## Functional Programming In Java

### Alonzo Church Lambda calculus (1930)





int powerOf2 (int x){ return x\*x; }

#### Predicate Is a function that returns true or false. $x \rightarrow x == 2$

## Haskell Curry Combinatory logic



- Pure Functions
- Higher order Functions
- Lazy Evaluation
- Closure
- Currying

#### f(x) == f(x)A pure function has no side effects.



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### WHAT IFD TOLD YOU

#### YOU CAN RETURN A FUNCTION FROM A FUNCTION

imgflip.com

#### Functions can be treated like data



#### Functions can be treated like data

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#### I ALMOST REPLIED

### Delays the evaluation until the value is needed

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Close but no cigar A Closure is a function with a reference to the state of the function returning it.



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Chain the parameters! Chain them all!

## What is **FP** not?

- A replacement for OOP
- The solution to all your problems
- Free performance gain

## The advantages of FP

- No side effects
- Stateless
- Concurrency and (true) parallelisation
- Lesser rituals, therefore easier to read and maintain
- Code is easier to reuse

## The Future

- Multithread
- Multicore
- Multi CPU
- Cluster
- APU
- GPU (Crossfire / SLI)
- FPGA (field-programmable gate array)



## COMETO THE DARSED !!

# WE HAVE TYPE THEORY, LAMBDA CALCULUS AND CURBYING

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