A brief guided tour along the borders of Logic Programming with Description Logics

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Abstract

Logic Programming (LP) (14) and the family of Description Logics (DLs) (1) are both based on fragments of First Order Logic (FOL). However, they are characterized by different semantic assumptions (16; 9). Yet, a partial overlap exists between LP and DLs which allows the extension and/or adaptation of known results in LP to DLs and vice versa (5; 17; 7; 8). Even more interestingly, a combination of the two is possible via several integration schemes that are aimed at designing very expressive FOL languages and ultimately overcoming the aforementioned semantic mismatch between LP and DLs (2; 10; 19; 15; 4; 3). Several works in Inductive Logic Programming (ILP) (born at the intersection between LP and concept learning (18)) testify the great potential of these hybrid knowledge representation formalisms also from the perspective of machine learning and inductive reasoning (20; 6; 11; 12; 13).

This tutorial talk surveys the literature of the last 20 years concerning the combination of (I)LP and DLs with a particular emphasis on the integration issues. The aim is to show how many interesting things happen or could happen along the borders of LP with DLs.

References


Jörg-Uwe Kietz. Learnability of description logic programs. In Stan Matwin and Claude Sammut, editors, Inductive Logic Programming, 12th International Conference, ILP...


