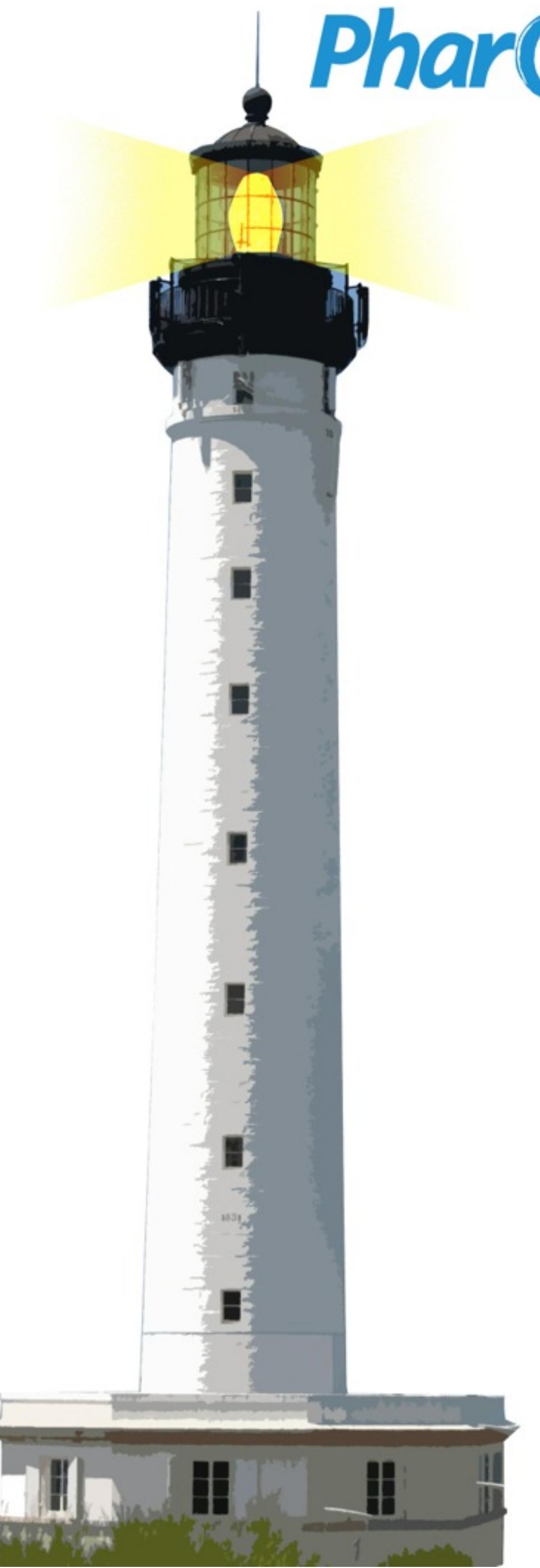


Pharo: an immersive object-oriented system

Damien CASSOU, Stéphane DUCASSE and Luc FABRESSE

www.pharo.org

W1S02



Pharo?



Pharo!

- * System: Pure object language + full IDE
- * Inspired by Smalltalk
- * Powerful, elegant and fun to program
- * Great community
- * Living system under your fingers
- * 100% MIT



Elegant!

- * Full syntax on a postcard
- * Simple and powerful objet model



Full Syntax!

```
exampleWithNumber: x
```

“A method that illustrates every part of Smalltalk method syntax”

```
<menu>
```

```
| y |
```

```
true & false not & (nil isNil) ifFalse: [self halt].
```

```
y := self size + super size.
```

```
#($a #a 'a' 1 1.0)
```

```
do: [ :each | Transcript
```

```
    show: (each class name);
```

```
    show: (each printString);
```

```
    show: ' '].
```

```
^ x < y
```

Leuchttürme



Full Model!

- * Dynamically typed
- * Everything is an object instance of a class
- * All methods are public virtual
- * All attributes are protected
- * Single Inheritance



Fully Written in Itself

- * Everything is written in Pharo
- * Pharo itself
- * One simple syntax/model to access everything



Immersive?



Immersive

- * Pharo is not a blackbox
- * Pharo is fully inspectable and reflexive
- * You can get immersed in objects



