

The Parallelism and Concurrency Landscape

Where Does Erlang Fit?



The
Pragmatic
Programmers

Seven Concurrency Models in Seven Weeks

When Threads Unravel



Paul Butcher

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Parallelism > Multiple Cores

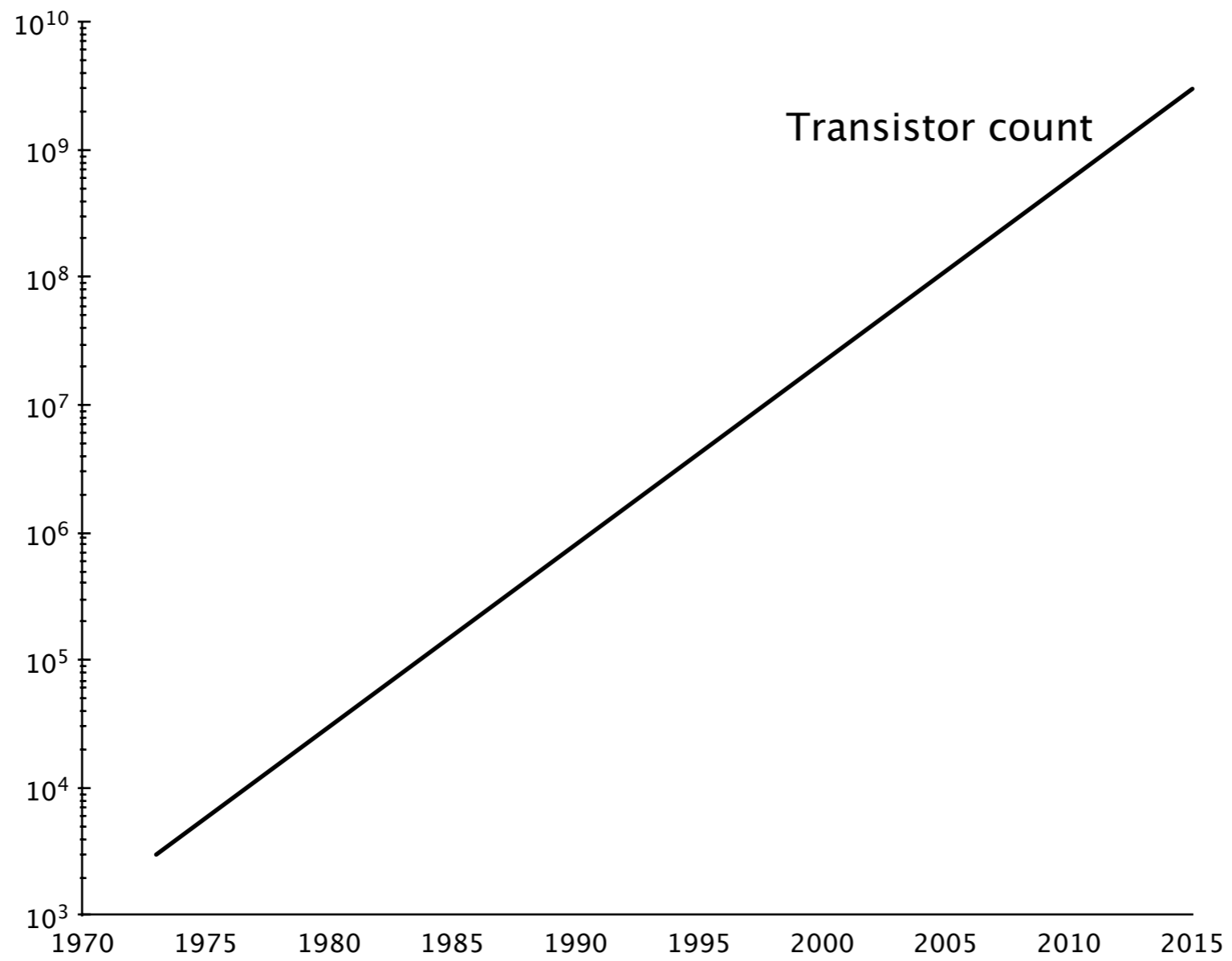


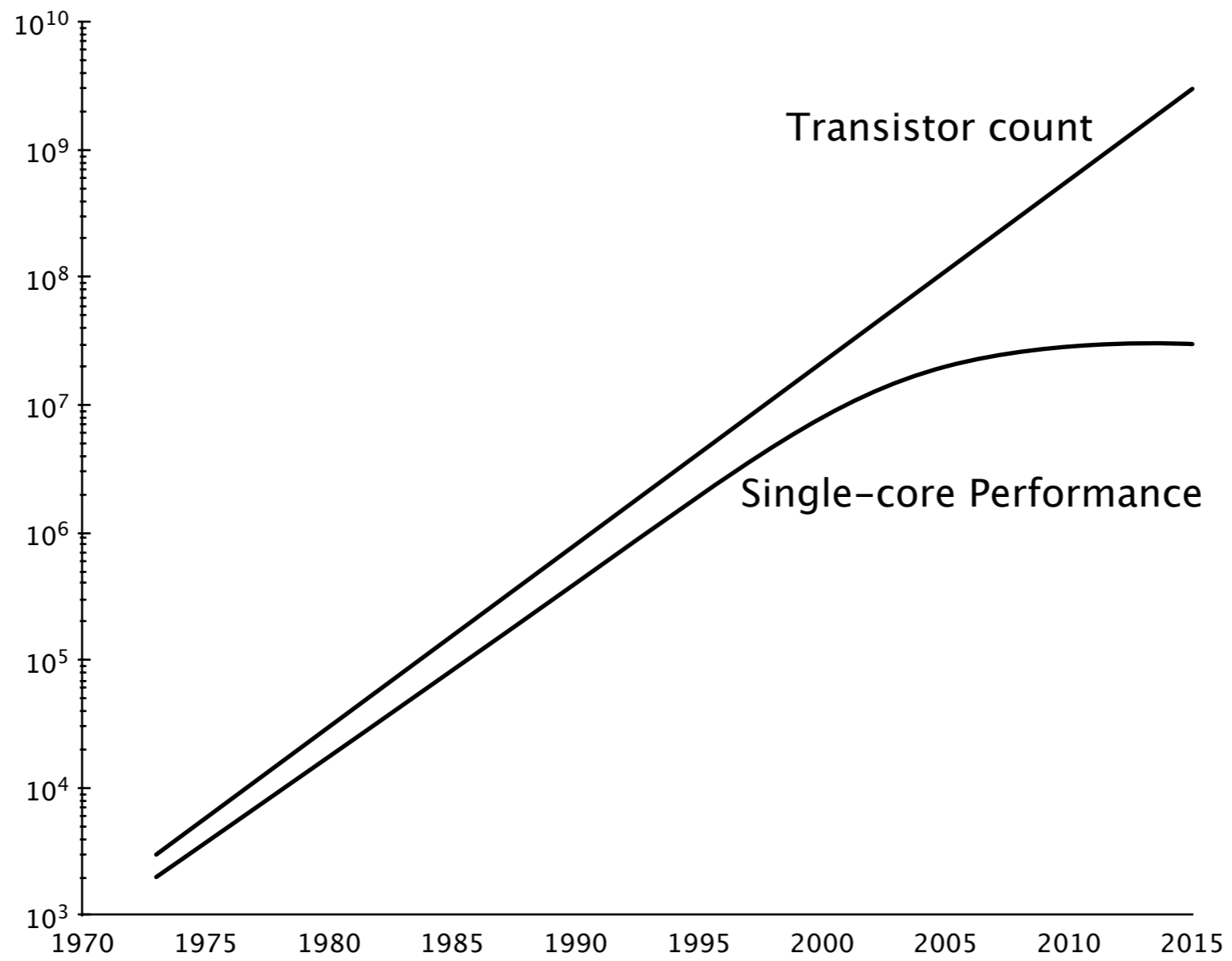
Parallel \neq Concurrent

