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Psycholinguistic and Cognitive Methods of Analysis in Modern Linguistics

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Abstract:

This article examines a set of methods used in psycholinguistics and cognitive linguistics for the analysis of speech activity and linguistic consciousness. Particular attention is given to the methodology that allows researchers to investigate the mechanisms of speech production and perception, as well as the ways knowledge is represented in language. The paper systematizes organizational, empirical, and cognitive approaches, excluding medical aspects and focusing exclusively on the linguistic dimension of analysis.

Key words: psycholinguistics, cognitive linguistics, speech activity, linguistic consciousness, associative experiment, conceptual analysis, frame semantics, text comprehension.

Introduction

Psycholinguistics is an interdisciplinary field that emerged at the intersection of psychology and linguistics and studies the psychological and linguistic aspects of human speech activity. The discipline focuses on the relationship between the individual and the structure and functions of speech activity, as well as the use of language as a model that structures the perception of the world[1].

The emergence of this field is connected with the need to consider the “human factor” in language, where a real individual—with memory, age, and personal experience—becomes the central element of linguistic research.[2] The term psycholinguistics was first proposed by N. Pronko in 1946, and the discipline was formally established as an independent field in 1953 through the work of American scholars Charles Osgood, John Carroll, and Thomas Sebeok.[3] In Russian linguistic scholarship, a fundamental contribution was made by Lev Semyonovich Vygotsky, who as early as the 1930s emphasized the inseparable relationship between the processes of thinking and speech.[4]

2. Methods

The methodological framework of the study is based on the classification of research methods proposed by B. G. Ananyev, which distinguishes four major groups: organizational, empirical, processing, and interpretative methods.[5] These approaches make it possible to investigate speech activity, linguistic consciousness, and the mechanisms of language comprehension and production from a linguistic perspective.[6]

2.1 Organizational Methods

Organizational methods determine the overall research strategy and the structure of linguistic investigation.

Comparative method.

This method involves the comparison of different aspects of speech activity or linguistic behavior among various groups of language users. It allows researchers to identify similarities and differences in linguistic processing and conceptualization.[7]

Longitudinal method.

The longitudinal approach consists of long-term observation of speech development in an individual or a group over an extended period of time. This method was introduced by William Stern and Alexander Gvozdev, and was first widely applied by Arnold Gesell. In psycholinguistics it has been used primarily to examine the gradual formation of linguistic competence.[8]

Complex method.

The complex method combines elements of different approaches and relies on the activity theory developed by A. A. Leontiev and A. N. Leontiev. It allows researchers to analyze speech activity as an integrated system that includes cognitive, communicative, and linguistic components.[9]

2.2 Empirical Methods of Analysis

Empirical methods are used for the direct collection and observation of linguistic data.

Objective observation.

This method involves the systematic recording of speech processes in natural communicative situations. Significant contributions to the development of this approach were made by L. V. Shcherba and N. I. Krasnogorsky.[10]

Experiment.

The experimental method is considered one of the most reliable tools in psycholinguistic research because it places participants in controlled communicative situations that allow researchers to observe language behavior under specific conditions. According to A. A. Leontiev, the experiment makes it possible to study speech activity as a complete and dynamic process.[11]

2.3 Cognitive and Interpretative Methods

These methods focus on identifying conceptual structures and mechanisms underlying linguistic meaning.

Associative experiment.

The associative experiment, first proposed by Francis Galton in 1879, is one of the earliest methods used to explore mental connections between words. It allows researchers to construct associative fields and identify implicit semantic relationships. Later studies by J. Miller, C. Osgood, and A. P. Klimenko further developed the analysis and classification of associative responses.[12]

Semantic differential method.

Developed by Charles Osgood in 1957, this method measures subjective meanings of words by using scales formed by pairs of opposite adjectives. It enables researchers to analyze evaluative, emotional, and semantic dimensions of linguistic meaning.[13]

Conceptual analysis.