Immersed and interacting

- * You can interact with objects

Immersive

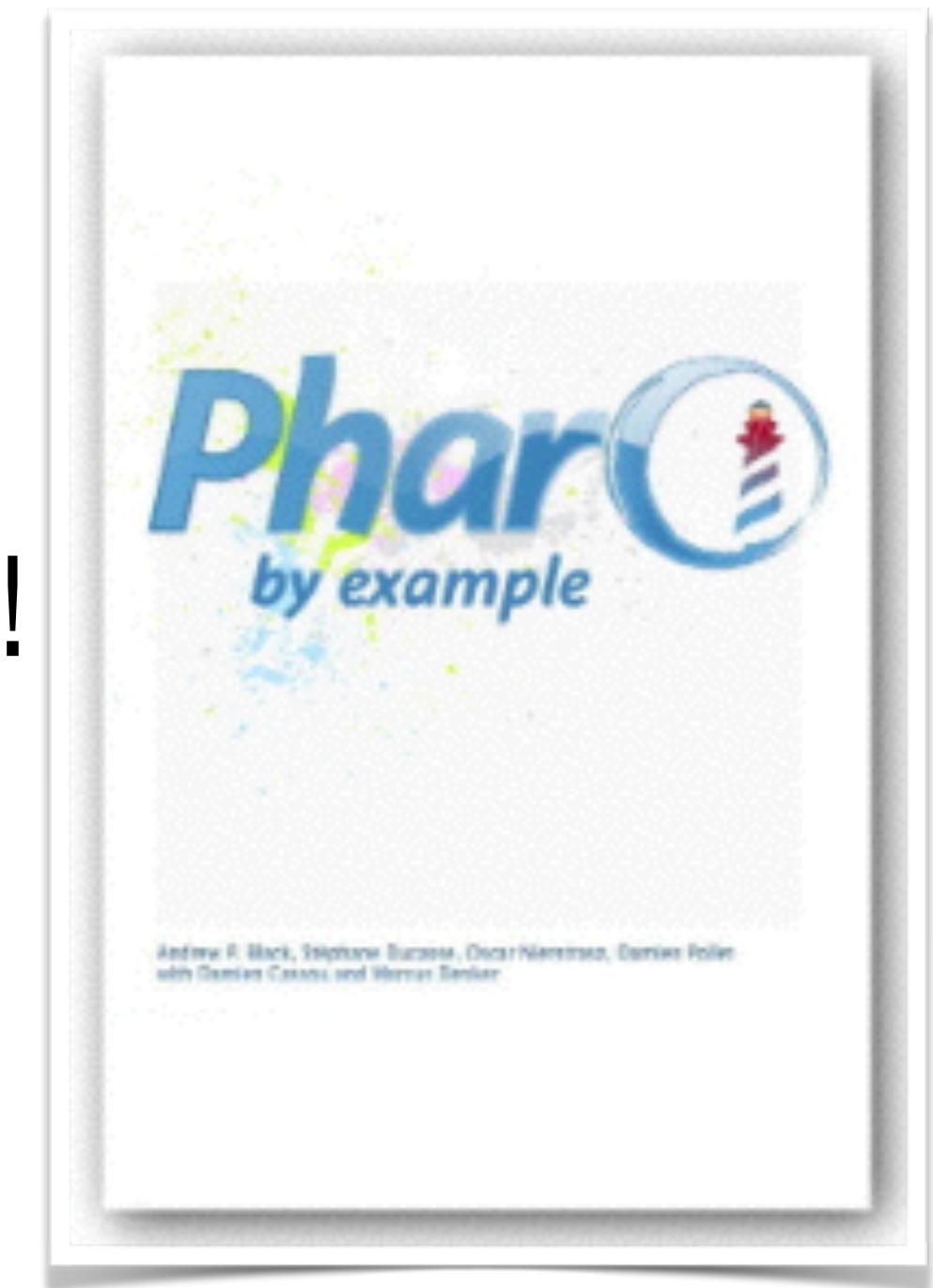
The image shows a screenshot of a Smalltalk development environment. On the left, a window titled "Workspace" contains the following code:

```
| elements lay |  
  
elements := (1 to: 5) collect: [ :ob |  
  (R3CubeShape new) elementOn: ob ].  
  
lay := R3WallLayout new.  
lay on: elements.  
  
UberPresenter present: elements
```

On the right, a window titled "Uber Presenter" displays a 3D visualization of five gray cubes arranged in a wall-like structure.

Pharo by Example

- * <http://books.pharo.org>
 - * translated to french, merci!
 - * translated to spanish, gracias!
 - * translated to japanese, ありがとう!
- * Currently updated to Pharo 50



Deep into Pharo

- * <http://books.pharo.org>
- * Some advanced topics
 - * Libraries
 - * Core language
 - * Tools



