

Term-Based Ontology Alignment

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Abstract. This paper presents an efficient approach to automatically align concepts between two ontologies. We propose an iterative algorithm that performs finding the most appropriate target concept for a given source concept based on the similarity of shared terms. Experimental results on two lexical ontologies, the MMT semantic hierarchy and the EDR concept dictionary, are given to show the feasibility of the proposed algorithm.

1 Introduction

In this paper, we propose an efficient approach for finding alignments between two different ontologies. Specifically, we derive the source and the target ontologies from available language resources, i.e. the machine readable dictionaries (MDRs). In our context, we consider the ontological concepts as the groups of lexical entries having similar or related meanings organized on a semantic hierarchy. The resulting ontology alignment can be used as a semantic knowledge for constructing multilingual dictionaries.

Typically, bilingual dictionaries provide the relationship between their native language and English. One can extend these bilingual dictionaries to multilingual dictionaries by exploiting English as an intermediate source and associations between two concepts as semantic constraints.

Aligning concepts between two ontologies is often done by humans, which is an expensive and time-consuming process. This motivates us to find an automatic method to perform such task. However, the hierarchical structures of two ontologies are quite different. The structural inconsistency is a common problem [1]. Developing a practical algorithm that is able to deal with this problem is a challenging issue.

The rest of this paper is organized as follows: Section 2 discusses related work. Section 3 provides the description of the proposed algorithm. Section 4 presents experimental results and findings. Finally, Section 5 concludes our work.

2 Related Work

Chen and Fung [2] proposed an automatic technique to associate the English FrameNet lexical entries to the appropriate Chinese word senses. Each FrameNet