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Query Optimization

6. Exercise, Summer 2009

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1. The meta heuristics like tabu search require both a description (i.e., encoding) of a solution and a local change mechanism that perturbrates the currently considered solution. Give an example for a possible encoding and multiple alternatives for change functions. How does the choice affect the behavior of the meta heuristic?
2. Give an example for an join ordering encoding, a change function and a start solution where Iterative Improvement does not find the optimal solution.
3. The two-phase heuristic uses first iterative improvement and then simulated annealing. What happens when the two are exchanged? Does it make sense to exchange simulated annealing with tabu search (in the unmodified two-phase heuristic)?
4. Implement the Quick-Pick algorithm. Generate a number of random trees (e.g. n^2) and pick the best one. Try to keep the Quick-Pick algorithm "quick"!