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A knowledge-based sense disambiguation method to semantically enhanced NL question for restricted domain

Arbaaeen A.[a] , Shah A.[b]

Save all to author list

[a] Department of Computer Science, Faculty of Information and Communication Technology, International Islamic University Malaysia, Kuala Lumpur, 53100, Malaysia

[b] Faculty of Information and Communication Technology, International Islamic University Malaysia, Kuala Lumpur, 53100, Malaysia

Abstract

Within the space of question answering (QA) systems, the most critical module to improve overall performance is question analysis processing. Extracting the lexical semantic of a Natural Language (NL) question presents challenges at syntactic and semantic levels for most QA systems. This is due to the

difference between the words posed by a user and the terms presently stored in the knowledge bases. Many studies have achieved encouraging results in lexical semantic resolution on the topic of word sense disambiguation (WSD), and several other works consider these challenges in the context of QA applications. Additionally, few scholars have examined the role of WSD in returning potential answers corresponding to particular questions. However, natural language processing (NLP) is still facing several challenges to determine the precise meaning of various ambiguities. Therefore, the motivation of this work is to propose a novel knowledge-based sense disambiguation (KSD) method for resolving the problem of lexical ambiguity associated with questions posed in QA systems. The major contribution is the proposed innovative method , which incorporates multiple knowledge sources. This includes the question 's metadata (date/GPS), context knowledge , and domain ontology into a shallow NLP. The proposed KSD method is developed into a unique tool for a mobile QA application that aims to determine the intended meaning of questions expressed by pilgrims. The experimental results reveal that our method obtained comparable and better accuracy performance than the baselines in the context of the pilgrimage domain .

Author keywords

Knowledge-based method ; Natural language processing; Ontology; Question answering systems; Word sense disambiguation ; WordNet

Indexed keywords

SciVal Topics

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Arbaaeen, A.; Department of Computer Science, Faculty of Information and Communication Technology, International Islamic University Malaysia, Kuala Lumpur, Malaysia; email:arbaaeen.ammar@live.iium.edu.my

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