Enabling Technology for Knowledge Sharing

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DOI: https://doi.org/10.1609/aimag.v12i3.902

Abstract

Building new knowledge-based systems today usually entails constructing new knowledge bases from scratch. It could instead be done by assembling reusable components. System developers would then only need to worry about creating the specialized knowledge and reasoners new to the specific task of their system. This new system would interoperate with existing systems, using them to perform some of its reasoning. In this way, declarative knowledge, problem-solving techniques, and reasoning services could all be shared among systems. This approach would facilitate building bigger and better systems cheaply. The infrastructure to support such sharing and reuse would lead to greater ubiquity of these systems, potentially transforming the knowledge industry. This article presents a vision of the future in which knowledge-based system development and operation is facilitated by infrastructure and technology for knowledge sharing. It describes an initiative currently under way to develop these ideas and suggests steps that must be taken in the future to try to realize this vision.
Overview of Current Projects

There is currently considerable interest in using middleware technology to integrate sources of data and knowledge within an enterprise. Funded by the EPSRC and BT, KRAFT aims to create a generic architecture for sharing knowledge in the form of constraints. Constraint knowledge is extracted on demand from databases and knowledge-bases, transformed to a shared ontology, and delivered to an appropriate solver.