Application of Greedy Evolutionary Algorithms for Solving Complex Problems of Selection, Location and Clustering

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In this paper, we have reviewed new modifications of heuristic algorithms based on biology principles which can be efficiently used for solving combinatorial optimization problems. Heuristic algorithms cannot guarantee the exact solution, their applicability is not mathematically proved, however, they are statisticallyally optimal: number of problems solved “near to optimal” increases with complexity of the problem. In this research, the applicability of greedy evolution algorithms for problems of combinatorial optimization were experimentally proved. In addition, we offer a new algorithm for solving a series of clustering problems in the case when the quantity of clusters is unknown. New algorithm allows to solve the problems with each number of clusters. Thus, it works faster than known algorithms. All algorithms were realized as C++ computer programs. Experiments demonstrate that new algorithms give comparatively precise solutions in fixed reasonable time.

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