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Study on Tramper Allocation Planning Using Genetic Algorithm

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Summary: Tramper allocation is important and difficult work operation because it affects heavily on transport efficiency and stability although a lot of factors must be considered carefully and properly. Some information technologies are partially used in data collection, display and editing, but planning itself is done by human resources. Provided that high performance tramper allocation plan be generated automatically by using computer program, it is very useful not only for labor saving but also for seeking further enterprise-level efficiency and rationalization through various analysis. Notwithstanding above benefits, transport system dealt with real business is so complicated and large in scale that it is highly difficult to replace tramper allocation operation with computer algorithm and solve it within the time suitable for practical use.

In this paper authors tries to mitigate above difficulties by using Genetic Algorithm (GA), one of heuristic methods, and by using logistics simulator to evaluate each chromosome's score (fitness) precisely. First, we develop allocation algorithm and analysis system, secondly we apply it for a small model to observe its attribution, and lastly apply it to transport system modeled with real ship operator and assess the feasibility of our approach. We could conclude that our approach is applicable, and introducing heuristic database is useful and sometimes indispensable.

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