Programming assignment 2

Heuristic Optimization Techniques, 2015WS

October 27, 2015

Local search [10 points]

The second programming assignment is to develop your *own* local search for the K-page crossing number minimization problem. The subtasks for this exercise are:

1. Develop a framework for simple local search which is able to deal with
   - different neighbourhoods
   - different step functions
2. Develop at least three (structurally) different neighbourhoods.
3. At least random, first-improvement, best-improvement step functions.
4. Use incremental evaluation for evaluating the objective function where possible.
5. Run experiments and write a report as discussed in the problem description.
6. Submit your best solution for each instance (in the described solution format) on the cluster (optional).

For the development and the report consider the following points:

- Use your previously developed construction heuristic to create initial solutions for your local search.
- Does it yield a gain if compared to simply using random initial solutions?
- Can subsequent (possibly random) moves in your neighbourhood(s) reach any valid solution in the search space?
- How many iterations does it take to reach local optima? What does this say about your neighbourhood(s)?
- How does incremental evaluation work for your neighbourhoods?

Hand in your report via TUWEL until *2015-11-08, 23:55*. For further questions send an e-mail to: `heuopt-ws15@ac.tuwien.ac.at`