A choice functions portfolio for solving constraint satisfaction problems: A performance evaluation

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Constraint Programming (CP) allows to solve constraint satisfaction and optimization problems by building and then exploring a search tree of potential solutions. Potential solutions are generated by firstly selecting a variable and then a value from the given problem, phase known as enumeration. In this context, Autonomous Search (AS) that is a particular case of adaptive systems, enables the problem solver to control and adapt its internal configuration during solving time, based on performance metrics in order to be more efficient. The goal is to provide a mechanism for CP solvers, integrating a component able to evaluate the solving performance process. In particular, we employ a classic decision making method called Choice Function (CF). In this paper, we present an evaluation of different choice functions, based on performance exhibited in a indicators set. The results are promising and show that it is feasible to solve constraint satisfaction problems with this new technique. © 2015 IEEE.

autonomous search

choice function

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