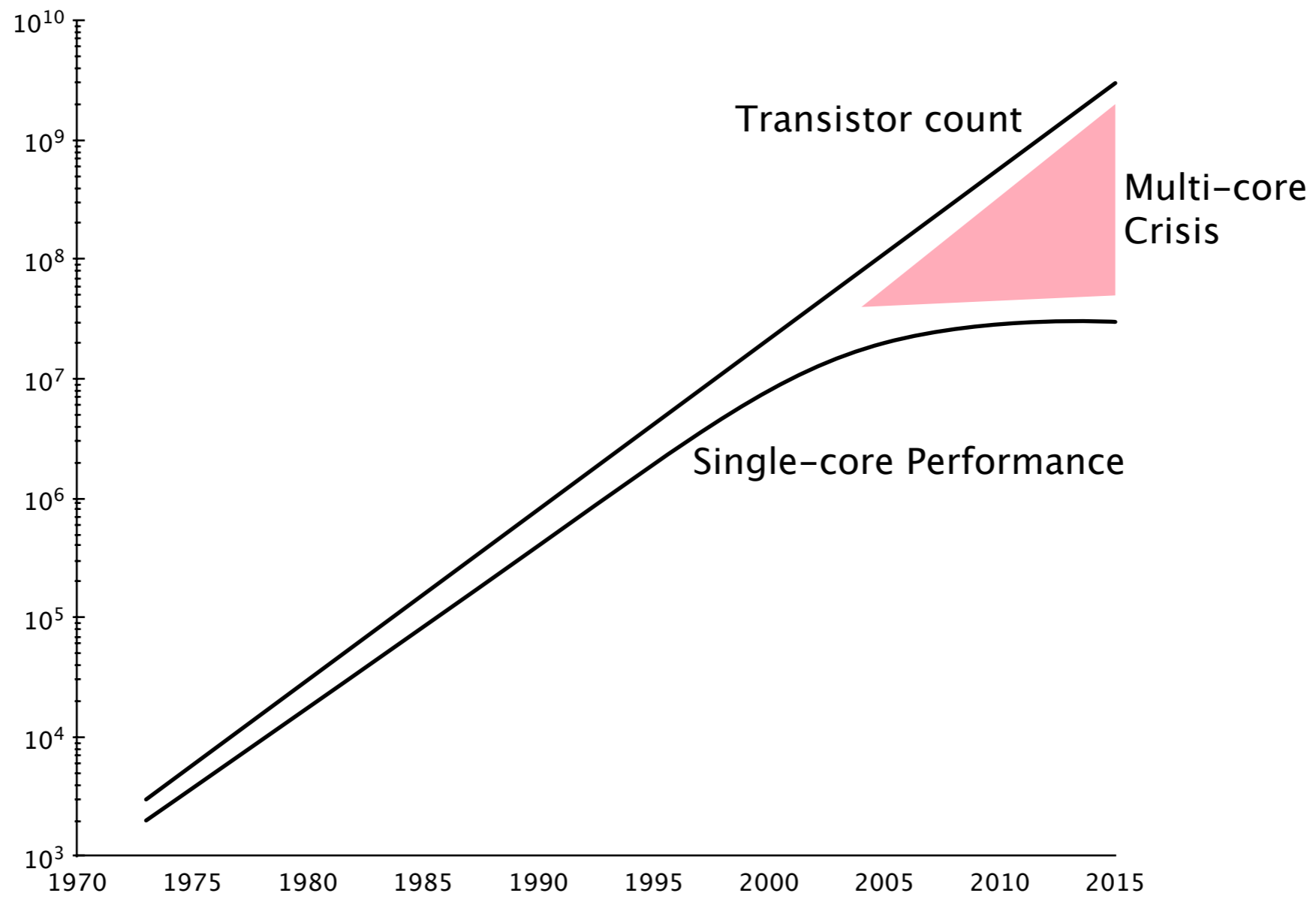


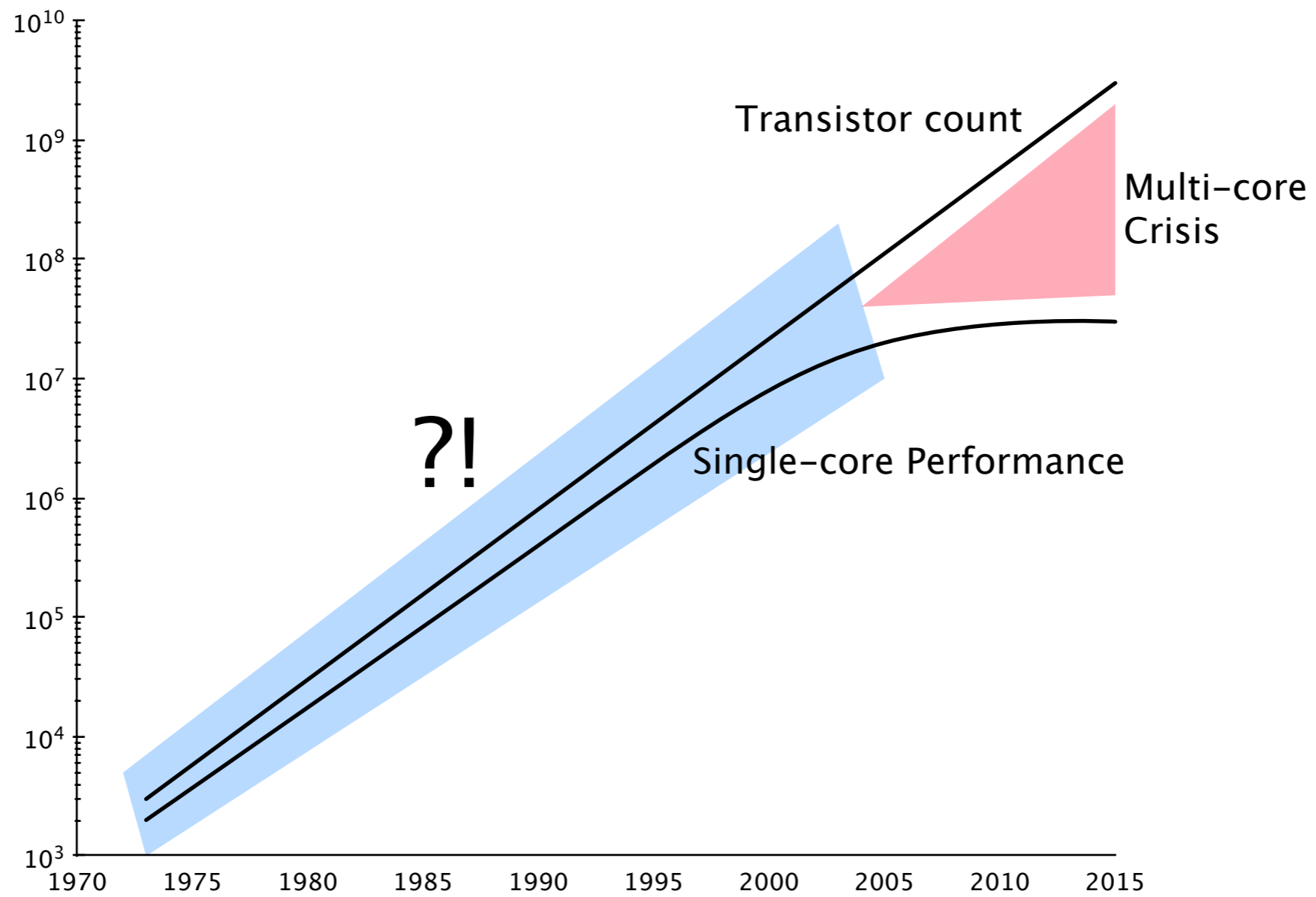
Concurrency > Actors





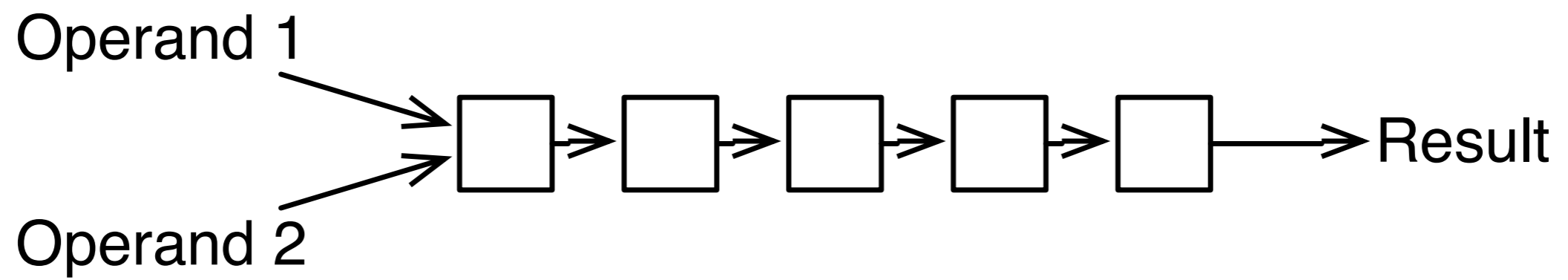


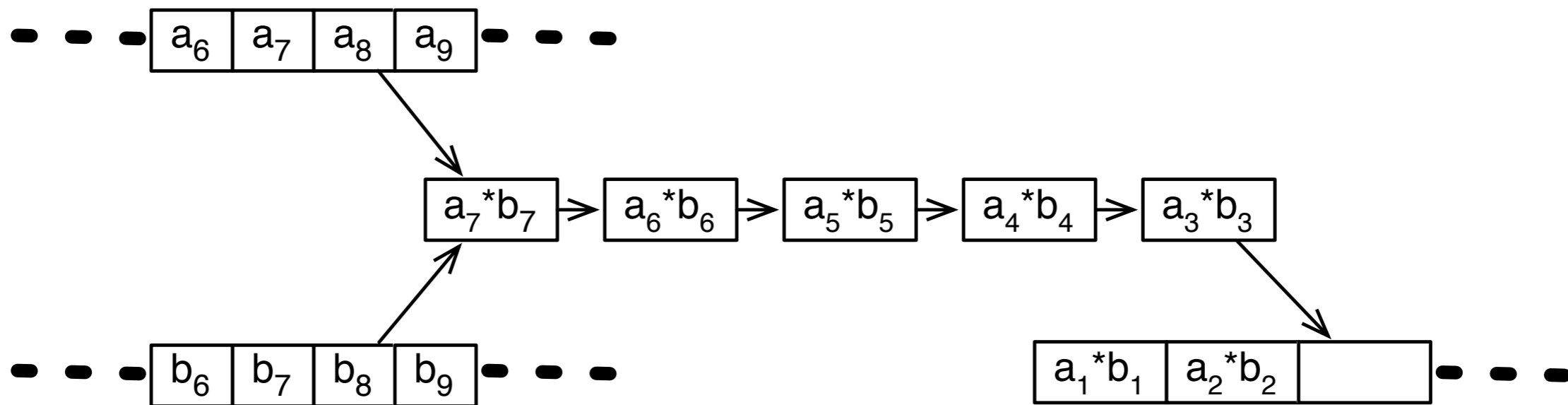


