

VORTRAG

The split delivery vehicle routing problem

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Abstract

In the classical Vehicle Routing Problem (VRP) a fleet of capacitated vehicles is available to serve a set of customers with known demand. Each customer is required to be visited by exactly one vehicle and the objective is to minimize the total distance traveled. In the Split Delivery Vehicle Routing Problem (SDVRP) the restriction that each customer has to be visited exactly once is removed, i.e., split deliveries are allowed. In this study we present a survey of the state-of-the-art on this important problem. We will start by comparing the computational complexity of the SDVRP and VRP on special graphs in order to have a feeling of the difficulty of solving both problems. Then we will focus on the SDVRP for which much less work has been done in the literature in comparison of what is known on VRP. We will first give some results on the savings which can be earned by allowing split deliveries in contrast to imposing a single visit per customer as in the VRP. Finally, we will focus on solution methods, both heuristic and exact, proposed in the literature to solve the SDVRP.