

Gebser, Martin; Janhunnen, Tomi; Jost, Holger; Kaminski, Roland; Schaub, Torsten
ASP solving for expanding universes. (English) [Zbl 1467.68025](#)

Calimeri, Francesco (ed.) et al., Logic programming and nonmonotonic reasoning. 13th international conference, LPNMR 2015, Lexington, KY, USA, September 27–30, 2015. Proceedings. Cham: Springer. Lect. Notes Comput. Sci. 9345, 354-367 (2015).

Summary: Over the last years, answer set programming has significantly extended its range of applicability, and moved beyond solving static problems to dynamic ones, even in online environments. However, its nonmonotonic nature as well as its upstream instantiation process impede a seamless integration of new objects into its reasoning process, which is crucial in dynamic domains such as logistics or robotics. We address this problem and introduce a simple approach to successively incorporating new information into ASP systems. Our approach rests upon a translation of logic programs and thus refrains from any dedicated algorithms. We prove its modularity as regards the addition of new information and show its soundness and completeness. We apply our methodology to two domains of the 5th ASP Competition and evaluate traditional one-shot and incremental multi-shot solving approaches.

For the entire collection see [\[Zbl 1320.68014\]](#).

MSC:

[68N17](#) Logic programming

Software:

[ASPeRiX](#); [OMiGA](#); [Clingo](#); [ASSAT](#)

Full Text: [DOI](#)