

k-Delete Recoverable Robustness

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Abstract:

We consider 0-1 optimization problems and their k-Delete recoverable robust (k-del RR) version. K-del RR is a two stage process to deal with cost-uncertainties. In the first stage, a solution of the underlying problem is fixed. In the second stage, depending on the revealed cost, at most k elements of this solution are deleted to reduce the cost. We prove that the k-del RR shortest path and MST problem are strongly NP-hard and provide polynomial solvable cases. Furthermore, we present different solution methods for the k-del RR problem based on integer linear programming (ILP) techniques. In a preliminary computational study we analyse the performance of the algorithms for the assignment problem.