

Street magic with functions



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Computability

“Imperative”

- Turing machine
- random access machine
- finite state machine
- pushdown automaton

“Functional”

- lambda calculus
- combinatory logic
- mu-recursive functions
- Markov algorithm

Functional programming

- First-class and higher-order functions
- Referential transparency
- Immutable data
- No state
- No side effects

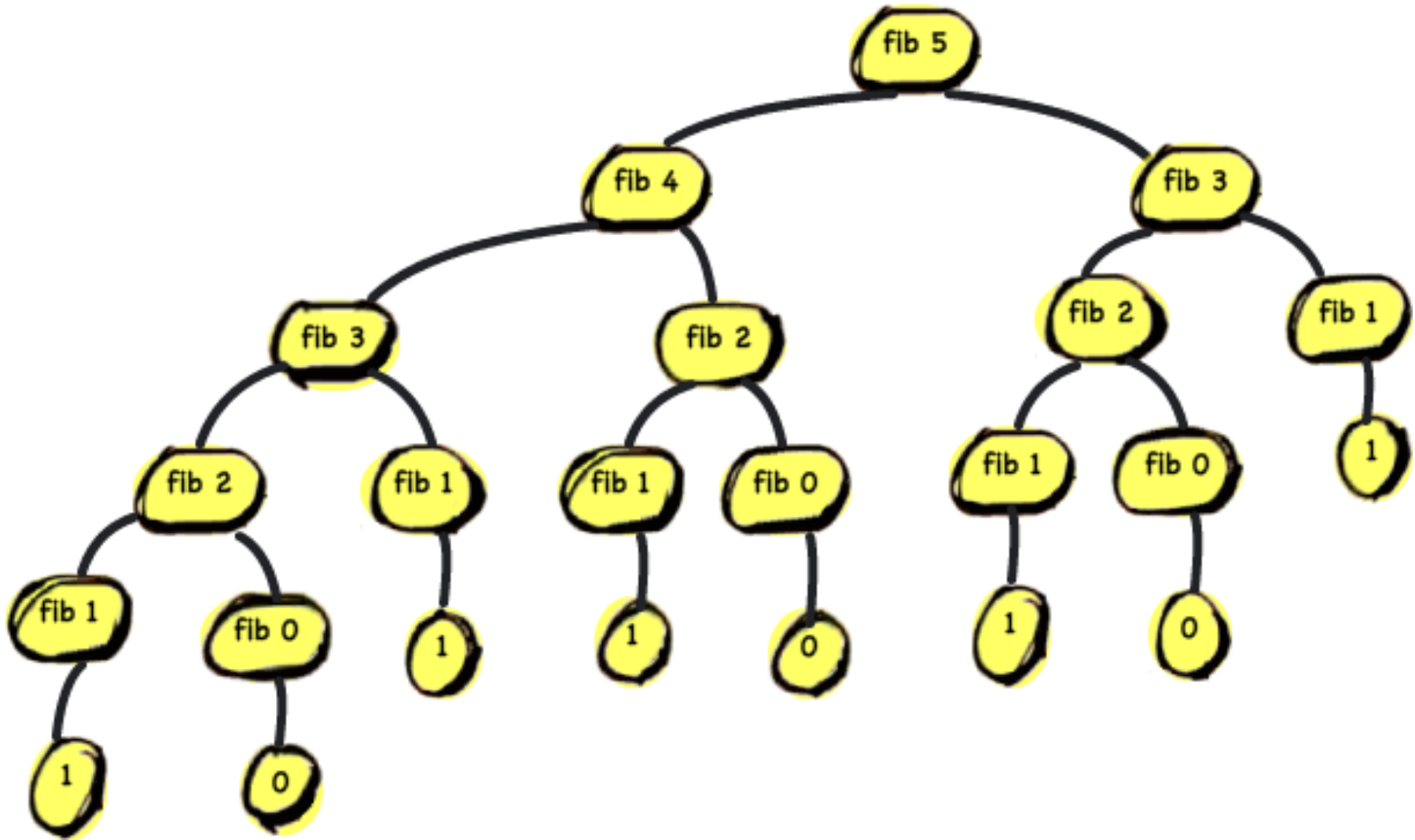
Enough talking



Show me some code

Iterating without do-while,
while, for, or for-in

Tree recursion



linear recursion
(recursive) linear iteration
tree recursion



Loops?

We don't need no stinkin' loops!

Now,
what about the recursion itself?

We couldn't have done the trick
without recursion, right? *Right?*

Oh yes we could! And that's

Y

Links

1. David Blaine's Street Magic parody: <http://youtu.be/wTqsV3q7rRU>
2. Structure and Interpretation of Computer Programs: <http://mitpress.mit.edu/sicp/>
3. The Y Combinator (Slight Return), or: How to Succeed at Recursion Without Really Recursing: <http://mvanier.livejournal.com/2897.html>
4. This presentation and the code: <https://github.com/ikr/street-magic-with-functions>