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# Parallel, Object-Oriented, and Active Knowledge Base Systems

**Series: Advances in Database Systems**

Knowledge Base Systems are an integration of conventional database systems with Artificial Intelligence techniques. They provide inference capabilities to the database system by encapsulating the knowledge of the application domain within the database. Knowledge is the most valuable of all corporate resources that must be captured, stored, re-used and continuously improved, in much the same way as database systems were important in the previous decade. Flexible, extensible, and yet efficient Knowledge Base Systems are needed to capture the increasing demand for knowledge-based applications which will become a significant market in the next decade. Knowledge can be expressed in many static and dynamic forms; the most prominent being domain objects, their relationships, and their rules of evolution and transformation. It is important to express and seamlessly use all types of knowledge in a single Knowledge Base System. Parallel, Object-Oriented, and Active Knowledge Base Systems presents in detail features that a Knowledge Base System should have in order to fulfill the above requirements. Parallel, Object-Oriented, and Active Knowledge Base Systems covers in detail the following topics: Integration of deductive, production, and active rules in sequential database systems. Integration and inter-operation of multiple rule types into the same Knowledge Base System. Parallel rule matching and execution, for deductive, production, and active rules, in parallel Expert, Knowledge Base, and Database Systems. In-depth description of a Parallel, Object-Oriented, and Active Knowledge Base System that integrates all rule paradigms into a single database system without hindering performance. Parallel, Object-Oriented, and Active Knowledge Base Systems is intended as a graduate-level text for a course on Knowledge Base Systems and as a reference for researchers and practitioners in the areas of database systems, knowledge base systems and Artificial Intelligence.

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