METADATA

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Abstract

Semantic Web is a combination of technologies and standards in order to give Web information strictly defined by semantic structure and meaning. Its aim is to enable Web users and automated agents to properly process, manage and utilize described information in intelligent and efficient ways. Nevertheless, despite the various techniques that have been proposed at times, there is no specific method , to make it possible to retrieve information deductively by taking advantage of the Semantic Web technologies. For instance, to infer new and implicit information based on explicitly expressed facts. To address this situation, the problem of Semantic Web Knowledge Discovery (SWKD) is first specified and introduced. SWKD takes advantage of the semantic underpinnings and semantic descriptions of information, organized in a logic theory (i.e., ontologies expressed in OWL). Via the use of appropriate automated reasoning mechanisms, SWKD makes it, then, possible to deduce new and unexpressed information that is only implied among explicit facts. Therefore, the main aim of this book is to introduce the reader to the notion of the Semantic Web. Specific objectives are to examine Semantic Web knowledge discovery capabilities, identify the factors they depend on and illustrate how they can be utilized effectively in real-world scenarios. To this end, major tools include the systematic review and evaluation of relevant scientific literature, the classification and evaluation, of the techniques proposed from a practical and theoretical point of view, as well as the identification of the individual problems SWKD can be reduced to. Based on these, some novel methods are proposed and verified both theoretically and experimentally.

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