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Optimally solving the joint order batching and picker routing problem

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**Highlights**

- We propose a novel exact algorithm for order picking and batching in warehouses.
- We introduce several new inequalities that greatly improve computational results.
- The inequalities prevent many solutions that violate subtour breaking constraints.
- The formulation is general for warehouses with any number of blocks.
- The method improves on assignment heuristics for very large instances.

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