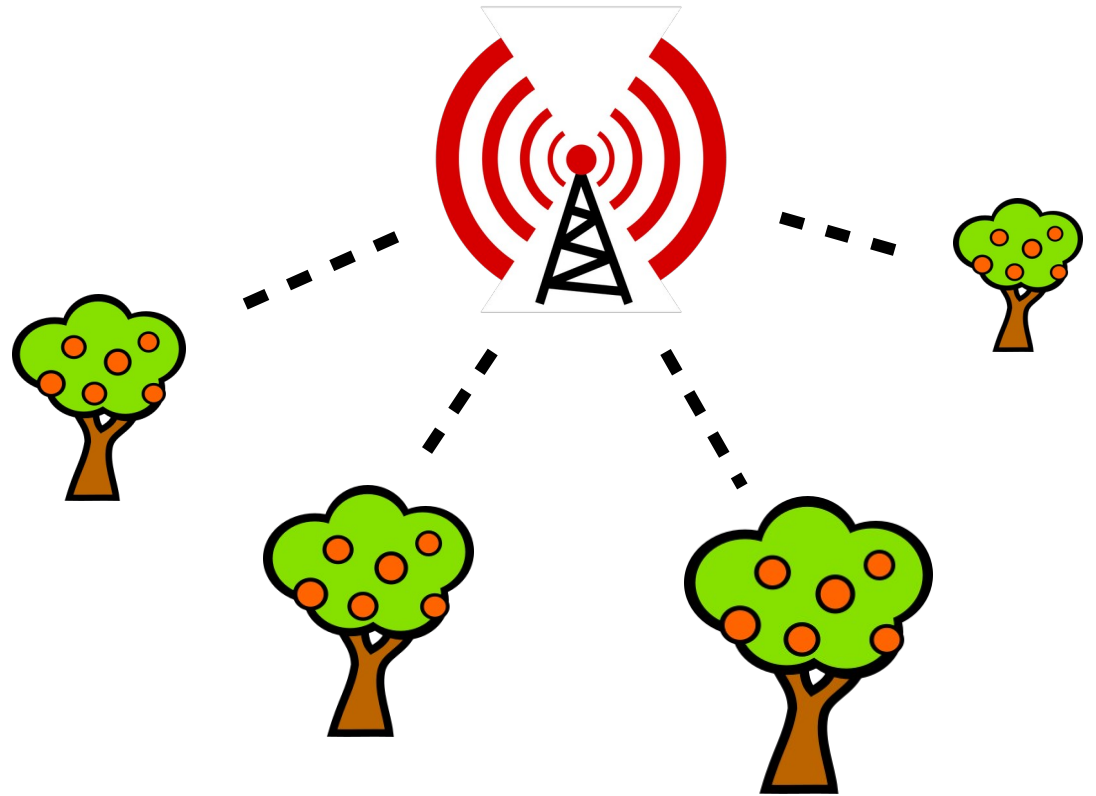


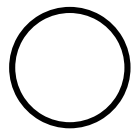
CS 470 Spring 2023

Mike Lam, Professor

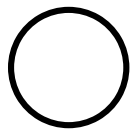


Broadcast Trees *(i.e., P3 hints)*

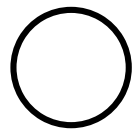
Broadcasting



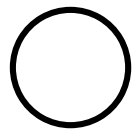
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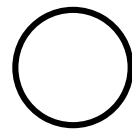
1



