

Locating depots of rolling stock for optimizing circulation of train units in railway networks

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Abstract

Planning rolling stock circulation in railway networks includes a set of problems such as locating depots for locomotives and carriages, determining the composition of line runs, solving the vehicle circulation problem and scheduling vehicle rotations in its use for carrying out maintenance tasks. In this paper, authors introduce a transition graph to represent the possible circulation of every train during a complete week. On that graph, a mixed integer programming model is developed in order to optimally plan the vehicle circulation in the railway network taking into account an objective of equity in the workload incurred by the train units when they start/finish their routes from/at depots.