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| Title | A Survey on Automatically Constructed Universal Knowledge Bases | | |
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| Abstract |  |
| A universal knowledge base can be defined as a domain-independent ontology containing instances. Ontologies define the concepts and relations among these concepts and are used to represent a domain of interest. These universal knowledge bases are the elementary units for automated reasoning on the Semantic Web. The Semantic Web is an extension of the World Wide Web which facilitates software agents to share content beyond the limitations of applications and websites. This survey focuses on the most prominent automatically constructed universal knowledge bases including KnowItAll, DBpedia, YAGO, NELL, Probase, BabelNet and Knowledge Vault. We take a closer look at how these knowledge bases are built, in particular at the information extraction and taxonomy generation process and investigate how they are used in practical applications. Due to quality concerns, the most successful and widely employed knowledge bases are manually constructed to maintain high quality, but they suffer from low coverage, high assembly and quality assurance cost. On the contrary, automatic approaches for building knowledge bases try to overcome these drawbacks. Although it is strenuous to achieve the same level of quality as for manual knowledge bases, we found that the surveyed automatically constructed knowledge bases have shown promising results and are useful for many real-world applications. | |