A local search heuristic for the multi-mode personnel task rescheduling problem characterized by time-resource-quality trade-offs

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Abstract

This paper considers the personnel task rescheduling problem with multiple discrete activity modes following time-resource-quality trade-offs. Due to operational uncertainty, announced baseline schedules may become infeasible and the need for rescheduling arises. Therefore changes are required to either the resource schedule or the service level. In particular the recovery action to change the operation modes of individual activities is explored, instigating a trade-off. We propose a two-stage heuristic procedure targeted at finding high-quality solutions in an efficient manner. The performance of the proposed procedure and the corresponding acceleration strategies is demonstrated.

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