

Abstract Solvers for Answer Set Programming

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Abstract

Abstract solvers are a recently employed method to formally describe, compare and combine solving algorithms, where the states of computation are represented as nodes of a graph, the solving techniques as edges between such nodes, the solving process as a path in the graph and the formal properties of the algorithms are reduced to related graph properties.

In this tutorial I overview the application of abstract solvers in Answer Set Programming (ASP). After an introduction devoted to an abstract solver for SAT solving, I show abstract solvers for ASP procedures for non-disjunctive programs; then, by building on the resulting graphs, I move to ASP procedures for disjunctive programs. Next, abstract solvers for cautious reasoning are presented. Finally, I briefly touch the usage of abstract solvers in other research fields, such as Quantified SAT, Constraint ASP and Abstract Argumentation Frameworks.