

## Exercise Set 8

### Exercise 8.1:

Prove Kraft's inequality: Let  $S$  be a nonempty finite set,  $r \notin S$ , and  $h_s \in \mathbb{N}$  for  $s \in S$ . There exists a topology for root  $r$  and sinks  $S$  with  $|E(A_{[r,s]})| - 1 \leq h_s$  for all  $s \in S$  if and only if

$$\sum_{s \in S} 2^{-h_s} \leq 1.$$

(6 points)

### Exercise 8.2:

Show that a modified version of the DYNAMIC PROGRAMMING BUFFERING ALGORITHM can be used to find a buffering that minimizes the number of buffers among all solutions that maximize the worst slack.

(4 points)

**Deadline:** Thursday, June 18th, before the lecture.

The websites for lecture and exercises are linked at

<http://www.or.uni-bonn.de/lectures/ss15/ss15.html>

In case of any questions feel free to contact me at [ahrens@or.uni-bonn.de](mailto:ahrens@or.uni-bonn.de).