

# 0/1 Model for the Linear Arrangement Problem

Gerhard Reinelt   Hanna Seitz<sup>\*</sup>   Dirk Oliver Theis

Universität Heidelberg, Institut für Informatik, INF 368, 69120 Heidelberg  
`{gerhard.reinelt,hanna.seitz,theis}@informatik.uni-heidelberg.de`

The Linear Arrangement Problem consists of finding an ordering of the nodes of a weighted graph on  $n$  nodes such that the sum of the weighted edge lengths is minimized. We report about the usefulness of a new modeling approach within a branch-and-cut algorithm for solving Linear Arrangement Problems to optimality. The key idea is to introduce binary variables  $d_{ijk}$  for  $1 \leq i < j \leq n$  and  $1 \leq k \leq n-1$ , where  $d_{ijk} = 1$  if nodes  $i$  and  $j$  have distance  $k$ .