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Pre- and Post-Analyses of Disruptive Quay Crane Scheduling Problem

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Abstract : In the past, the quay crane operations have been well studied. There were a certain number of scheduling algorithms for quay crane operations, but without considering some nuisance factors that might disrupt the quay crane operations. For example, bad grapples make a crane unable to load or unload containers or a sudden strong breeze stops operations temporarily. Although these disruptive conditions randomly occur, they influence the efficiency of quay crane operations. The disruption is not considered in the operational procedures nor is evaluated in advance for its impacts. This study applies simulation and optimization approaches to develop structures of pre-analysis and post-analysis for the Quay Crane Scheduling Problem to deal with disruptive scenarios for quay crane operation. Numerical experiments are used for demonstrations for the validity of the developed approaches.

Keywords : disruptive quay crane scheduling, pre-analysis, post-analysis, disruption
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