

## Theory of Network Communication

Fall 2004

### Assignment 10

**Problem 19** (10 points):

The task of this assignment is to implement a substantially simplified version of the Pagoda network. Forget about the deBruijn and the shortcut edges. Only the tree edges and column edges of the Pagoda network have to be maintained. In this case, the Pagoda network looks like a tree interrupted by lists in each level that get longer as one goes down the tree. Every node that enters the system has a positive integer value attached to it representing its bandwidth. Your goal is to make sure that the heap property is maintained at all times, i.e. nodes are inserted so that every node has a bandwidth that is at most the bandwidth of its parent. Use the active bandwidth approach in the lecture notes to realize that.

Implement a join and leave operation for this network that satisfies the requirements above. The join operation may be initiated at any node already in the network.