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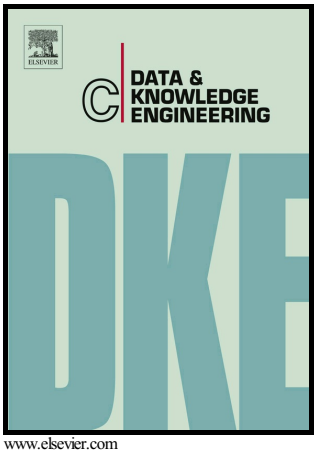

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Constructing Faceted Taxonomy for Heterogeneous Entities Based on Object Properties in Linked Data

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ABSTRACT:

The interlinking of data across the web, a concept known as Linked Data, fosters opportunities in data sharing and reusability. However, it may also pose some challenges, which includes the absence of concept taxonomies by which to organize heterogeneous entities that are from different data sources and diverse domains. Learning T-Box (Terminology Box) from A-Box (Assertion Box) has been studied to provide users with concept taxonomies, and is considered a better solution than mapping Linked Data sets with published ontologies. Yet, the existing process of automatically generated taxonomies that classify entities in a particular manner can be improved. Thus, this study aims to automatically create a faceted taxonomy to organize heterogeneous entities, enabling varying classifications of entities by diverse sub-taxonomies, to support faceted search and navigation for linked data applications. The authors have developed a framework on which each facet represented by an object property is used to extract portions of data in the data space, and an Instance-based Concept Taxonomy generation algorithm is developed to build a sub-taxonomy. Additionally, the strategies for sub-taxonomy refinement are proposed. Two experiments have been conducted to prove the promising performances of the proposed method in terms of efficiency and effectiveness.

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