

# Searching for Disjoint Paths Functionally

Nikita Danilenko

Institut für Informatik, CAU Kiel, D-24098 Kiel

`nda@informatik.uni-kiel.de`

The problem of finding shortest disjoint paths (i.e. paths that share no common vertices) between two vertex sets of a graph is not only on itself an interesting problem, but the need for such paths arises in the improvement of flow or matching algorithms. The well-known solution to this problem in the imperative case is a combination of a breadth-first search followed by a special depth-first search. We show how these components can be combined in case of a functional implementation that is based upon an algebraically inspired graph model. Additionally, we consider applications in the improvement of the functional versions of a flow and matching functions.