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Explaining inconsistency in answer set programs and extensions. (English) [Zbl 1491.68047](#)
Balduccini, Marcello (ed.) et al., Logic programming and nonmonotonic reasoning. 14th international conference, LPNMR 2017, Espoo, Finland, July 3–6, 2017. Proceedings. Cham: Springer. Lect. Notes Comput. Sci. 10377, 176-190 (2017).

Summary: Answer set programming (ASP) is a well-known problem solving approach based on nonmonotonic logic programs. HEX-programs extend ASP with external atoms for accessing arbitrary external information. In this paper we study inconsistent ASP- and HEX-programs, i.e., programs which do not possess answer sets, and introduce a novel notion of inconsistency reasons for characterizing their inconsistency depending on the input facts. This problem is mainly motivated by upcoming applications for optimizations of the evaluation algorithms for HEX-programs. Further applications can be found in ASP debugging. We then analyze the complexity of reasoning problems related to the computation of such inconsistency reasons. Finally, we present a meta-programming encoding in disjunctive ASP which computes inconsistency reasons for given normal logic programs, and a basic procedural algorithm for computing inconsistency reasons for general HEX-programs.

For the entire collection see [\[Zbl 1367.68005\]](#).

MSC:

[68N17](#) Logic programming
[68T27](#) Logic in artificial intelligence

Cited in **2** Documents

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