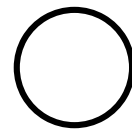
2



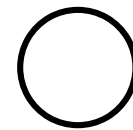
3



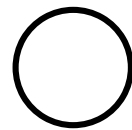
4



5

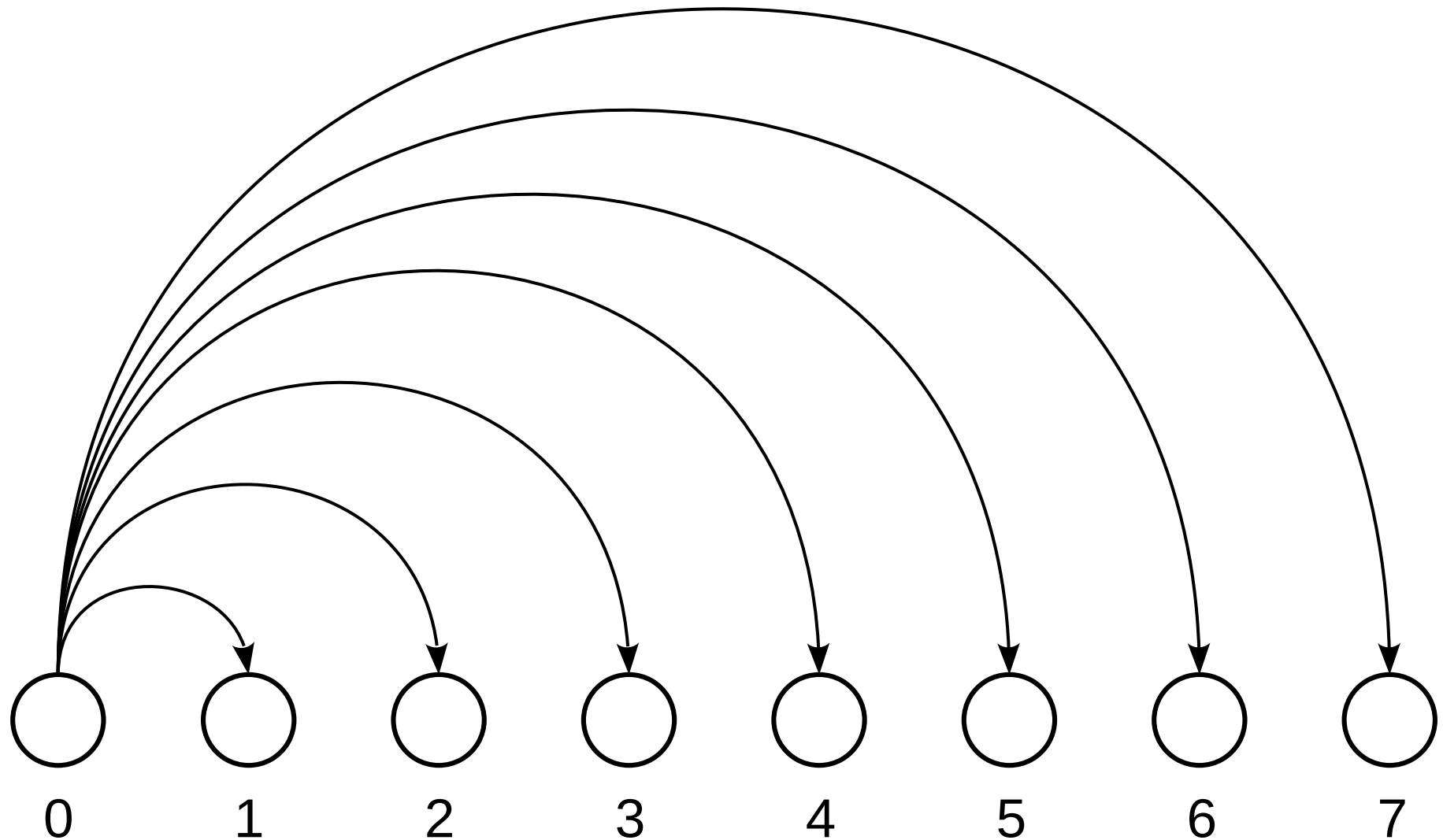


6

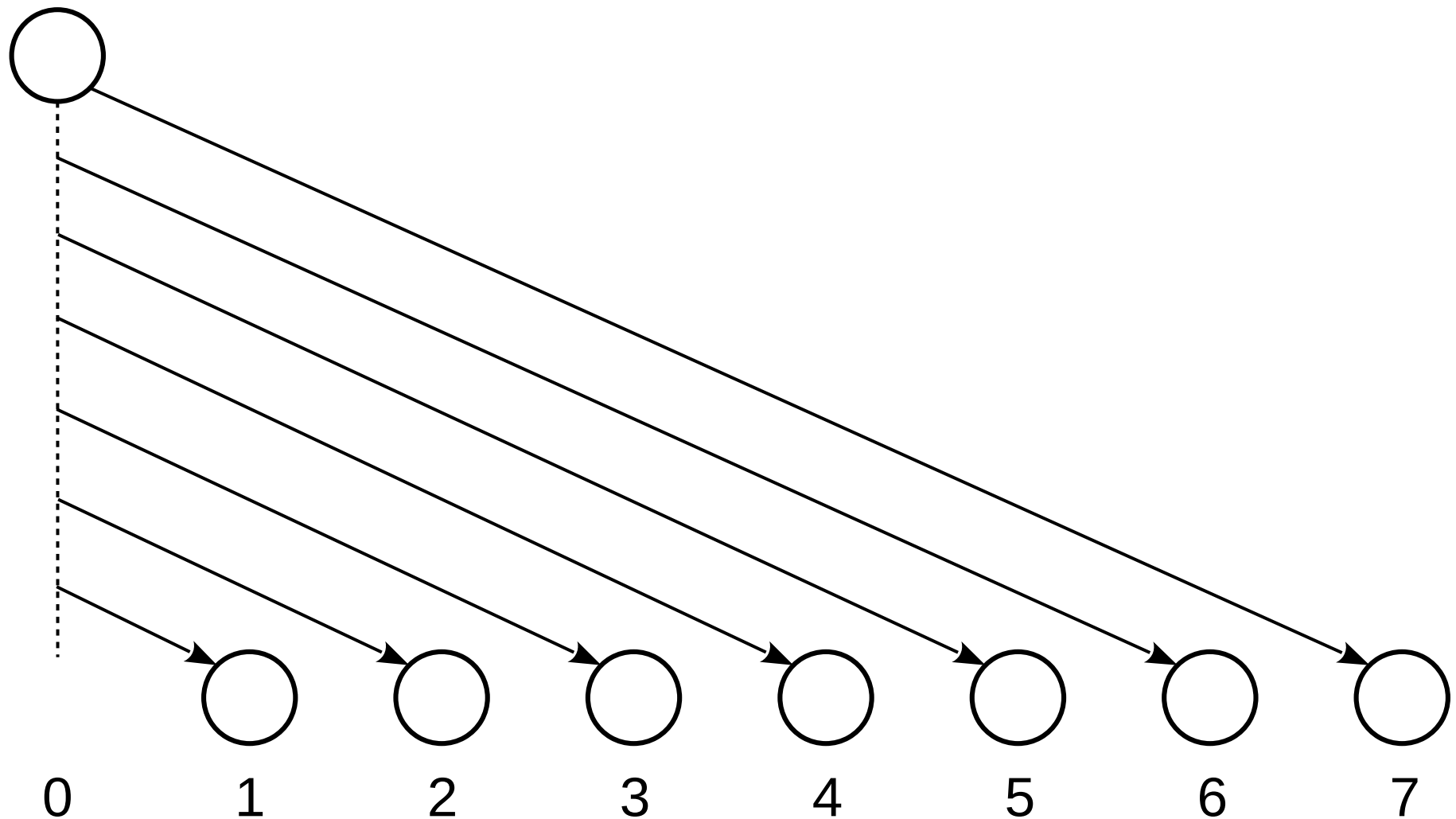


7