Conceptual analysis focuses on identifying the conceptual content encoded in linguistic units, ranging from morphemes to entire texts. This approach was significantly developed in the works of E. S. Kubryakova, who emphasized the role of the human cognitive factor in language.

Frame semantics.

Frame semantics examines how knowledge about the world is structured and represented through language. The method models typical situations and conceptual structures associated with lexical meanings. This approach was actively developed in Russian cognitive linguistics by N. N. Boldyrev.

Conceptual-representational analysis.

Proposed by N. A. Besedina this method investigates how knowledge structures are represented through morphological categories and grammatical forms.[14]

Counter-text method.

Developed by A. I. Novikov, the counter-text method is used to analyze the process of text comprehension by examining how readers reconstruct and interpret the meaning of a text.

3. Results

The application of the above methods has allowed linguists to identify key patterns in the functioning of language in human consciousness.

Interaction of cognitive processes.

Research has shown that attention, memory, and perception play a decisive role in the syntactic and semantic processing of language. Attention helps identify significant elements within the flow of speech, while memory ensures the storage and retrieval of previously acquired information.

Priming effect.

Research by D. E. Meyer and R. W. Schvaneveldt (1971) demonstrated that presenting a semantically related stimulus word (a prime) accelerates the recognition of a subsequent word. This effect illustrates the functioning of implicit memory and unconscious stages of information processing. J. Neely expanded these findings by showing that priming directs the recipient's attention toward semantically related meanings.

Emotional–semantic dominant.

V. P. Belyanin developed a typology of texts (light, dark, sad, cheerful, beautiful, and complex), demonstrating that each text reflects a particular psychological type of the author. His Projective Literary Test (PLT) confirmed that readers tend to select texts whose emotional–semantic dominant corresponds to their own personal characteristics. For example, "dark" texts (associated with epileptoid accentuation) contain vocabulary related to physiology, smells, and enclosed spaces.

4. Discussion

Methodological requirements for cognitive text analysis include a clear distinction between semantic and conceptual analysis. Semantic analysis identifies the meanings of linguistic units, whereas conceptual analysis reconstructs fragments of knowledge about the world. T. V. Romanova notes that understanding a text is not merely knowledge of language but the construction of a mental model of the described situation.

Interdisciplinarity.

Modern methods such as the simultaneous recording of EEG and eye-tracking make it possible to study linguistic processing in real time with millisecond precision. This approach allows researchers to synchronize eye movement behavior with brain responses to specific linguistic stimuli. However, in Russian research such studies remain relatively limited, which makes this direction particularly promising.

Another important issue concerns the influence of cultural factors on the linguistic worldview. As R. Lado noted, word meanings are culturally determined and vary significantly across different linguistic

communities. Wilhelm von Humboldt connected this phenomenon with different "ways of perceiving objects."[15]

Conclusion

Psycholinguistic and cognitive methods of analysis allow researchers to move from studying language as a closed system to examining it as a dynamic process within human consciousness. These methods represent a system of organizational (longitudinal and comparative), empirical (experiment and observation), and cognitive approaches, including conceptual, frame-based, associative analysis and eye-tracking. The foundations of these approaches were established by F. Galton, L. S. Vygotsky, C. Osgood, J. Miller, and A. A. Leontiev, while in the cognitive linguistic direction significant contributions were made by E. S. Kubryakova, N. N. Boldyrev, V. P. Belyanin, N. A. Besedina, and A. I. Novikov. The first associative experiments conducted by Galton appeared in 1879, psycholinguistics as a scientific discipline was established in 1953, and the cognitive paradigm has been actively developing since the late twentieth century. These methods were further developed and analyzed in the works of A. P. Klimenko, A. A. Zalevskaya, V. F. Petrenko, T. A. Gridina, N. I. Konovalova, and T. V. Romanova, and their development opens new perspectives for text analysis in forensic linguistics, political linguistics, and artificial intelligence technologies.

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