Bringing existential variables in answer set programming and bringing non-monotony in existential rules: two sides of the same coin

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Résumé en anglais	This article deals with the combination of ontologies and rules by means of existential rules and answer set programming. Existential rules have been proposed for representing ontological knowledge, specifically in the context of Ontology-Based Data Access. Furthermore Answer Set Programming (ASP) is an appropriate formalism to represent various problems issued from Artificial Intelligence and arising when available information is incomplete. The combination of the two formalisms requires to extend existential rules with nonmonotonic negation and to extend ASP with existential variables. In this article, we present the syntax and semantics of Existential Non Monotonic Rules (ENM-rules) using skolemization which join together the two frameworks. We formalize its links with standard ASP. Moreover, since entailment with existential rules is undecidable, we present conditions that ensure the termination of a breadth-first forward chaining algorithm known as the chase and we discuss extension of these results in the nonmonotonic case.
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