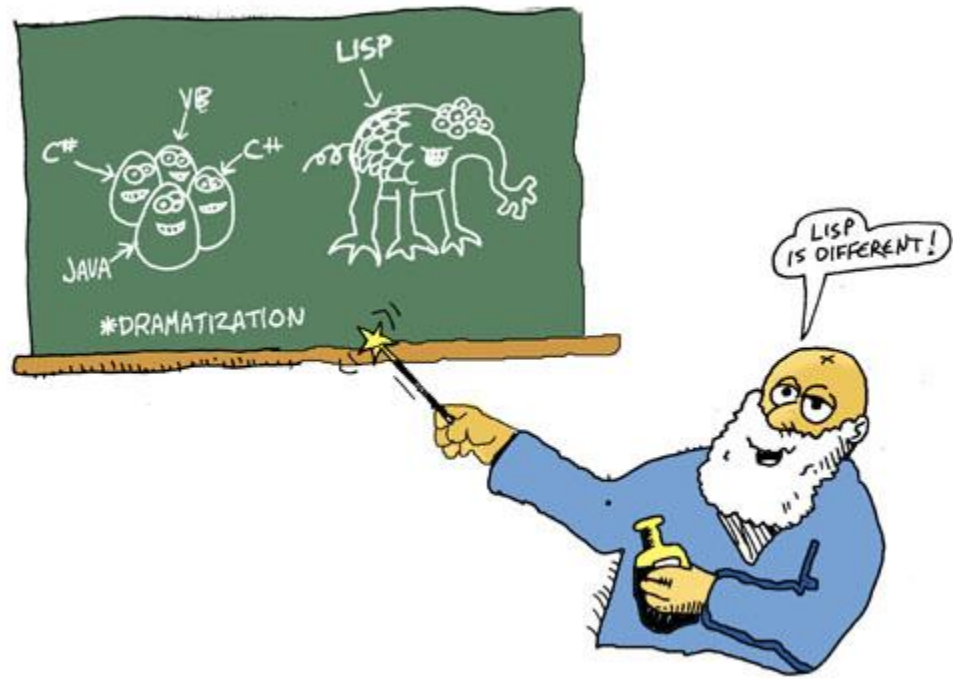


LISP



basics

LISP

LIST PROCESSING

A LIST OF 3 ITEMS

(1 "TWO" 3.0)

NESTED LISTS

(1 (2 3))

SYMBOLIC EXPRESSION

S-EXPRESSION

(+ 1 2)

}

NESTED S-EXPRESSIONS

$(+ 1 (+ 2 3))$

1 5

6

CODE IS DATA

CODE: "3"

(+ 1 2)

DATA: "A LIST"

'(+ 1 2)'

CODE IS DATA

CODE: "MY NAME IS JIM"

I'M JIM

DATA: "A PHRASE"

"I'M JIM"

CODE → DATA → NEW DATA → CODE

“I’M JIM” → “I’M MARTA” → A NEW MEANING

'(+ 1 2) → '(- 2 1) → A NEW RESULT

FUN FACTS ABOUT LISP

- It's almost 60 years old
- Introduced Garbage Collection
- ... conditionals
- ... higher-order functions
- ... recursion
- ... self-hosting

CLOJURE

- A dialect of Lisp
- Runs on JVM
- Compiles to JavaScript
- Functional programming
- Immutability