

A branch and bound algorithm for a lexicographic optimization of a bi-objective permutation flowshop with time lags

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A permutation flowshop consists of finding an optimal sequence of n jobs visiting m machines where the order on each machine is the same. In this problem there are minimum and maximum time lags for any job between the end of its treatment on a machine and the start of its treatment on the next machine. The goal is to find the permutation minimizing a lexicographic ordering of two objectives. Each job has a due date so we first minimize the number of late jobs. The second objective we consider is minimizing the makespan.

In this work we develop an optimal branch and bound algorithm to solve this particular flowshop scheduling problem. We also discuss the use of different bounds for the objectives and their effectiveness. We present some promising results in comparison with other methods.