

1 The shortest path problem with mutual exclusive arcs

This is a variation of the Shortest Path Problem on a weighted digraph.

Some pairs of arcs are given. For each pair, the use of both arcs and the use of none of them are penalized (with two possibly different penalties).

Reference: a talk given by C. Sorgente at ODS 2021 (Rome). No paper has been published afterwards.

Blanco et al. (2015) studied the version with a hard constraint forbidding the use of both arcs, for each pair.

Variation with forfeit sets, as in the case of the KP with forfeit sets.

The problem looks suitable to develop a dynamic programming algorithm.