

本体关系学习方法研究——概念特征词法

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Learning ontology relations from documents: The concept-feature method

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摘要 针对领域本体构建过程中获取概念间语义关系的困难, 提出了一种新的本体关系学习方法——概念特征词法, 支持自动化地构建领域概念间的关系集合. 该方法首先基于语境将领域概念表示为特征词向量模型, 然后通过计算向量的相似度来确定两个概念之间是否存在语义关系. 依据领域专家定义的金标准, 对概念特征词法的学习结果做了详细的性能分析. 结果表明: 相较于已有方法, 本文方法的准确率和召回率更令人满意. 概念特征词法可广泛应用于本体构建、文本挖掘和语义检索等领域.

关键词: 领域本体 本体学习 语义关系 特征词

Abstract: A domain ontology consists of two major components: A set of domain-specific concepts and a set of semantic-relations between these concepts. The semantic-relations, also called as ontology relations are used to support semantic retrieval and knowledge management in ontology-based applications. To reduce difficulties in manual ontology-building, this paper proposes a semantic-relation learning method for the purpose of automatically discovering relations between concepts. Given the set of domain-specific concepts and a domain corpus, the method firstly converts concepts into feature-vectors based on their local context and then calculates relevance degrees between each pair of concepts based on the similarity of their feature-vectors to discover related concepts. The method is compared with current state-of-the-art in two ways: (a) differences between learning results and the golden standard defined by domain experts, and (b) differences between learning results and the standard defined by the CNCTST (China National Committee for Terms in Sciences and Technologies). Experiments show that the proposed method is much better than currently existing ones, especially in term of recall rate, and has good potentials for applications such as ontology building, text mining and semantic retrieval.

Key words: domain ontology ontology learning semantic relation feature



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