

1 Selective stacker-crane problem

The Stacker Crane Problem is the NP-hard problem of finding a minimum cost tour on a given weighted graph containing directed arcs and unoriented edges between the endpoints of the oriented arcs. The directed arcs must belong to the cycle and they must be traversed according to their orientation.

We consider the variation in which a prize is associated with each directed arc and there is no constraint that directed arcs must be traversed.

A DP algorithm can be devised for this problem. It can be used as a pricing sub-routine to solve the Lane covering problem by branch-and-price.

Reference: Ergun et al (2003).

Suitable for a project for the O.R. complements course.