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Stable model semantics of weight constraint rules. (English) Zbl 0952.68029

Gelfond, Michael (ed.) et al., Logic programming and nonmonotonic reasoning. 5th international conference, LPNMR '99. El Paso, TX, USA, December 2-4, 1999. Proceedings. Berlin: Springer. Lect. Notes Comput. Sci. 1730, 317-331 (1999).

Summary: A generalization of logic program rules is proposed where rules are built from weight constraints with type information for each predicate instead of simple literals. These kinds of constraints are useful for concisely representing different kinds of choices as well as cardinality, cost and resource constraints in combinatorial problems such as product configuration. A declarative semantics for the rules is presented which generalizes the stable model semantics of normal logic programs. It is shown that for ground rules the complexity of the relevant decision problems stays in NP. The first implementation of the language handles a decidable subset where function symbols are not allowed. It is based on a new procedure for computing stable models for ground rules extending normal programs with choice and weight constructs and a compilation technique where a weight rule with variables is transformed to a set of such simpler ground rules.

For the entire collection see [[Zbl 0931.00043](#)].

MSC:

[68N17](#) Logic programming

Cited in **16** Documents

Keywords:

[logic program rules](#)

Software:

[NP-SPEC](#); [Smodels](#)