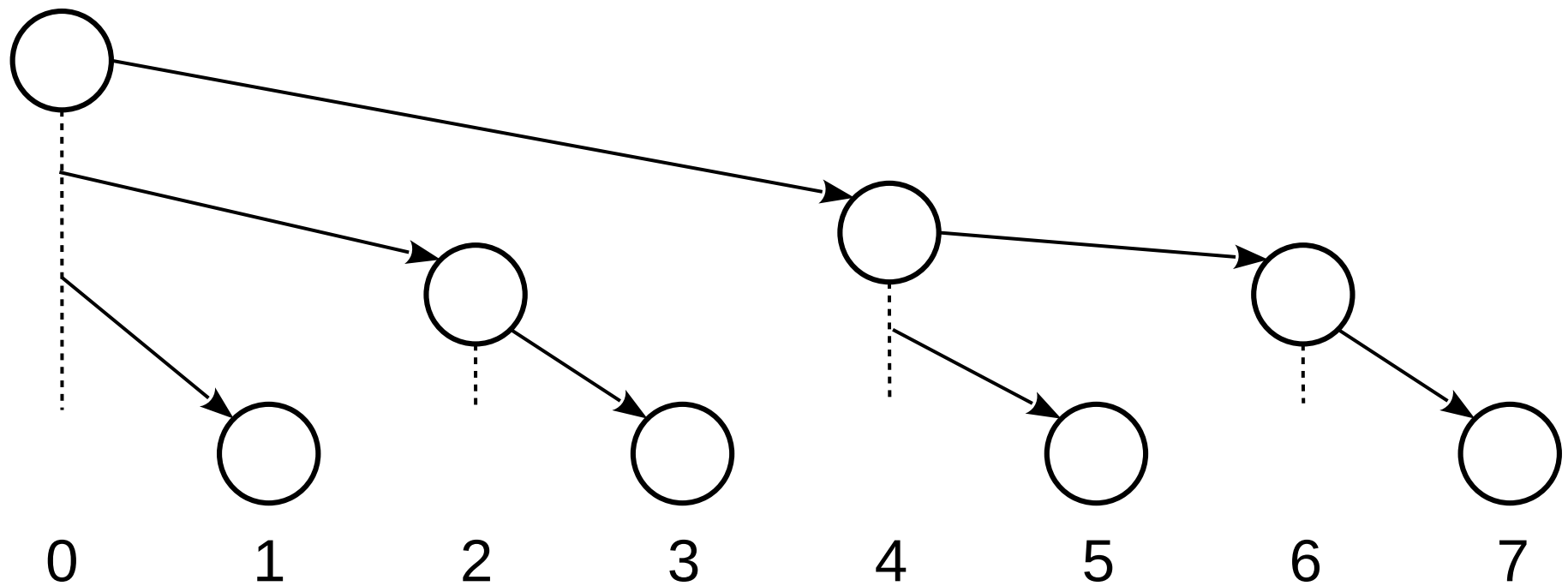
Broadcasting



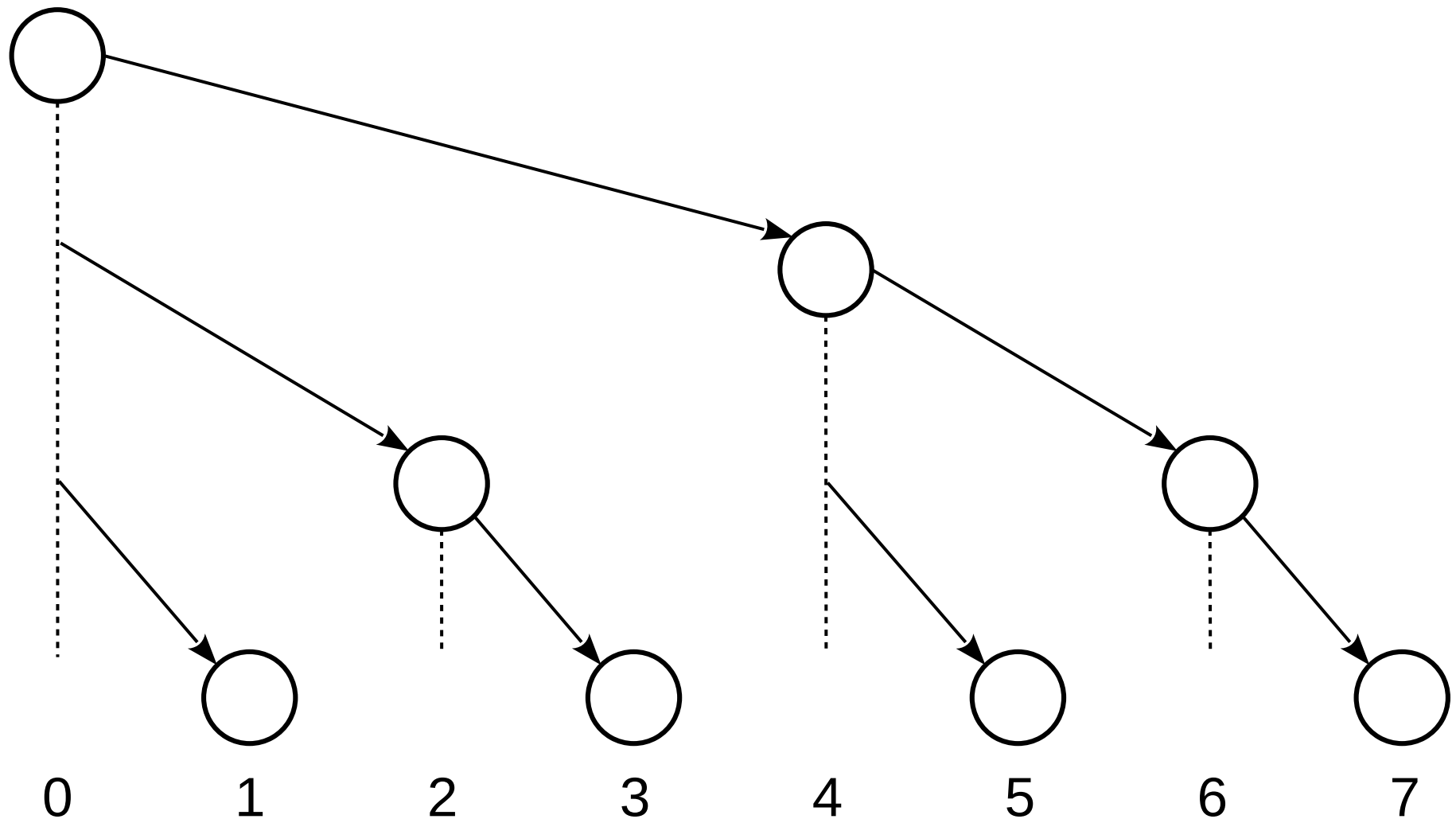
Broadcasting



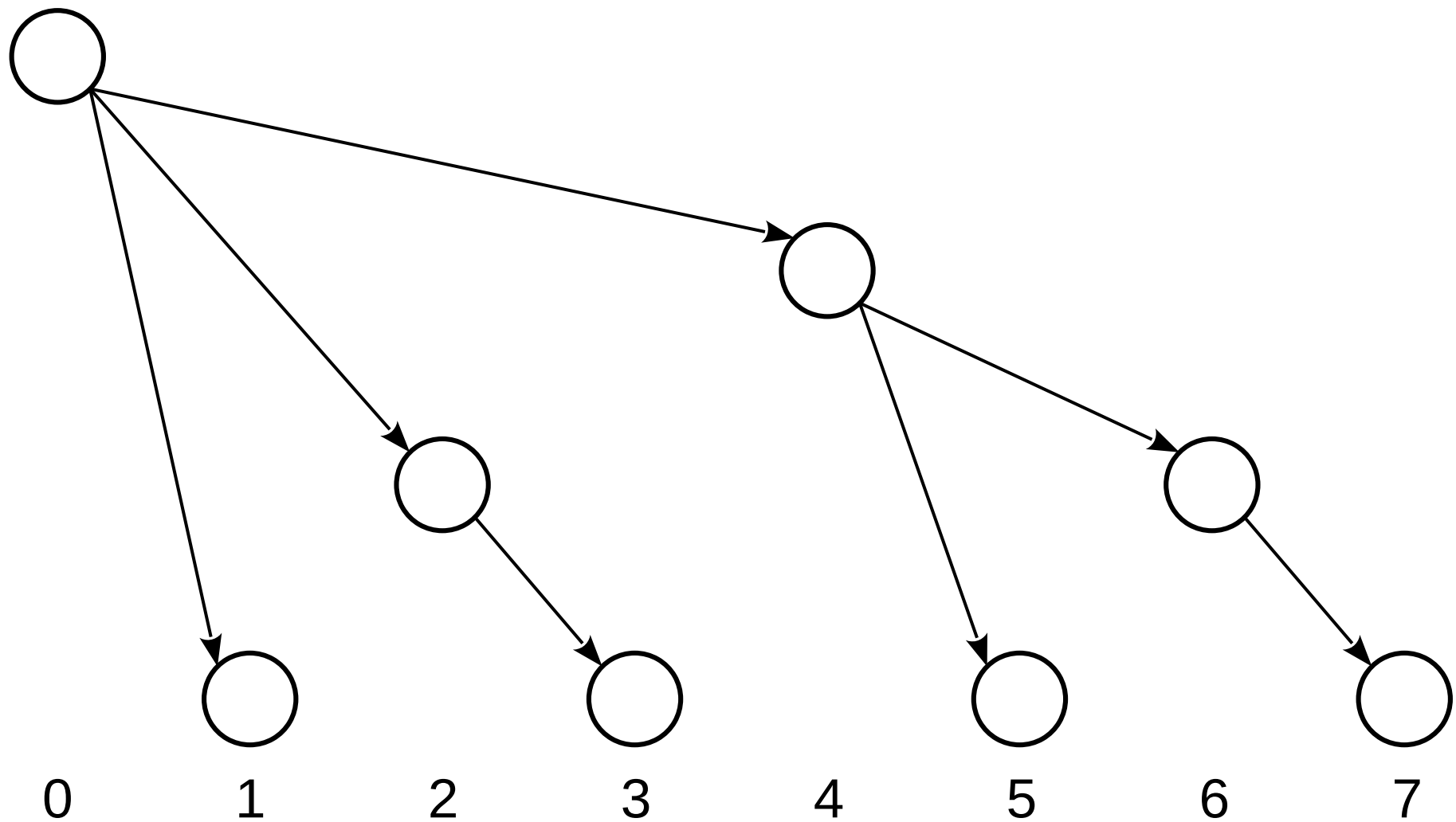
Broadcasting



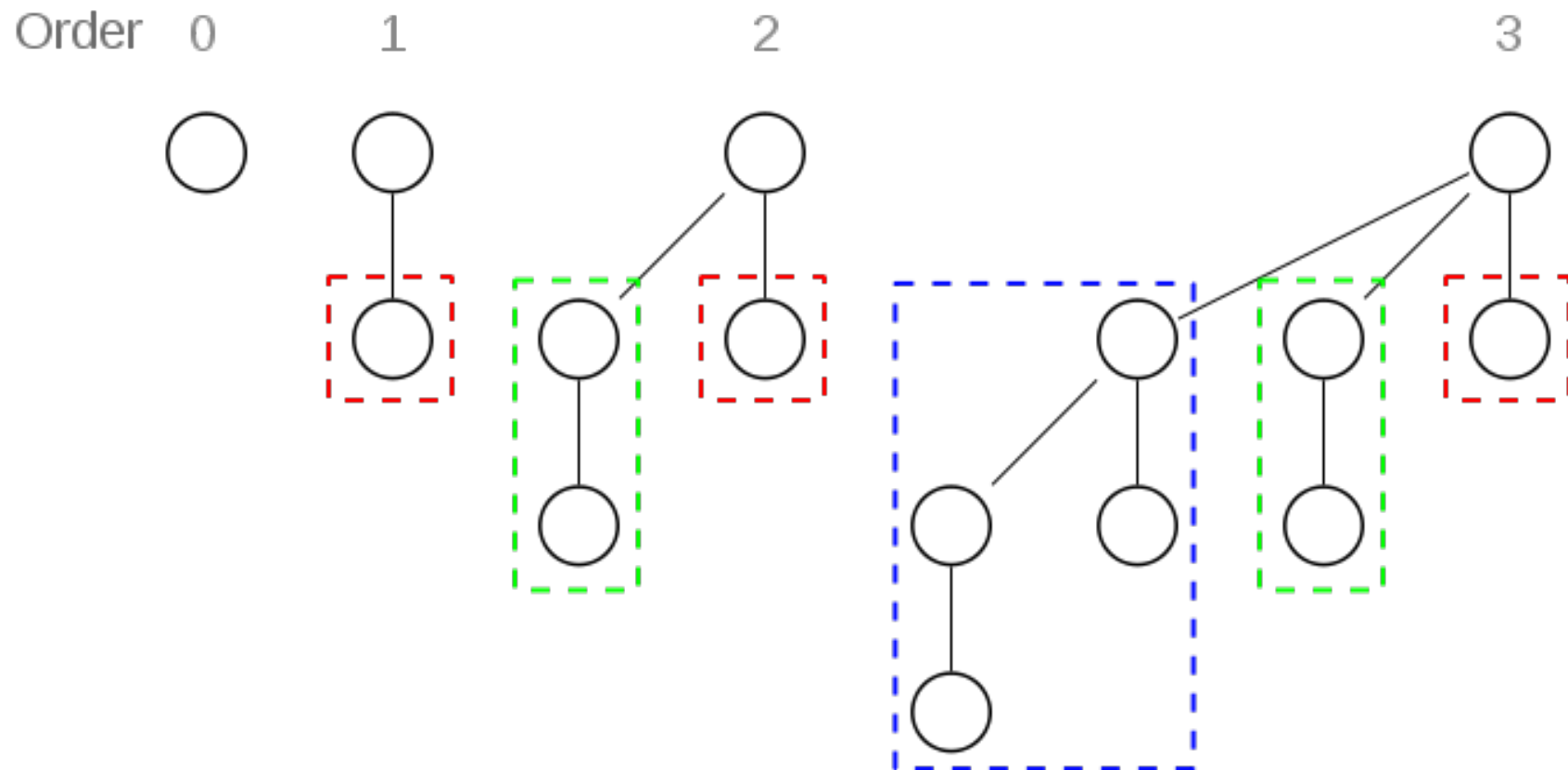
Broadcasting



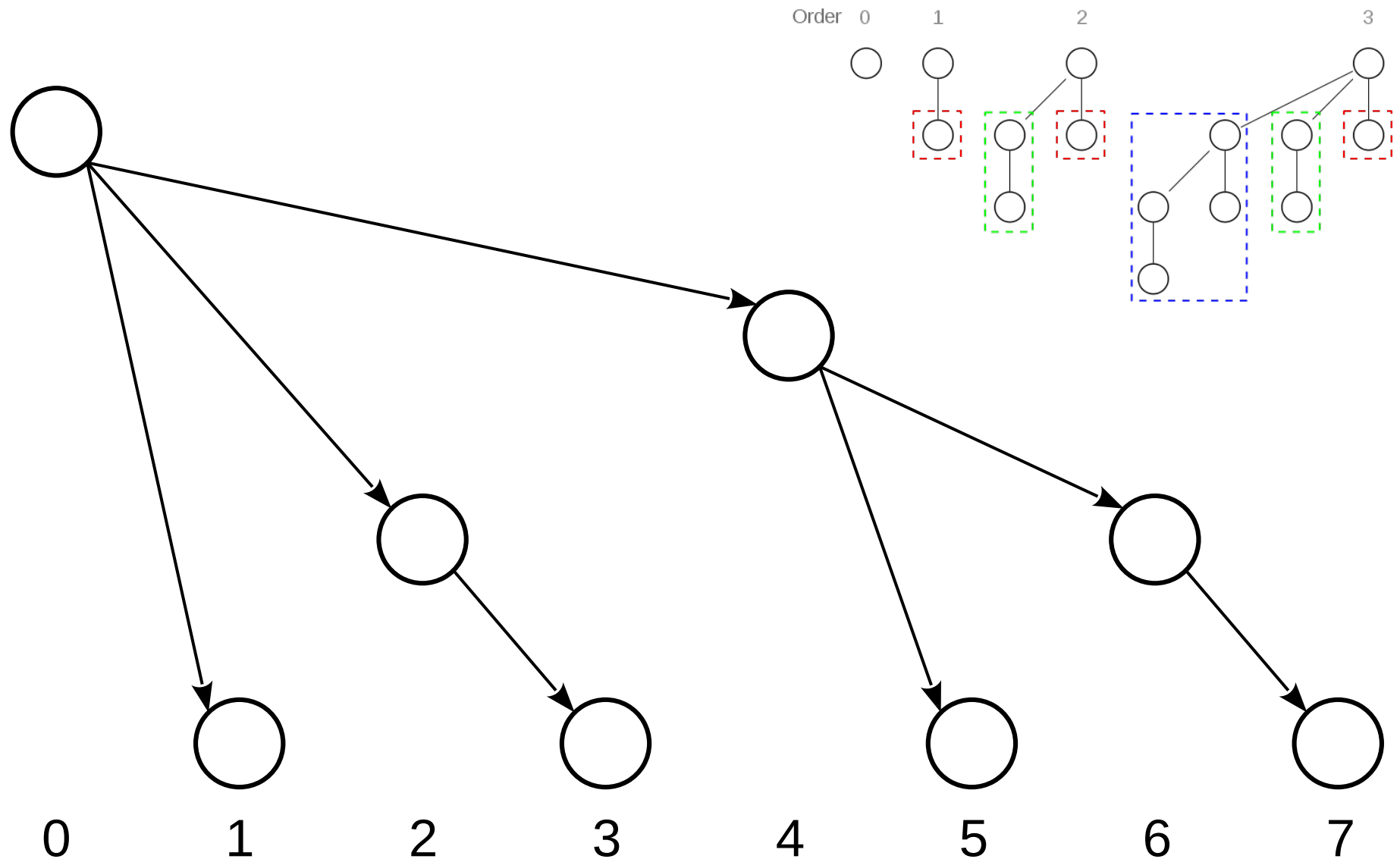
