Exact and heuristic methods for optimization in distributed logistics

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Propositions

accompanying the PhD thesis

Exact and Heuristic Methods for Optimization in Distributed Logistics

by

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1. Adding valid inequalities *while* generating columns is an attractive alternative to adding valid inequalities *after* generating columns. *(Chapter 2)*

2. In offshore wind maintenance logistics, efficiently coordinating technicians reduces overall maintenance costs. It decreases both the number of vessel trips and the mean time to maintenance. *(Chapter 3)*

3. Tactical decision making in offshore wind should consider the stochastic dynamics of the day-to-day operations, the service requirements specified by the wind farm owner, and the impact of operational modeling assumptions on computational tractability. Not properly doing so will either lead to suboptimal decisions or unnecessarily complicated optimization models. *(Chapter 4)*

4. Order-picker routing problems allow for multiple objectives to be met by only slightly increasing travel distances. *(Chapter 5)*

5. In large-scale optimization problems, parallelization of a stochastic metaheuristic increases the robustness of its performance by decreasing the variance of its outcomes. This parallelization is convenient for practioners and is simple to implement. *(Chapter 6)*

6. In city logistics, a natural way to mitigate the risk of daily demand uncertainty is to decide upon the departure and arrival times of vehicle paths *after* uncertainty is revealed instead of using static, robust transportation policies. *(Chapter 7)*

7. A robust approach to reserve-crew scheduling leads to less flight cancellations and less last-minute alterations in airline operations. *(Schrotenboer et al., 2019a)*

8. When complexity increases, an optimal transportation plan for collaborating shippers is computationally intractable to design and, if designed, very hard to implement in practice. Fortunately, simple decision rules perform almost as good and are easy to implement, especially in complex situations. *(Schrotenboer et al., 2019b)*

9. Exploiting fundamental knowledge on the asymmetric proporties of routing problems with multiple depots improves computational performance. *(Uit het Broek et al., 2019b)*

10. Last-mile delivery strategies utilizing self-service parcel lockers improve the livability of inner cities by reducing the amount of traffic. *(Enthoven et al., 2019)*

11. A problem leads to an optimization method. An optimization method does not choose its problem.

12. Without code there is no algorithm. Without an algorithm there is no point to code.