Inductive Logic Programming and Description Logics*

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Abstract

Inductive logic programming (ILP) allows new knowledge to be constructed from a given background knowledge with respect to positive and negative examples [2]. ILP uses induction to generate hypotheses that are built on the background knowledge and have to explain the positive examples, but also remain consistent with the negative examples. In other words, based on the background knowledge and observed facts, an algorithm can infer new general knowledge that applies to all observed objects.

Description logics (DLs) are languages that describe some knowledge about a system in the form of a knowledge base. Machine learning algorithms can use this knowledge to reason and induce new knowledge similar to ILP. Main building blocks of DLs are objects, concepts and roles [1]. In first-order logic, objects are equivalent to constants, concepts to unary predicates and roles to binary predicates.

References

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