Programming Paradigms

Control Abstraction (Part 2)

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Overview

- Calling Sequences
- Parameter Passing 
- Exception Handling
- Coroutines
- Events

Parameter Passing

- **What does it mean if a parameter is passed to a callee?**
- **Different PLs have different parameter passing modes**
  - Call by value
  - Call by reference
  - Call by value/result
  - Call by sharing

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Assignment has no visible effect

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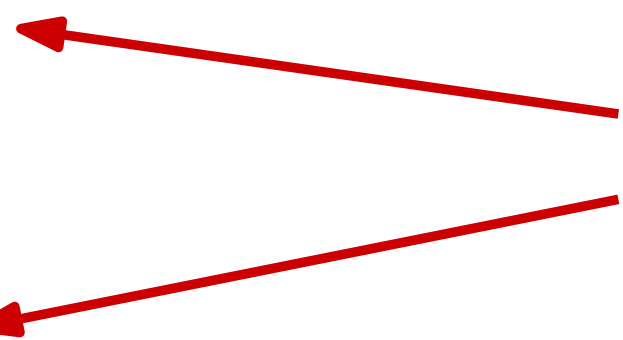

Prints 2 twice

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Refers to same value as outer variable `x`

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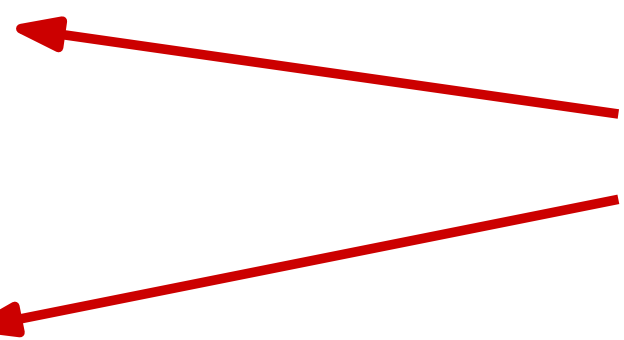

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Quiz: What does the code print?

Please vote in Ilias.

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Refers to value different from outer variable `x`

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Prints 2

Prints 3

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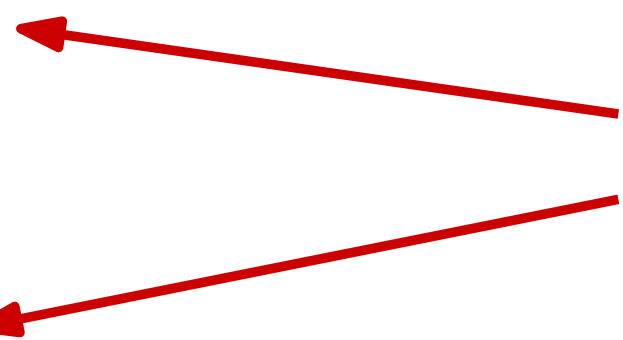

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Passing Models in Popular PLs

- **C: By value, except arrays are passed by reference**
  - Passing pointers can emulate call by reference
- **Fortran: All arguments are passed by reference**
- **Java: Hybrid passing model**
  - Built-in, primitive types: By value
  - Instances of classes: By sharing