

A Mathematician Looks at Answer Set Programming

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Dedicated to Victor Marek on his 65th birthday.

Abstract

We shall discuss a variety of results on Answer Set Programming based on the work of author with Marek, Nerode, Blair and Cenzer that have arisen by looking at Answer Set Programming from a mathematical perspective. This includes work with Nerode and Marek (Marek, Nerode, & Remmel 1990; 1992c; 1992b; 1992a; 1994; 1997; 1999) Nonmonotonic Proof Systems which allows one to give a common generalization of many nonmonotonic formalisms and provide a basis for giving uniform proofs of a number of complexity results, work with Marek and Cenzer (Marek & Remmel 2004b; Cenzer, Marek, & Remmel 2004; 2005; Pollet & Remmel 1997) on Answer Set Programming with Set Constraints, and recent work with Blair and Marek (Blair, Marek, & Remmel 2001; 2004) on Set Based Logic Programming with the addition of monotonic idempotent operators. If time allows, we will also talk about some recent work with Marek (Marek & Remmel 2001; 2002; 2004b; 2004a; 2007)

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