

Exercises for Probabilistic Graphical Models

Sheet No.7

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Due Date: 17th February, 6pm

Submit to Evgeny via levinkov@mpi-inf.mpg.de or in the office (621).

1 Maximum *st*-Flow and Minimum *st*-Cut

You are asked to prove two Lemmas from lecture ‘Pseudo Boolean Optimization II’ that are central to proving the Max *st*-Flow/Min *st*-Cut Theorem. Formulations of the two lemmas as well as the corresponding notation can be found in lecture slides.

1.1 Prove Lemma 5.

Points: 13

1.2 Prove Lemma 7.

Points: 5

1.3 Lemma 7 - Discussion

Points: 2

Does Lemma 7 also hold for an *st*-preflow instead of an *st*-flow? Why?