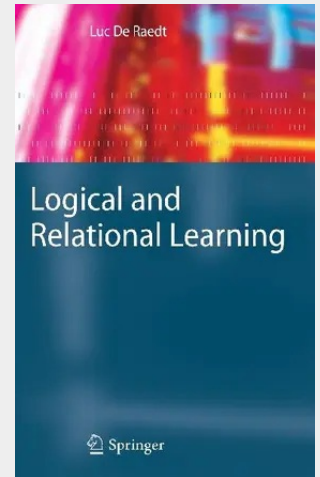


Logical and Relational Learning

Logical and relational learning refers to the subfield of artificial intelligence, machine learning and data mining that is concerned with learning in expressive logical or relational representations. It is the union of inductive logic programming, (statistical) relational learning and multi-relational data mining, which all have contributed techniques for learning from data in relational form. Even though some early contributions to logical and relational learning are about forty years old now, it was only with the advent of inductive logic programming in the early 1990s that the field became popular. Whereas initial work was often concerned with logical (or logic programming) issues, the focus has rapidly changed to the discovery of new and interpretable knowledge from structured data, often in the form of rules, and soon important successes in applications in domains such as bio- and chemo-informatics and computational linguistics were realized. Today, the challenges and opportunities of dealing with structured data and knowledge have been taken up by the artificial intelligence community at large and form the motivation for a lot of ongoing research. Indeed, graph, network and multi-relational data mining are now popular themes in data mining, and statistical relational learning is receiving a lot of attention in the machine learning and uncertainty in artificial intelligence communities. In addition, the range of tasks for which logical and relational techniques have been developed now covers almost all machine learning and data mining tasks.

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