

Introduction

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Local Search and VNS

- ▶ Local search is a special case of VNS
- ▶ Multiple restarts
- ▶ ????

Local Search and VNS

Neighbourhoods used:

- ▶ Swap two neighbours
- ▶ Split the permutation into two parts and swap them
- ▶ Swap two elements in the permutation
- ▶ Choose a part of the permutation and reverse it

Memetic Algorithm

Based on a simple genetic algorithm.

- ▶ Selection:
 - ▶ Two variants of Roulette wheel selection
 - ▶ Deterministic tournament selection
 - ▶ Truncation selection
 - ▶ Tournaments selection
 - ▶ Hybrid approach
- ▶ Ordered crossover
- ▶ Mutation

Memetic Algorithm

Additional improvements:

- ▶ Local search after selection
- ▶ Local search before returning the result

Results

- ▶ Local search: 1992
- ▶ VNS: 1985
- ▶ MA: 1992

Result evaluation

Local search worked well because it's simple and fast.

Result evaluation

There was no added value in using multiple neighbourhoods.

Result evaluation

MA works well, but is very slow and sometimes unpredictable.

Possible improvements

- ▶ Faster language?
- ▶ More careful parameter selection for MA?
- ▶ Replacing VNS with a different algorithm?

Questions

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