

## A unified logical-linguistic indexing for search engines and question answering.

### Abstract

Conventional information representation models used in the search engines rely on an extensive use of keywords and their frequencies in storing and retrieving information. It is believed that such an approach has reached its upper limit of retrieval effectiveness, and therefore, new approaches should be investigated for the development of future engines which will be more effective. Logical-linguistic model is an alternative to conventional approach where logic and linguistic formalism are used in providing mechanism for computer to understand the contents of the source and deduce answers to questions. The capability of deduction is much depended on the knowledge representation framework used. We propose a unified logical-linguistic model as knowledge representation framework as a basis for indexing of documents as well as deduction capability to provide answers to queries. The approach applies semantic analysis in transforming and normalising information from natural language texts into a declarative knowledge based representation of first order predicate logic. Retrieval of relevant information can then be performed through plausible logical implication and answer to query is carried out using theorem proving technique. This paper elaborates on the model and how it is used in search engine and question answering system as one unified model.

**Keyword:** Search engines; Information retrieval; Question answering system; Theorem proving.