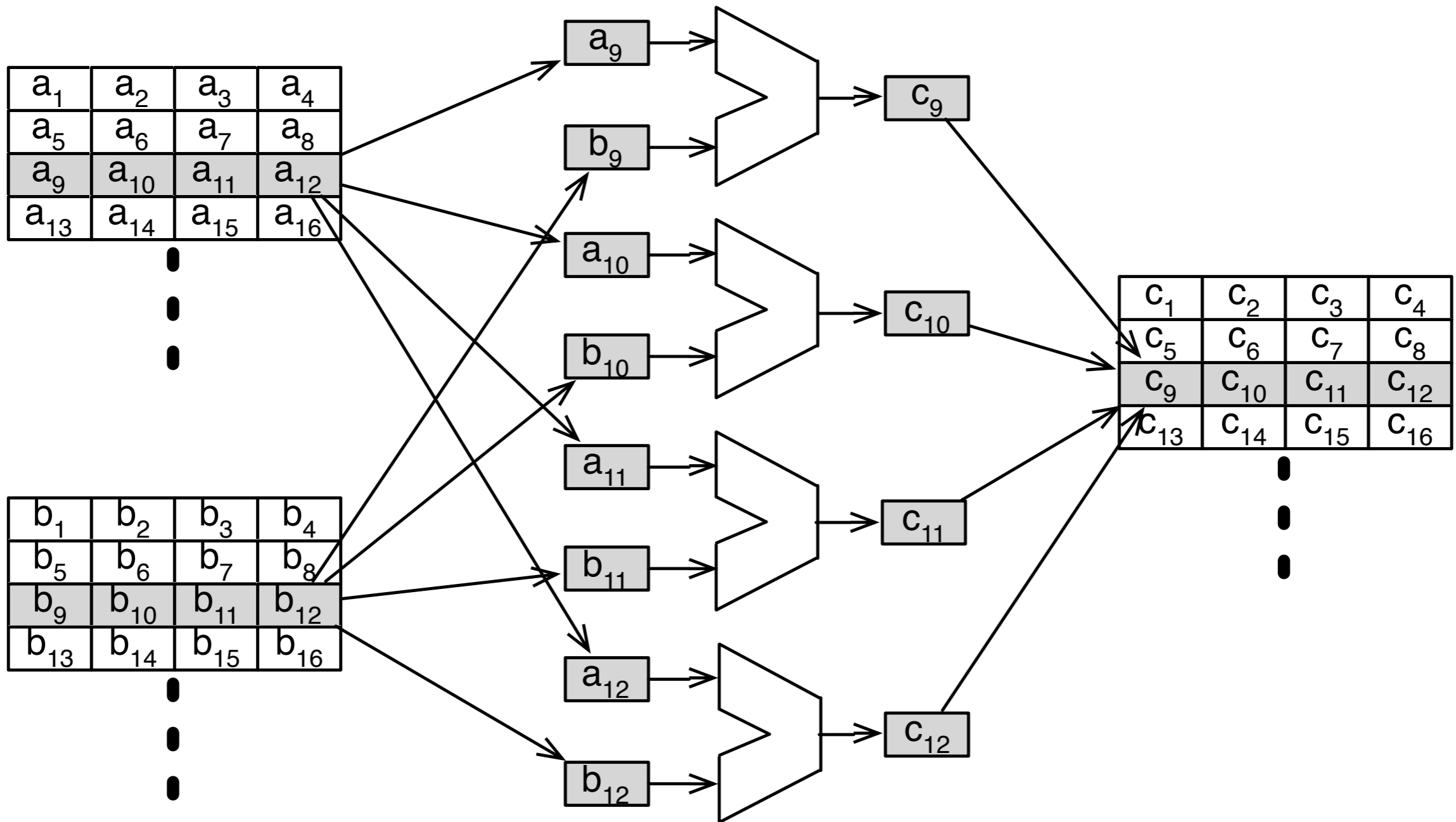


- Increasing clock speed
- Bit-level parallelism
- Instruction-level parallelism





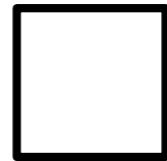
