應用時空特性指標於時窗限制車輛路線例題之解題績效分析

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摘要

This study proposes a time-space index which is according to the characteristics of the vehicle routing problem with time windows (VRPTW), and then develops a parallel time-space index route construction (PTSIRC) heuristic method which includes a parallel routes improve module (PRIM). In addition, we apply the PTSIRC to solve the Solomon 56 VRPTW benchmark instances and to analyze the problem-solving performance of PTSIRC. The test results are compared with the best-known solution of the VRPTW benchmark bank. For the objective of the total number of vehicles used, the PTSIRC performs better in T-S case than in S-T case; for the objective of the total traveling cost, PTSIRC performs better in S-T case than in T-S case. After the PRIM processing, the performances in the total number of vehicles used and in the total traveling cost show significant improvement. Therefore, the proposed time-space index and PTSIRC prove their potential in solving the VRPTW.

關鍵字：vehicle routing problem with time windows (VRPTW), time-space index, heuristic method, performance test.