An Adaptive Hybrid Genetic Algorithm for the Three-Matching Problem

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This paper presents a hybrid of genetic algorithm (GA) and local search operators for solving the three-matching problem (3MP). Several general / heuristic crossover and local hill-climbing operators are introduced. The adaptive process based on the observation of on-line performance of GA is used to select the feasible operators. In particular, the probability of applying an operator is increased if the offspring produced by this operator are better than the parents. The proposed technique helps in reducing the difficulty of parameter selection. The results show that the adaptive GA obtains approximately the same or even slightly better results than the fine-tuned GA without adaptation.