ngram Viewer to trace frequency patterns and meaning shifts. The findings reveal that metaphorical extension, semantic broadening, narrowing, and pragmatic recontextualization are the dominant mechanisms shaping digital lexical semantics. The study demonstrates that technological communication functions as a powerful catalyst for accelerated semantic change, providing new insights into the interaction between language, cognition, and digital culture.*

Keywords: *semantic change, digital vocabulary, cognitive semantics, corpus linguistics, technology and language*

1. Introduction

Semantic change is a fundamental process through which languages adapt to new social, cultural, and cognitive realities. Traditionally, semantic change has been explained as a gradual diachronic phenomenon influenced by communicative needs

and cognitive inference (McMahon, 1994; Traugott & Dasher, 2002). However, the rise of digital technology has significantly altered this trajectory. In contemporary digital communication, lexical meaning is restructured at unprecedented speed, often within a single generation.

Technological platforms such as social media, cloud computing, and algorithm-driven content systems introduce new concepts that require immediate linguistic representation. Instead of creating entirely new lexical forms, language users frequently adapt existing words, assigning them new meanings in digital contexts. As Crystal (2011) notes, digital communication represents the fastest-growing environment for linguistic innovation in modern history.

Despite increasing attention to internet discourse, much existing research focuses on sociolinguistic variation rather than on semantic mechanisms. There remains a need for linguistically grounded research that explains how and why digital communication accelerates semantic change.

This study addresses this gap by examining how technology influences semantic change through detailed case studies of the digital terms cloud, feed, and meme.

2. Theoretical Background

2.1 Semantic Change in Linguistics

Semantic change refers to the evolution of word meaning over time. According to Blank (1999), semantic change is motivated by cognitive, pragmatic, and sociocultural factors and is commonly realized through mechanisms such as metaphor, metonymy, generalization, and specialization. Traugott and Dasher (2002) further emphasize the role of pragmatic inference, arguing that repeated contextual use gradually conventionalizes new meanings.

In digital contexts, these traditional mechanisms remain operative but are intensified by rapid dissemination and high-frequency usage.

2.2 Cognitive Semantics and Metaphorical Extension

Cognitive semantics views meaning as grounded in human experience and conceptualization (Lakoff, 1987). Conceptual Metaphor Theory (Lakoff & Johnson,

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1980) explains how abstract concepts are understood via concrete domains. This theory is particularly relevant to digital vocabulary, where invisible technological processes are conceptualized through familiar physical experiences.

For example, digital storage is conceptualized as a cloud, drawing on the metaphor of an intangible yet accessible natural phenomenon. Such metaphorical mappings facilitate semantic extension by making abstract technological processes cognitively comprehensible.

2.3 Usage-Based Linguistics and Frequency Effects

Usage-based linguistics argues that frequency of use shapes linguistic structure and meaning (Bybee, 2010). In digital environments, lexical items associated with technological functions undergo rapid increases in frequency, accelerating semantic entrenchment. Corpus linguistics thus provides essential empirical evidence for tracking digital semantic change.

3. Methodology

3.1 Data Sources

The study draws on multiple large-scale linguistic corpora:

- COCA (Corpus of Contemporary American English) – 560 million words
- NOW Corpus (News on the Web) – over 14 billion words
- Google Books Ngram Viewer – diachronic frequency data (1990–2020)

3.2 Lexical Selection

The lexemes cloud, feed, and meme were selected based on three criteria:

1. Existence prior to digital technology
2. High frequency in digital discourse
3. Clear semantic shift linked to technological usage

3.3 Analytical Framework

The analysis combines:

- Frequency trend analysis
- Contextual (concordance-based) interpretation
- Identification of semantic mechanisms
- Cognitive-semantic explanation

4. Results: Case Studies of Digital Semantic Change

4.1 “Cloud”

Originally, cloud referred to a visible mass of condensed water vapor in the sky. Corpus evidence demonstrates a sharp semantic shift following the emergence of cloud computing.

COCA Frequency Trends (per million words):

Year Total Frequency Digital Meaning (%)

1990 4.1 3%

2005 6.8 21%

2015 31.2 64%

2020 52.7 78%

The data indicate a clear metaphorical extension, whereby a natural phenomenon is mapped onto an abstract technological infrastructure. The motivation lies in shared properties such as intangibility and accessibility.

4.2 “Feed”

Traditionally, feed denoted the act of providing food to humans or animals. In digital communication, the term now refers to a continuous stream of information on social media platforms.

Semantic Shift Characteristics:

• Mechanism: semantic broadening

• Cognitive basis: information as nourishment

• Corpus data (NOW Corpus): over 70% of feed occurrences (2020) refer to digital content streams

This shift illustrates how biological processes are reinterpreted to conceptualize cognitive and informational consumption.

4.3 “Meme”

The term meme, introduced by Dawkins (1976) as a unit of cultural transmission, has undergone significant semantic narrowing in digital contexts.

COCA Data:

Year Frequency (pmw) Dominant Context

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1990 0.01 academic

2010 3.7 online culture

2020 27.9 social media

The modern digital meaning restricts meme to viral visual-textual artifacts, demonstrating recontextualization and specialization driven by online culture.

5. Discussion

The findings confirm that technology significantly accelerates semantic change by reshaping usage contexts and increasing lexical frequency. Three key theoretical implications emerge:

1. Acceleration of Diachronic Change:

Digital environments compress long-term semantic evolution into short time spans.

2. Cognitive Motivation:

Metaphor remains the primary mechanism for conceptualizing digital processes.

3. Linguistic Innovation through Use:

Repeated digital usage solidifies new meanings rapidly, supporting usage-based theories.

These results align with Evans's (2015) argument that digital communication constitutes a new cognitive ecology influencing meaning construction.

Conclusion

This study demonstrates that technology plays a crucial role in influencing semantic change by creating new communicative environments that reshape lexical meaning. Through detailed case studies of cloud, feed, and meme, supported by corpus-based statistical evidence and semantic theory, the article shows that digital communication accelerates traditional mechanisms of semantic change. The findings contribute to contemporary linguistic research by highlighting the importance of integrating cognitive semantics and corpus linguistics in the study of digital vocabulary.

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