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Constraint-Directed Techniques for Transport Scheduling with Capacity Restrictions of Automotive Manufacturing Components

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Abstract : In this paper, we expand the scope of constraint-directed techniques to deal with the case of transportation schedule with capacity restrictions where the scheduling problem includes alternative activities. That is, not only does the scheduling problem consist of determining when an activity is to be executed, but also determining which set of alternative activities is to be executed at all level of transportation from input to output. Such problems encompass both alternative resource problems and alternative process plan problems. We formulate a constraint-based representation of alternative activities to model problems containing such choices. We then extend existing constraint-directed scheduling heuristic commitment techniques and propagators to reason directly about the fact that an activity does not necessarily have to exist in a final transportation schedule without being completed. Tentative results show that an algorithm using a novel texture-based heuristic commitment technique propagators achieves the best overall performance of the techniques tested.

Keywords : production, transportation, scheduling, integrated
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