A Non-linear Approach to the Vehicle Positioning Problem

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Abstract: The *Vehicle Positioning Problem* (VPP) consists of the assignment of vehicles (buses, trams or trains) of a public transport or railway company to parking positions in a depot and to timetabled trips. Such companies have many different types of vehicles, and each trip can be performed only by vehicles of some of these types.

These assignments are non-trivial due to the topology of depots. The parking positions are organized in tracks, which work as one- or two-sided stacks or queues. If the required type of vehicle is not positioned in the front of some track, a shunting movement must be performed, which is undesirable and should be avoided.

In the talk we present an integer and a non-linear programming formulation for the problem and compare their performance and the quality of their solutions using some computational results.

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