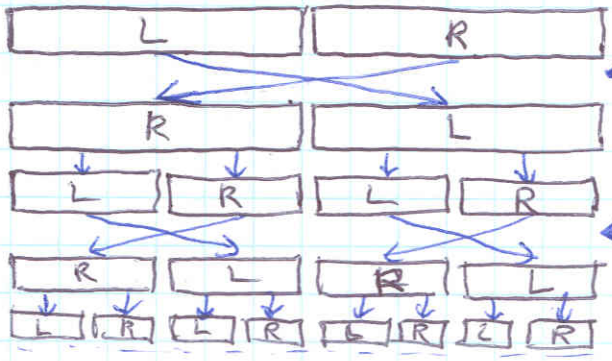
6.897
L13.5
Mar. 17, 2005

① Merging two sorted words of k elements in $O(\lg k)$

- reverse order of elements in second word in $O(\lg r)$ time
  - idea: $rev(LR) = rev(R)\ rev(L)$ (recurse in parallel)



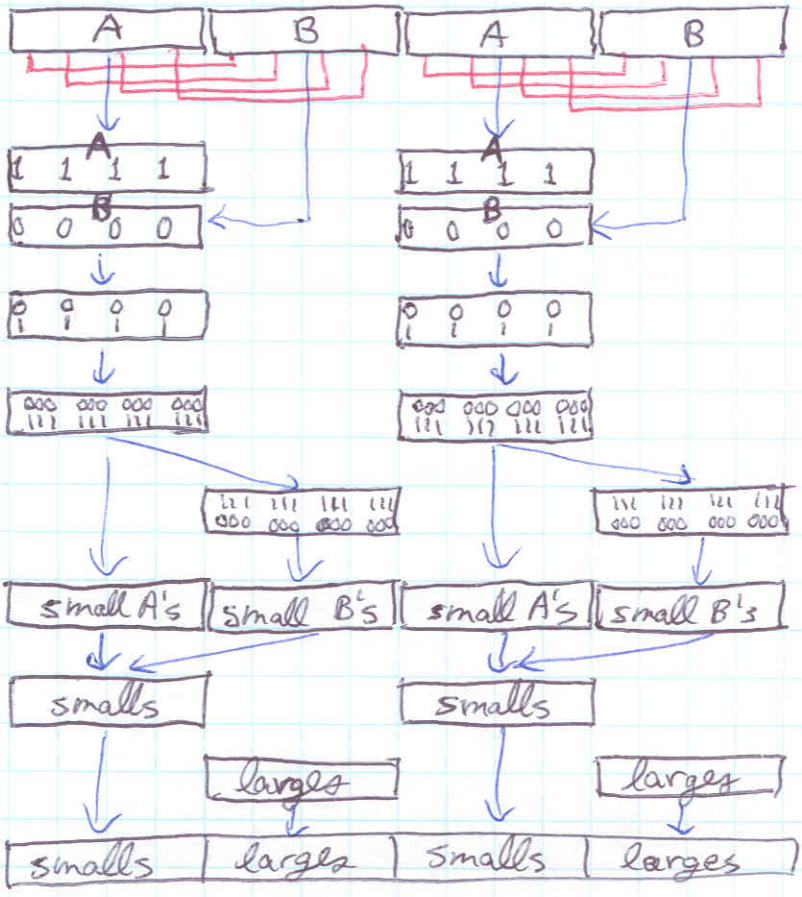
← (mask L, shift right k/2) OR (mask R, shift left k/2)

← ditto, but shift only k/4

etc.

- concatenate two words ⇒ bitonic
- run bitonic sort, each round in $O(1)$ time:

goal:



mask & set lead bits

mask & shift

subtract: 0 ⇒ B smaller, 1 ⇒ A smaller

convert to mask (shift right & subtract from self)

negate & shift right

mask (& OR)

shift & OR

similar

OR