

1035-03-100

Victor Marek*, Department of Computer Science, University of Kentucky, Lexington, KY.

Answer Set Programming.

Answer Set Programming (ASP) is a computational paradigm based on so-called nonmonotonic logic formalisms. Typically, the user specifies a search problem S as a logic program, P , (or a disjunctive program, or a default theory - depending on the underlying solver) in such a way that there is an ‘easy’ one-to-one correspondence between solutions to S and the stable models (or answer sets, or default extensions) of the program P .

Like the satisfiability in propositional logic, logic programming with stable semantics captures precisely search problems in the class NP. The other formalisms mentioned above capture Sigma-2 search problems.

Answer Set Programming is now supported by a number of successful solvers i.e. software programs finding one or more stable models (or answer sets) of the input programs. These systems find applications in combinatorial optimization, computer engineering, product configuration and other applications.

We discuss the current research issues in ASP. These include studies of constructs loosely motivated by connections with integer arithmetic such as set-constraints. (Received September 12, 2007)