Broadcasting



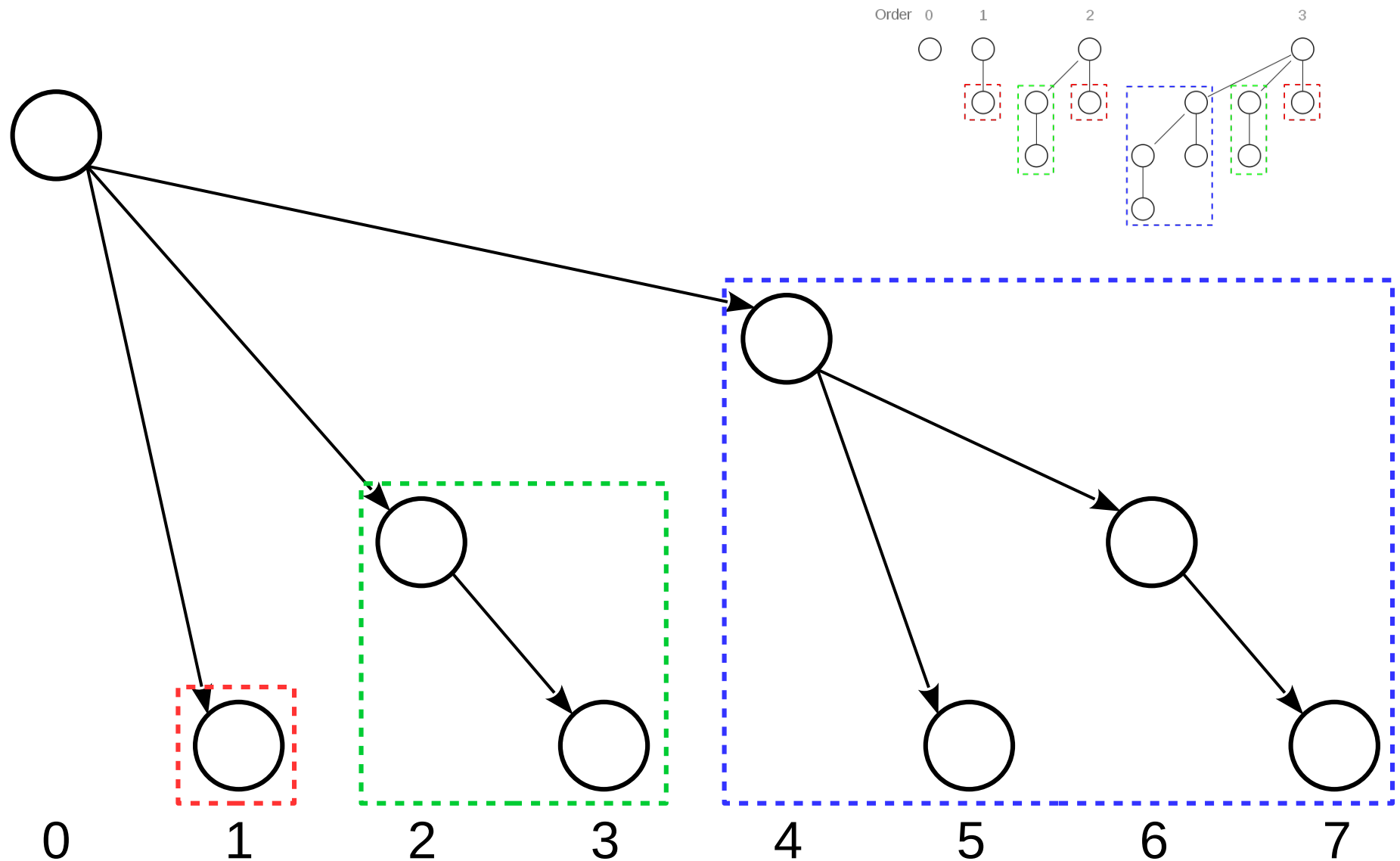
Aside: Binomial Trees



Binomial Trees

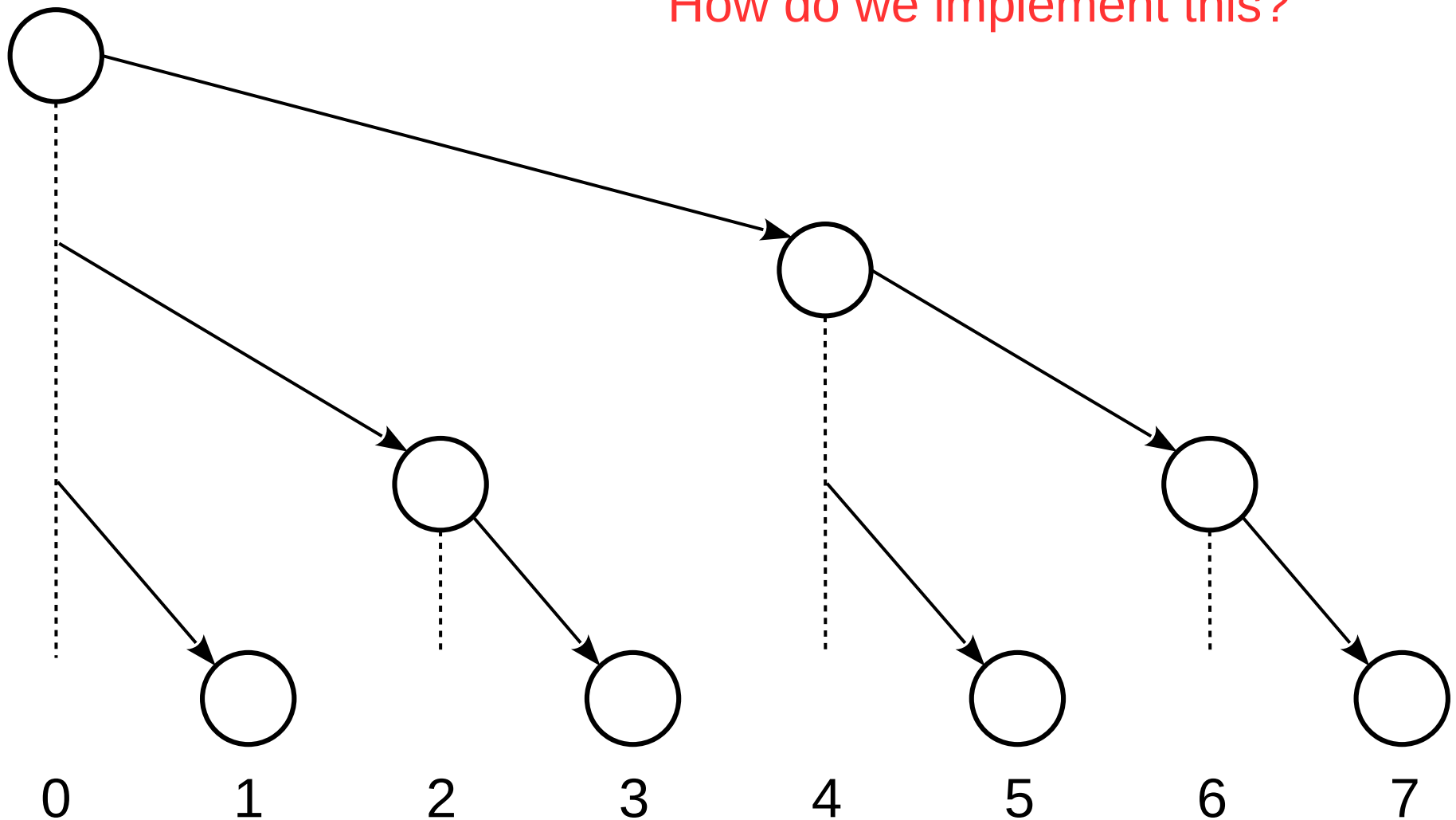


Binomial Trees

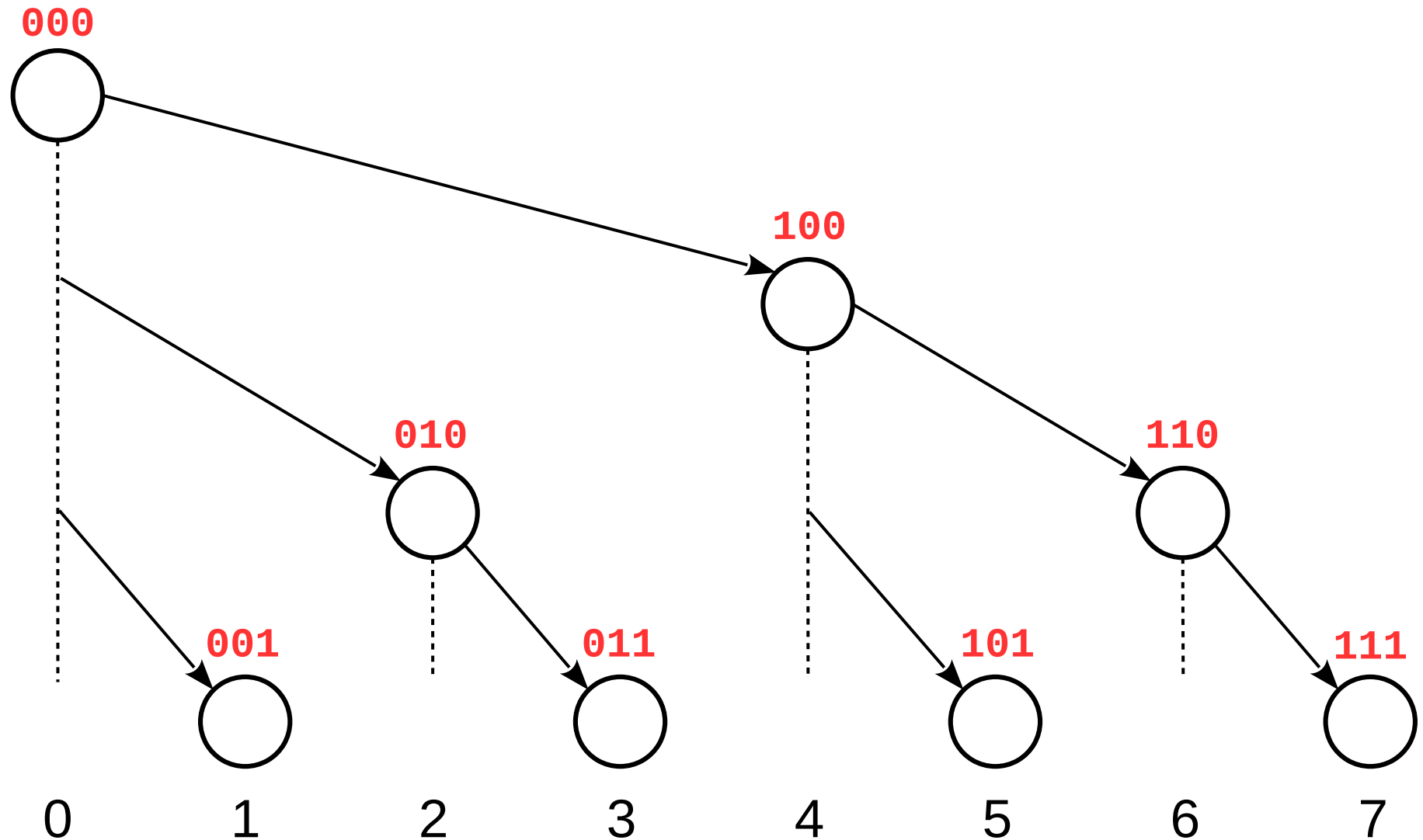


Broadcasting

