

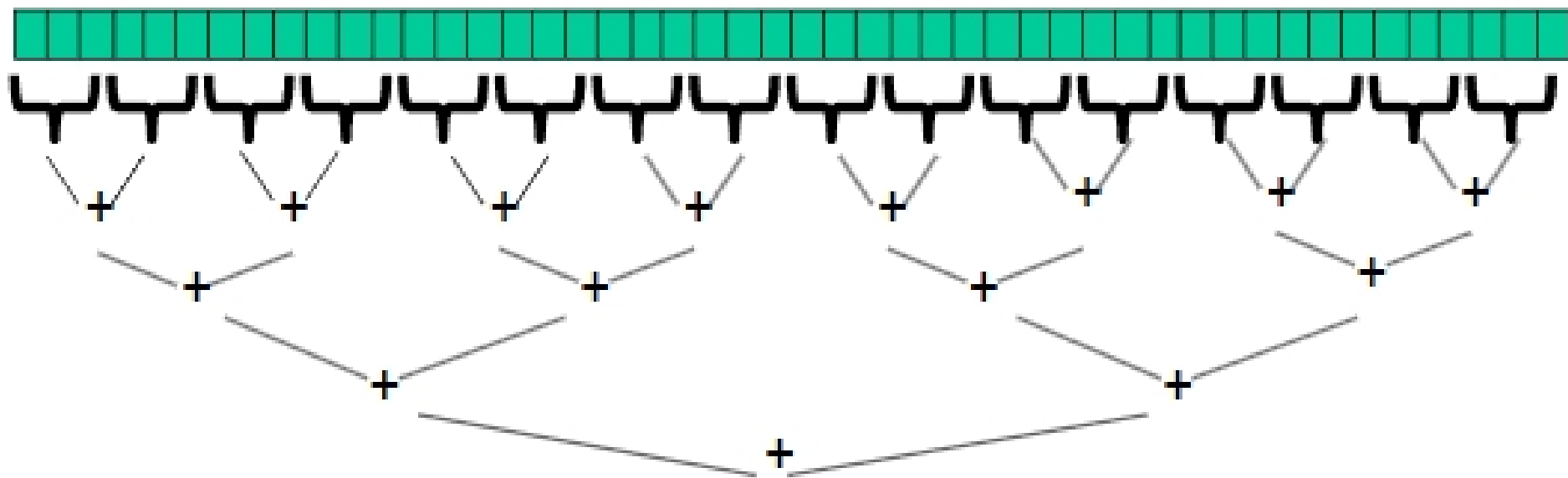
CSE 3302

Lecture 21: ForkJoin and X10
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Nate Nystrom
UTA

What else looks like this?

- Saw summing an array went from $O(n)$ sequential to $O(\log n)$ parallel (assuming a lot of processors and very large $n!$)
 - An exponential speed-up in theory



- Anything that can use results from two halves and merge them in $O(1)$ time has the same property...

Examples

- Maximum or minimum element
- Is there an element satisfying some property (e.g., is there a 17)?
- Left-most element satisfying some property (e.g., first 17)
 - What should the recursive tasks return?
 - How should we merge the results?
- Corners of a rectangle containing all points (a “bounding box”)
- Counts, for example, number of strings that start with a vowel
 - This is just summing with a different base case
 - Many problems are!