

Adaptive and multilevel approach for constraint solving

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For many real world problems, modeled as Constraint Satisfaction Problems, there are no known efficient algorithms to solve them. The specialized literature offers a variety of solvers, which have shown satisfactory performance. Nevertheless, despite the efforts of the scientific community in developing new strategies, there is no algorithm that is the best for all possible situations. Then, several approaches have emerged to deal with the Algorithm Selection Problem. Here, we sketch the use a Choice Function for guiding a Constraint Programming solver exploiting search process features to dynamically adapt it in order to more efficiently solve Constraint Satisfaction Problems. To determine the best set of parameters of the choice function, an upper-level metaheuristic is used. The main novelty of our approach is that we reconfigure the search based solely on performance data gathered while solving the current problem. © Springer-Verlag Berlin Heidelberg 2013.

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