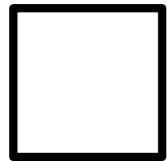
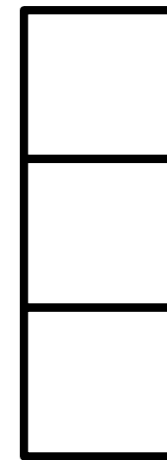
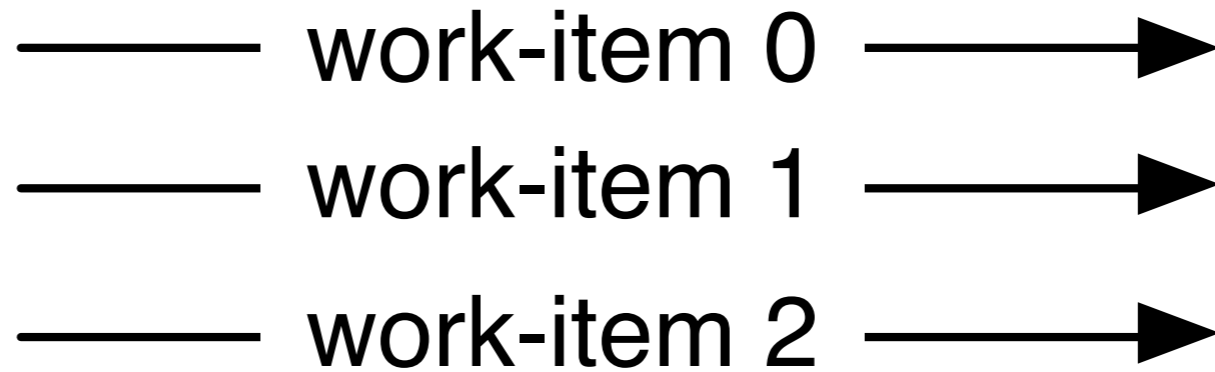
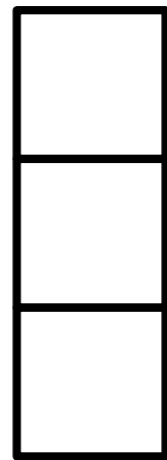
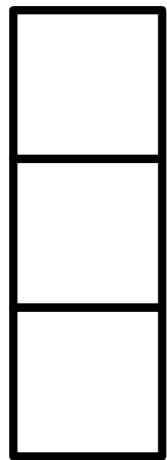