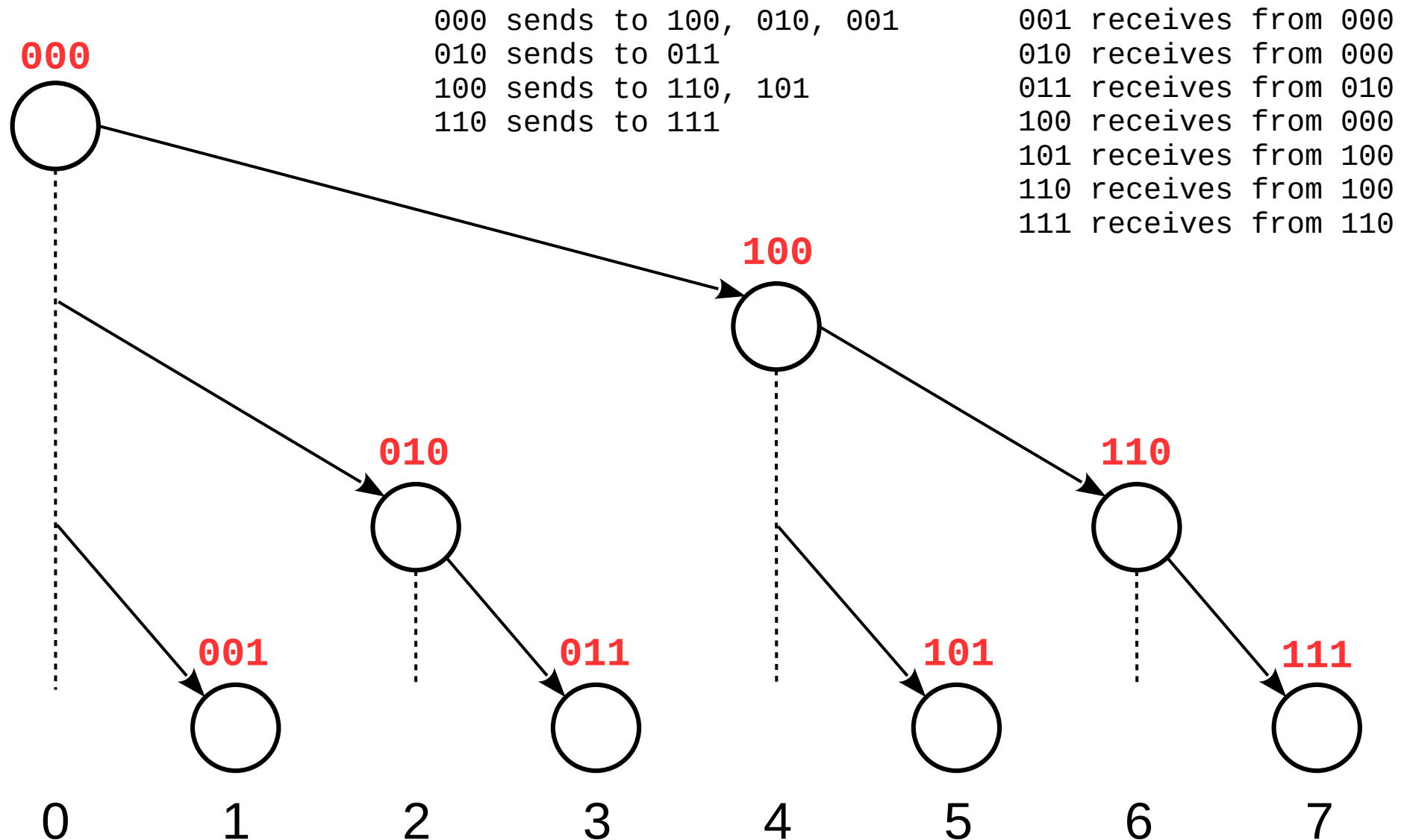
How do we implement this?



Broadcasting



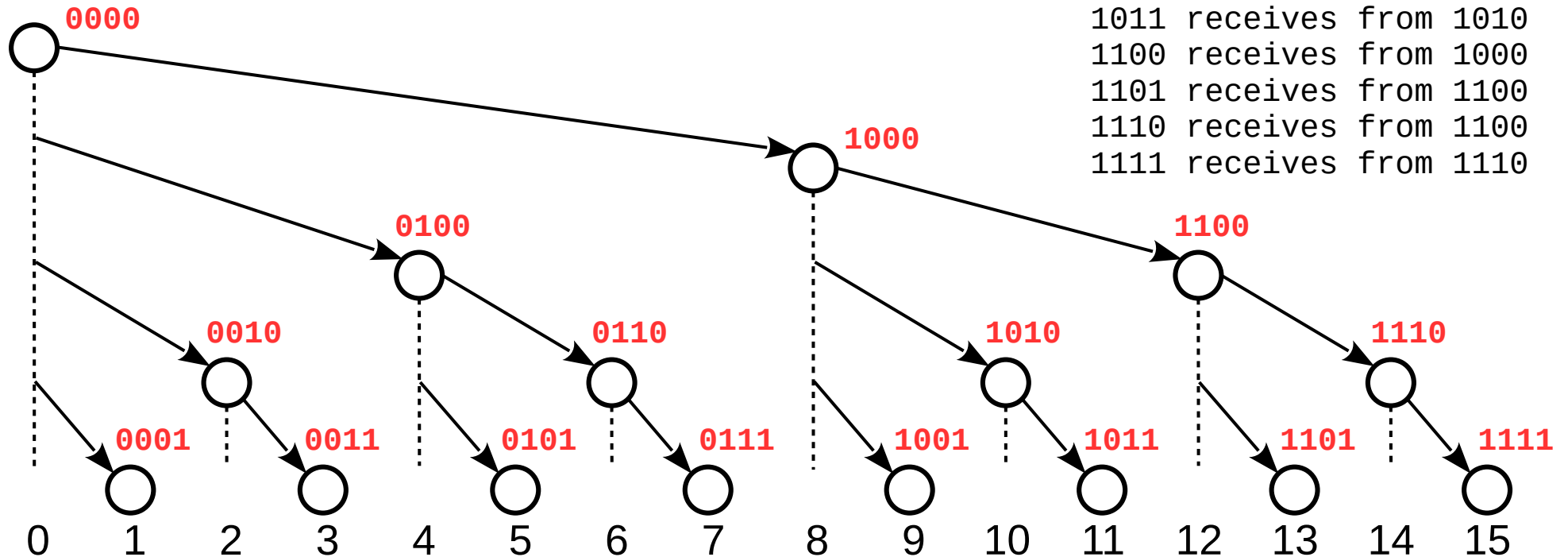
Broadcasting



Broadcasting

0000 sends to 1000, 0100, 0010, 0001
0010 sends to 0011
0100 sends to 0110, 0101
0110 sends to 0111
1000 sends to 1100, 1010, 1001
1010 sends to 1011
1100 sends to 1110, 1101
1110 sends to 1111

0001 receives from 0000
0010 receives from 0000
0011 receives from 0010
0100 receives from 0000
0101 receives from 0100
0110 receives from 0100
0111 receives from 0110
1000 receives from 0000
1001 receives from 1000
1010 receives from 1000
1011 receives from 1010
1100 receives from 1000
1101 receives from 1100
1110 receives from 1100
1111 receives from 1110



Tree-based broadcast activity

- Activity in `/shared/cs470/mpi-tree`
 - See comments in `tree.c` for instructions
- For P2, merge sort is reverse communication pattern
 - Sends become receives and vice versa
 - Get the communication pattern right first! (verify with debug output)

