Utilization of external knowledge to support answer extraction from restricted document using logical reasoning

ABSTRACT

The idea of the computer system capable of simulating understanding with respect to reading a story or passage and answering questions pertaining to it, has received increased attention within the NLP community as a means to develop and evaluate robust question answering methods. This research is concerned with the problem of generating an automated answer in the context of sophisticated knowledge representation, reasoning, and logical inferential processing. The research focused on Wh types of question to a restricted domain. External knowledge sources i.e. world knowledge (WK) and hypernyms matching procedure (HMP) were introduced. World knowledge led to the refinement of the ability of the system to extract the relevant answers. It provided a solution to the outstanding problem related to the ambiguity enclosed by anaphora and synonym words. Meanwhile, hypernyms refer to a more general or broad keywords, which was able to widen the results of the search. Thus, hypernyms matching procedure was to give a more coherent meaning of words, and eased in the process of extracting the answer based on a given question. This research found that the combined external knowledge sources on word dependencies improved the accuracy of the question answering system with respect to human performance measures.

Keyword: Human language technology; External knowledge; Reading comprehension; QA system; Natural language