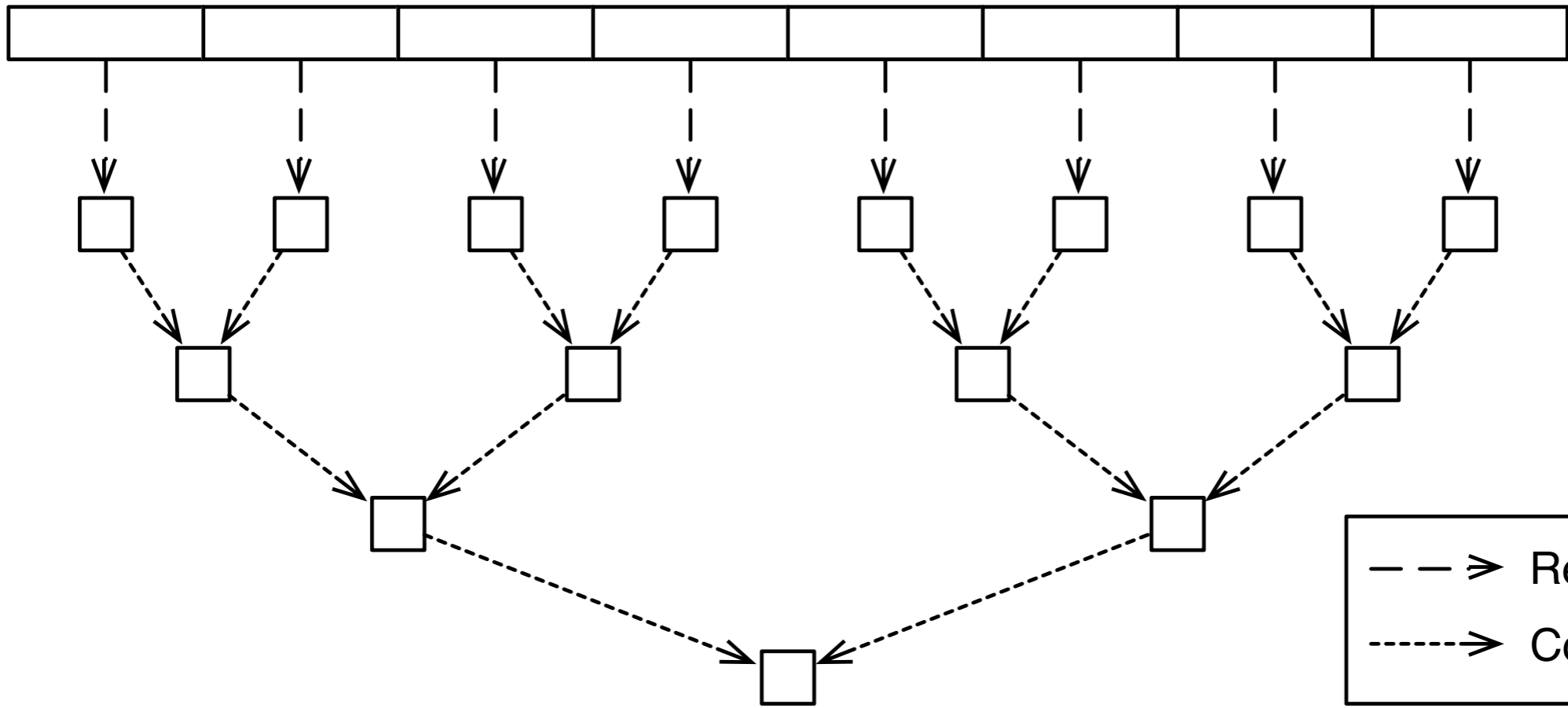


inputA

inputB

output





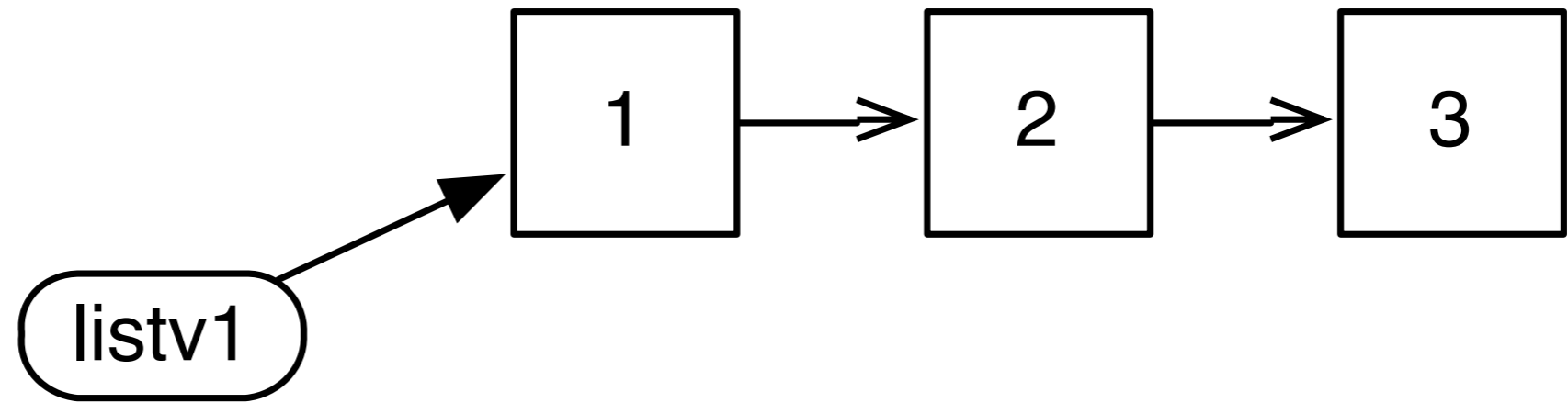
---> Reduce
-----> Combine

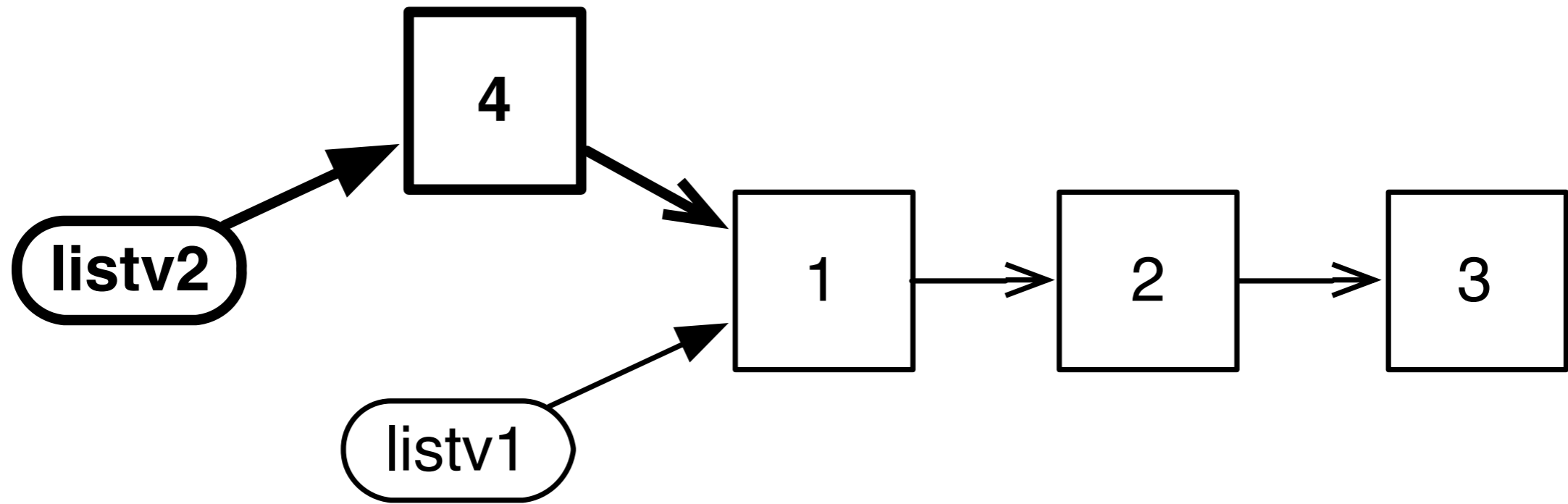
“Concurrency is about dealing with lots of things at once.
Parallelism is about doing lots of things at once.”

