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# TRANSFORMATION OF LINGUISTIC METHODS IN THE ERA OF GENERATIVE ARTIFICIAL INTELLIGENCE

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## ABSTRACT

The article examines the transformation of linguistic methods under the influence of generative artificial intelligence. It analyzes changes in corpus linguistics, semantic modeling, contrastive studies, and linguodidactics. Particular attention is paid to the transition from traditional methods of analysis to hybrid human–machine approaches. The article identifies the advantages and risks of using generative models, including the problem of data reliability and changes in the scientific paradigm.

**Keywords:** Generative artificial intelligence, corpus linguistics, language models, digital linguistics, cognitive methods, automation of analysis.

## INTRODUCTION

The current stage of scientific development is characterized by the active integration of artificial intelligence technologies into the humanities. In contemporary linguistics, there is a significant shift in the research paradigm associated with the transition from traditional descriptive approaches to comprehensive interdisciplinary methods of language analysis [1, p. 45]. This process is defined as the transformation of linguistic methods. The transformation of linguistic methods refers to a systematic change in the ways language is studied, including the renewal of the theoretical framework, the expansion of research tools, and the introduction of quantitative and digital technologies into the analysis of linguistic phenomena [2, p. 12]. Traditional linguistics was primarily focused on describing the language system, whereas modern science seeks to explain the mechanisms of language functioning and its relationship with thought and culture [3, p. 57]. An analysis of contemporary scholarly research makes it possible to identify several key directions of this transformation.

### 1. Transition from a Descriptive to a Cognitive Approach

While language was previously regarded as an autonomous system, within the cognitive paradigm it is interpreted as a reflection of mental processes [4]. This leads to the study of concepts, frames, and cognitive models. For example, the concept of “FACE” is examined not only as a lexical unit but also as a complex cognitive structure that includes social, cultural, and evaluative components.

### 2. The Corpus Revolution in Linguistics

One of the most significant stages of this transformation is the introduction of corpus-based methods. Corpus linguistics makes it possible to analyze large text collections, ensuring the objectivity and representativeness of data [5].

The use of corpora makes it possible to:
- determine the frequency of linguistic units;
- identify contextual features of usage;
- analyze the dynamics of language change.

### 3. Integration of Quantitative Methods of Analysis

Modern linguistics actively employs mathematical methods, which makes it possible to move from qualitative description to quantitative interpretation of data [6].

### 4. Interdisciplinary Nature of Contemporary Research

Modern linguistic methods are formed at the intersection of various disciplines, including:
- psychology;
- cognitive science;
- neurolinguistics;
- computer science.

This contributes to the development of new fields such as cognitive linguistics and computational linguistics.

### 5. Digitalization and Automation of Analysis

The development of digital technologies has led to the automation of language data processing. The use of specialized software makes it possible to:
- build frequency distributions;
- visualize data;
- model semantic fields.

For a more illustrative representation of the transformation of linguistic methods, we present a comparative table of traditional and modern linguistic methods.

**Table 1. Comparison of traditional and modern linguistic methods**

| Criterion | Traditional Methods | Modern Methods |
|---|---|---|
| Approach | Descriptive | Cognitive, explanatory |
| Source of data | Researcher's intuition | Language corpora |
| Type of analysis | Qualitative | Quantitative + qualitative |
| Tools | Manual analysis | Digital technologies |
| Result | Linear description | Multidimensional model |

Transformational linguistic methods play a major role, as they make it possible to reveal the internal structure of linguistic units, analyze frequency characteristics, and conduct cross-linguistic comparison [7]. Thus, the transformation of linguistic methods represents a natural stage in the development of language science, associated with the transition toward interdisciplinary, cognitive, and quantitatively oriented analysis.

Modern methods make it possible not only to describe linguistic phenomena but also to explain their nature, which significantly expands the research potential of linguistics and contributes to a deeper understanding of the linguistic worldview. Traditional linguistics was primarily

focused on describing the language system, whereas modern science seeks to explain the mechanisms of language functioning and its relationship with thought and culture. The emergence of large language models has led to a reconsideration of traditional methods of language analysis, which has created the need to revise the methodological foundations of linguistic research.

## 1. Traditional Linguistic Methods and Their Limitations

Classical linguistics relied on the following methods:

- descriptive analysis;
- comparative and contrastive method;
- corpus analysis;
- statistical methods of frequency analysis.

Despite their scientific significance, these approaches have a number of limitations:

- dependence on the volume of manually processed data;
- labor-intensive analysis;
- limited scalability;
- subjectivity of interpretation.

Corpus linguistics has partially solved the problem of scale; however, even large corpora require significant resources for interpretation. Research in modern linguistics related to NLP has given rise to a new direction — GenAI, or Generative Artificial Intelligence, associated with the creation of models capable of generating new content: texts, images, audio, video, and even program code. It is a special class of systems capable of automatically creating texts and modeling language structures on the basis of large datasets. Such systems not only analyze data but can also create new texts and original objects.

The foundation of GenAI includes:

- transformers, including large language models;
- generative adversarial networks, or GANs;
- variational autoencoders, or VAEs.

Thus, GenAI represents an innovative direction in the development of digital linguistics, ensuring the transition from the analysis of linguistic data to their intelligent generation and modeling. This significantly expands the possibilities for studying the linguistic worldview. Generative models and large language models have fundamentally changed the approach to language analysis. They are capable of:

- processing enormous volumes of texts;
- identifying hidden patterns;
- modeling semantic relations;
- generating texts that imitate human speech.

As researchers note, the integration of AI into linguistics has expanded the possibilities of analyzing large textual data and automating scholarly processes. Thus, there is a transition from descriptive methods to predictive and generative models of language analysis. Previously, corpus analysis was limited mainly to the extraction of frequencies and contexts. In the context of GenAI:

- automatic text annotation is performed;
- complex semantic patterns are identified;
- dynamic language models are constructed.

In semantic analysis, generative models make it possible to:

- model conceptual fields;
- identify cognitive features;
- analyze associative relations.

In linguodidactics and education, generative AI:

- provides personalized learning;
- generates adaptive tasks;
- develops metacognitive skills.

Contemporary linguistics is developing in the direction of hybrid human–AI models, where:

- AI performs data processing and generation;
- the researcher carries out interpretation and verification.

This approach makes it possible to:

- improve the accuracy of analysis;
- accelerate research processes;
- expand the empirical base.

The future of linguistic methods is associated with:

- the integration of neural network models and cognitive linguistics;
- the development of multimodal analysis, including text, image, and sound;
- the creation of explainable AI models;
- the strengthening of interdisciplinary research.

Generative AI is becoming not only a tool but also an object of linguistic analysis.

Despite its significant advantages, the use of generative AI is accompanied by a number of risks:

Data unreliability, or hallucinations;

Algorithmic bias;

Reduction in the role of critical analysis;

Ethical issues, including authorship and plagiarism.

Studies show that excessive dependence on AI may lead to superficial knowledge acquisition and a decrease in analytical depth.

## CONCLUSION

The transformation of linguistic methods in the era of generative artificial intelligence is systemic in nature [Rajabov B. A. Artificial Intelligence and the Transformation of Education]. There is a transition from traditional analytical approaches to complex digital models based on big data processing and machine learning. Despite the existing limitations, generative AI opens up new prospects for the development of linguistics, contributing to the formation of a new scientific paradigm based on the synthesis of technology and humanitarian knowledge.

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