

Implementing Ordered Disjunction Using Answer Set Solvers for Normal Programs: Comments and Conclusions

G. Brewka, I. Niemela, T. Syrjanen

August 1, 2003

Simplified Translation

It appears that the translation of the i^{th} option of rule r , $G(r, i)$, can be simplified by removing Γ from the body of the first rule, i.e.:

% The translation, $G(r, i)$, of the i^{th} option of r

$$G(r, i) = \{h_i \leftarrow c(r, i), \text{not } h_1, \dots, \text{not } h_{i-1}\} \cup \{\leftarrow h_i, \text{not } c(r, i), \text{not } h_1, \dots, \text{not } h_{i-1}, \Gamma\}$$

In fact, the only way to have an atom $c(r, i)$ in the answer set is to satisfy the body of the choice rule of $G(r)$, which already contains Γ .

Unintuitive Results

Dr. Watson pointed out that the semantics presented can sometimes yield unintuitive results even when Pareto-preference is used. Consider the following program (taken from the comment that Dr. Watson sent to the authors of the paper):

$$\begin{aligned} & movie \times television. \\ & popcorn \times candy \leftarrow movie. \\ & \leftarrow popcorn. \end{aligned}$$

which says that the agent prefers to go to a movie over watching tv. When at a movie, the agent prefers popcorn over candy. There is no popcorn.

Since rules whose body is not satisfied are given a degree of satisfaction 1, the program has two preferred answer sets: $\{movie, candy\}$ and $\{television\}$. Intuitively, the first should be the only answer set.

An possible solution to this problem (proposed by Dr. Gelfond) is not to compare the degree of satisfaction of rules whose body is not satisfied.