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Chapter IX

Identification and Measurement of the Knowledge-Sharing Requirements in Collaborative Business Processes

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ABSTRACT

This chapter introduces a modelling language called Awareness Net for both representation as well as measuring the knowledge-sharing requirements in collaborative business processes. It is a conceptual model that facilitates representation and analysis of knowledge-sharing requirements of the actors in collaborative business processes. The representation and measurement are handled by a set of collaborative semantic concepts and their relationships. The proposed language enforces overall specification of what matters to the actors in collaborative processes when collaborating in business process to keep them aware of the collaboration context.

INTRODUCTION

Once knowledge is acquired, it must be organised in an applications knowledge base for later use. A knowledge base can be organised in several different configurations to facilitate fast inferencing (or reasoning) from the knowledge (Turban, 2005). Knowledge and database applications in recent years have progressively converged towards integrated technologies that try to overcome the limits of each single discipline in terms of knowledge and data representations. Research in Knowledge Representation (KR) originally concentrated on logic-based formalisms that are typically tuned to deal with relatively small knowledge bases but provide powerful deduction services, and the language to structure information is highly expressive. In contrast, Information Systems and Database (DB) research mainly dealt with efficient storage and retrieval of powerful query languages, and with sharing and displaying large amounts of multimedia documents. However, data representations were relatively simple and flat, and reasoning over the structure and the content of the documents played only a minor role.

By increasing the rate of growth in changing character of data bases into knowledge bases, this distinction between the requirements in Knowledge Representation and Databases is vanishing rapidly. According to Artale, Dixon, Fisher, and Franconi (2004), to be useful in realistic applications, a modern KR system must be able to handle large data sets and provide expressive query languages. This suggests that techniques developed in the DB area could be useful for KR systems. On the other hand, the information stored on the Web, in digital libraries, and in data warehouses is now very complex and has deep semantic structures, thus requiring more intelligent modelling languages and methodologies, and reasoning services on those complex representations to support design, management, flexible access, and integration. Therefore, a great call for an integrated logic-based view of Knowledge Representation and Database technologies is emerging (Artale et al.).

This chapter presents a unified modelling language for both representation of the collaborative business processes and for measurement and identification of the knowledge-sharing requirements of the actors involved in collaborative business processes. Collaborative business processes (or collaborative processes, for short) is defined here as organizational processes that requires collaboration of multiple human entities in order to achieve their expected organizational goals.

The type of the proposed language is a variation of Petri-net. However, contrary to many available Petri-net-based role-interaction models that mainly