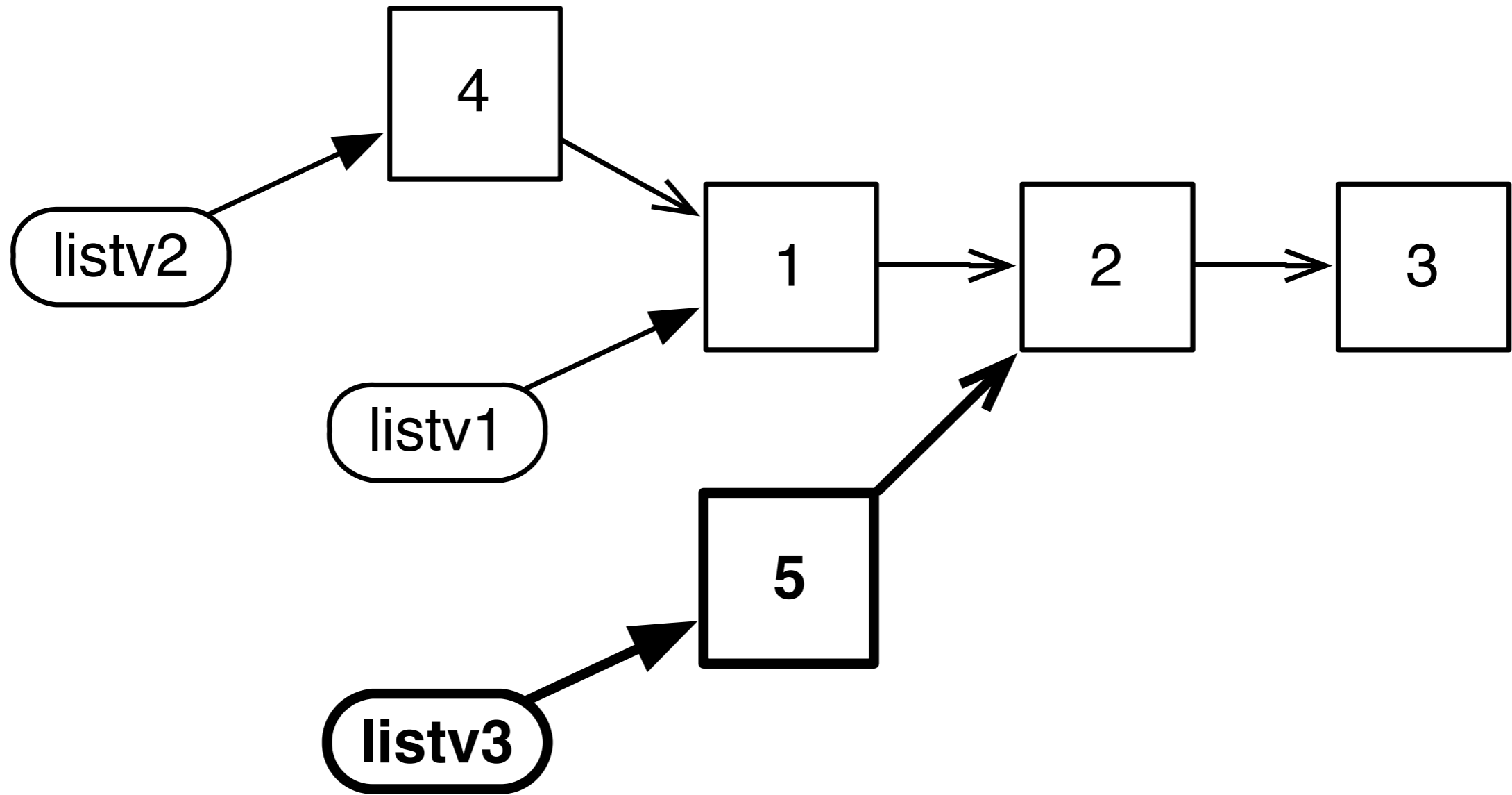
–Rob Pike

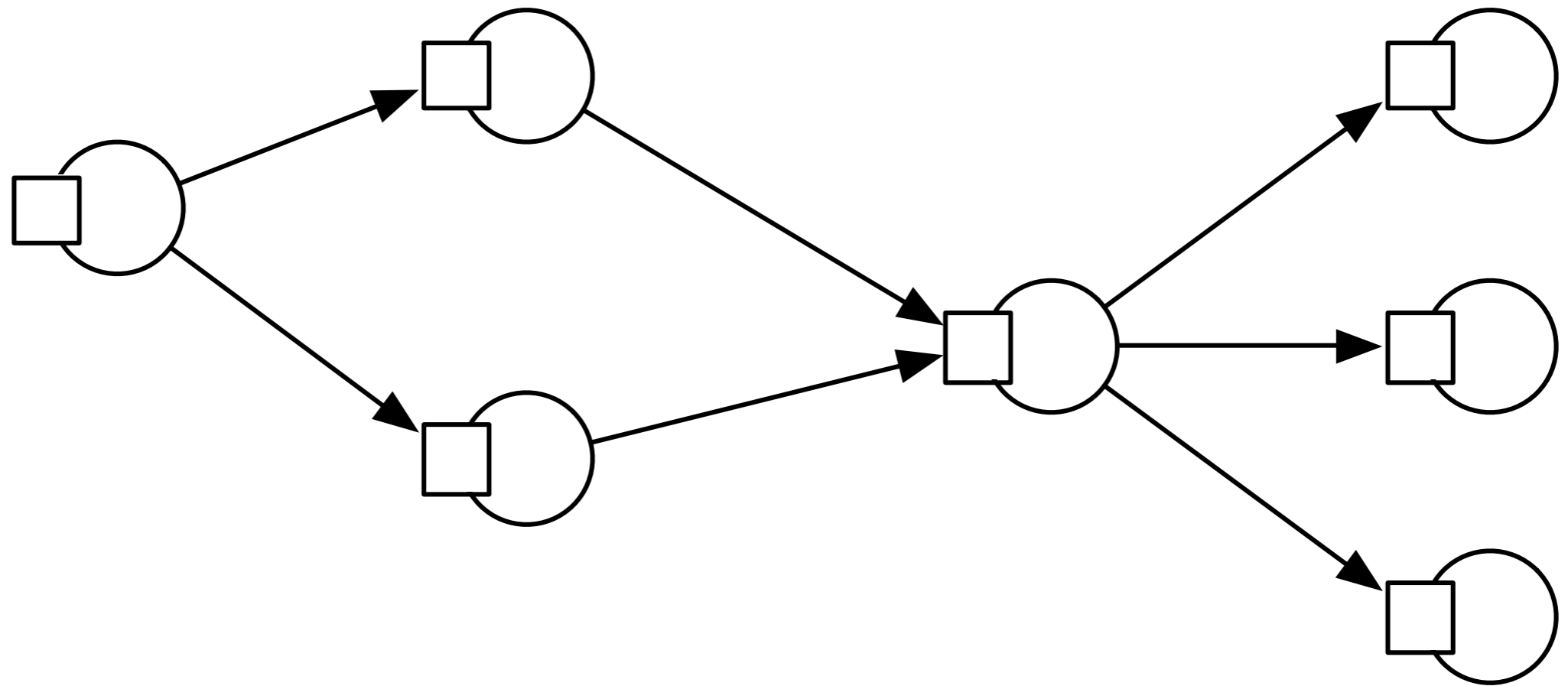
<http://concur.rspace.googlecode.com/hg/talk/concur.html>

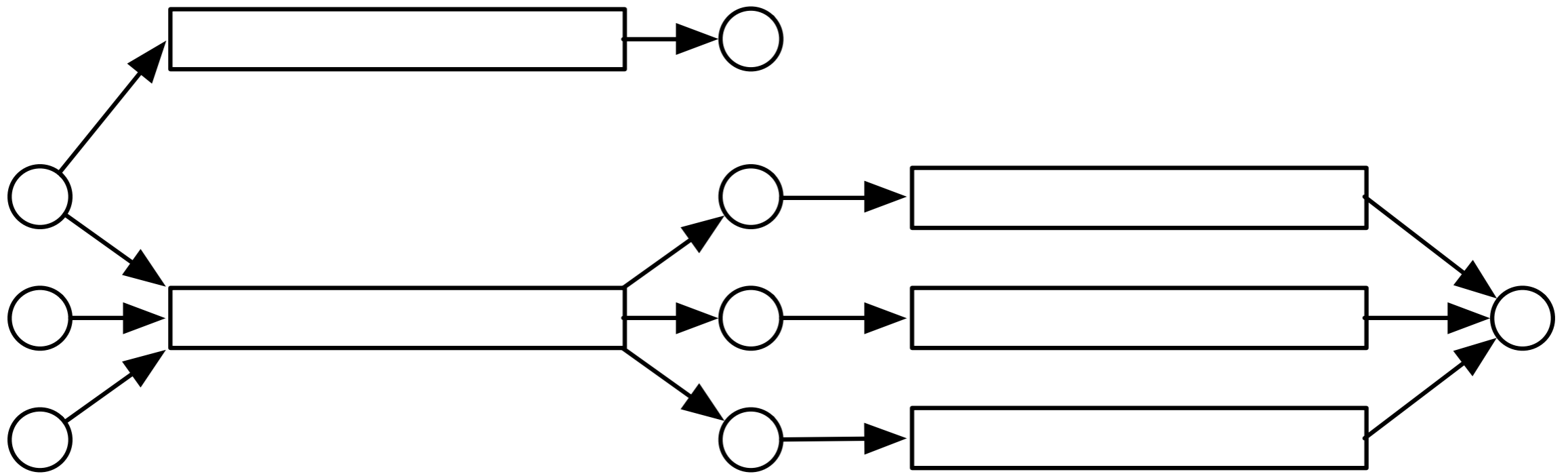












2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
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(remove< (factor? **2** ...) ...)

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
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(remove< (factor? **3** ...) ...)

3	5	7	9	11	13	15	17	19	21	23	25
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(remove< (factor? **5** ...) ...)

5	7	11	13	17	19	23	25
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