Department of Mathematics and Computer Science
University of Southern Denmark, Odense

May 6, 2005
LMF

DM69 — Lecture 14

Lecture 14 — May 11

- Scheduling algorithms: McNaughton's wrap-around rule, Johnson's algorithm, and dynamic programming.
- Parallel algorithms (Atallah 47.1–47.3).

Problems for May 13

1. Problem 31.8-1 in Cormen.
2. Problems 13 and 17 in Korte and Vygen.
3. Prove that the approximation ratio of LS is $2 - \frac{1}{m}$, i.e., you should prove a slightly better upper bound than that of Theorem 35.7 (Atallah, page **35**-10) and give a matching lower bound.
4. Prove Theorem 35.11 (Atallah, page **35**-13).

Signing up for the exam

There is now a sign up sheet at the secretariat where you should put your name. This is the way you choose the time of day that you are going to be examined. The first one will draw at 9:45, the next one at 10:15, and so on. Note that, on the day of the exam, you should show up well in advance, in case we will be ahead of schedule.

Exam questions

For the material we have covered so far, the following are the possible main questions.

1. Shortest paths in weighted graphs
2. The maximum (s, t)-flow problem and the minimum (s, t)-flow problem
3. Polynomial algorithms for maximum flows
4. Minimum cost flows
5. Matchings: characterizations and algorithms
6. The primal-dual algorithm for the transportation and the assignment problem
7. The RSA cryptosystem
8. Matroids and the greedy algorithm

9. Matroid intersection and partitioning
10. Scheduling: basic concepts and examples of proofs