**Answer Set Programming by Vladimir Lifschitz**

Answer set programming (ASP) is a form of declarative programming oriented towards difficult search problems. ASP programs consist of rules that look like Prolog rules, but the computational mechanisms used in ASP are different: they are based on the ideas that have led to the creation of fast satisfiability solvers for propositional logic.

Answer set programming (ASP) is a form of declarative programming oriented towards difficult, primarily NP-hard, search problems. ASP is based on the stable model (answer set) semantics of logic programming ( Gelfond & Lifschitz 1988), which applies ideas of autoepistemic logic (Moore 1985) and default logic (Reiter 1980) to the analysis of negation as failure.

Answer set programming has been applied to several areas of science and technology. Here are three examples.

**Automated Product Configuration** The early work in this area mentioned in the introduction has led to the creation of a web-based product configurator (Tiihonen et al. 2003). This technology has been commercialized.

**Decision Support for the Space Shuttle** An ASP system capable of solving some planning and diagnostic tasks related to the operation of the Space Shuttle (Nogueira et al. 2001) has been designed by a group led by Michael Gelfond, one of the creators of ASP, in collaboration with Matthew Barry of United Space Alliance.

**Inferring Phylogenetic Trees** An ASP-based method for reconstructing a phylogeny for a set of taxa has been applied to historical analysis of languages and to historical analysis of parasite-host systems (Brooks et al. 2007). The group of authors includes a zoologist, two linguists, and two specialists on answer set programming.