Institut for Matematik & Datalogi
Syddansk Universitet

February 8, 2013
JBJ

Combinatorial Optimization II (DM209) — Ugeseddel 3

Extra hand out material in week 5 The paper Disjoint directed and undirected paths and cycles in digraphs , J. Bang-Jensen and M. Kriesell, Theoretical Computer Science 46-49 (2009), 5138-5144

Hand out material in week 6

- Chapter 4 (on Chordal graphs) of the book Algorithmic Graph Theory and Perfect Graphs, M.C. Golumbic, Academic Press 1980.
- Chapter 10 of Invitation to fixed parameter algorithms, R. Niedermeier, Oxford University Press.
- The paper Vertex disjoint directed and undirected cycles in general digraphs, J. Bang-Jensen, M. Kriesell, A. Maddaloni, S. Simonsen, submitted. You should only read Section 4.

Stuff covered in week 6: Schrijver 9.1-9.2, 9.5 and the notes by Goemans from the course page on the Okamura-Seymour theorem. We also discussed two different NP-completeness proofs, both of which used the elementary reduction of 3-SAT to the (s,t)-path avoiding vertices in specified vertex sets as a basic construction. These were

- the problem of deciding whether a digraph D has an out-branching B_s^+ such that $D - A(B_s^+)$ is connected (in the underlying sense).
- The problem of deciding whether a digraph contains a directed cycle B and an undirected cycle (that is, a cycle in the underlying undirected graph) C such that B and C are vertex disjoint.

Lectures in week 7: We decided to cancel these as Uffe is away. Instead you should read all of the handout chapter on Chordal graphs, except Section 4. We will talk about that on February 18.