

# Designing Processes and Models of Semantical Differentiation for Polyfunctional Words in the Uzbek Contexts



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## Abstract

Another urgent issue of applied linguistics is to create a linguistic filter for semantically distinguishing polyfunctional words, and for the field of computer linguistics, it is an urgent issue to develop mathematical models and algorithms for semantically distinguishing them, as well as an information system. This article discusses the models for semantic differentiation of polyfunctional words in the Uzbek language when they occur in the structure of a sentence. We got acquainted with studies of the Turkic language family. A hierarchy of polyfunctional words in the Uzbek language in terms of word groups has been formed. Mathematical models for semantically differentiating polyfunctional words within the categories noun  $\vee$  adjective, adjective  $\vee$  modal word, adjective  $\vee$  adverb, auxiliary verb  $\vee$  independent verb and conclusion  $\vee$  auxiliary are presented. The business processes distinguishing the polyfunctionality of the Uzbek language semantic analyzer were modeled and the conceptual model of the information system, its architecture and structure was developed. The developed information system is based on the MVT architecture and was developed using the Python programming language. The efficiency of the developed mathematical models was 71.7%.

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