

Label-correcting algorithms for solving large hop-constrained shortest path problems

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Abstract. We shall consider the problem of finding a shortest path in directed graph with a limitation on the number hops (edges) in the path. This problem is viewed a bi-criteria problem in which the path cost and the number of hops are to be minimized. It will be shown how to extend the Bellman principle of optimality to the case of the bi-criteria problem. We shall also present label-correcting algorithms based on the extended principle and used for solving hop-constrained shortest path problems. Correctness of the algorithms will be proved, and their complexity will be studied.

References

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