Enterprise Pharo

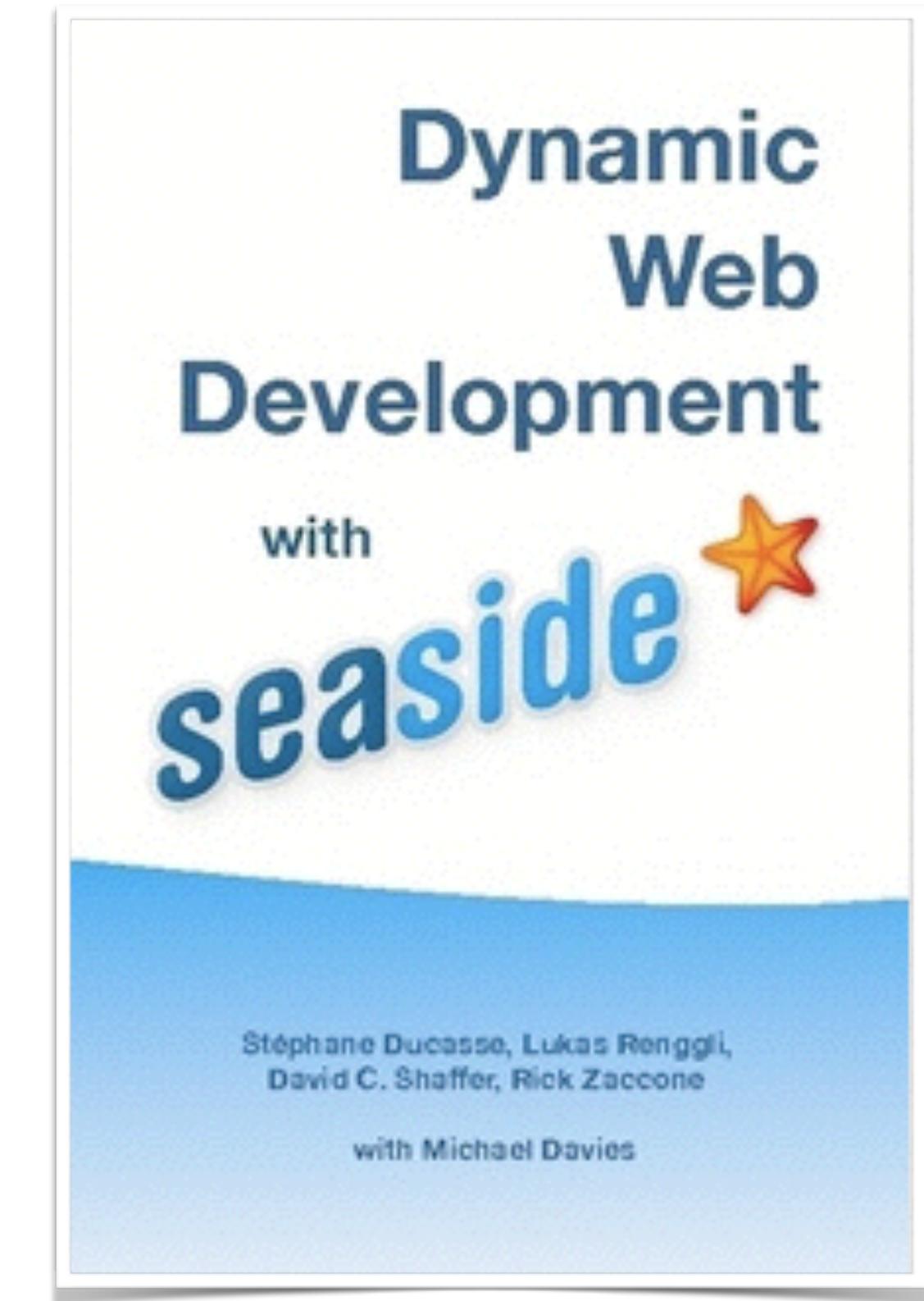
- * <http://books.pharo.org>
- * Web related
 - * Encodings,
 - * Mustache
 - * JSON
 - * WebSockets
 - * HTTP/HTTPS



Dynamic Web with Seaside

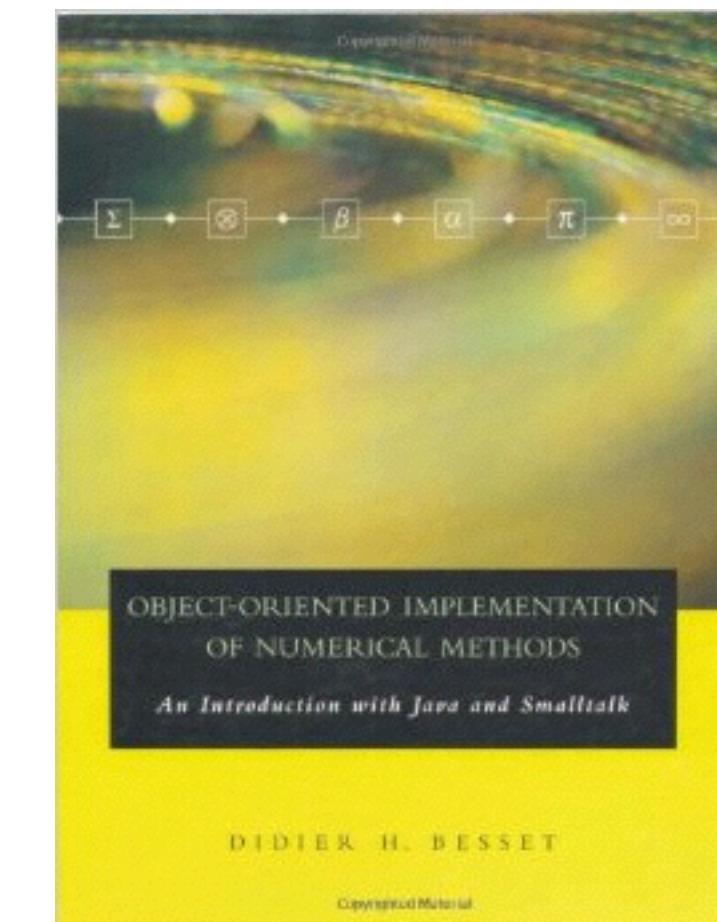
- * <http://book.seaside.st>
- * Full framework explained
- * DSL + Call:/answer:
- * Automatic form generation
- * Deployment

seaside*



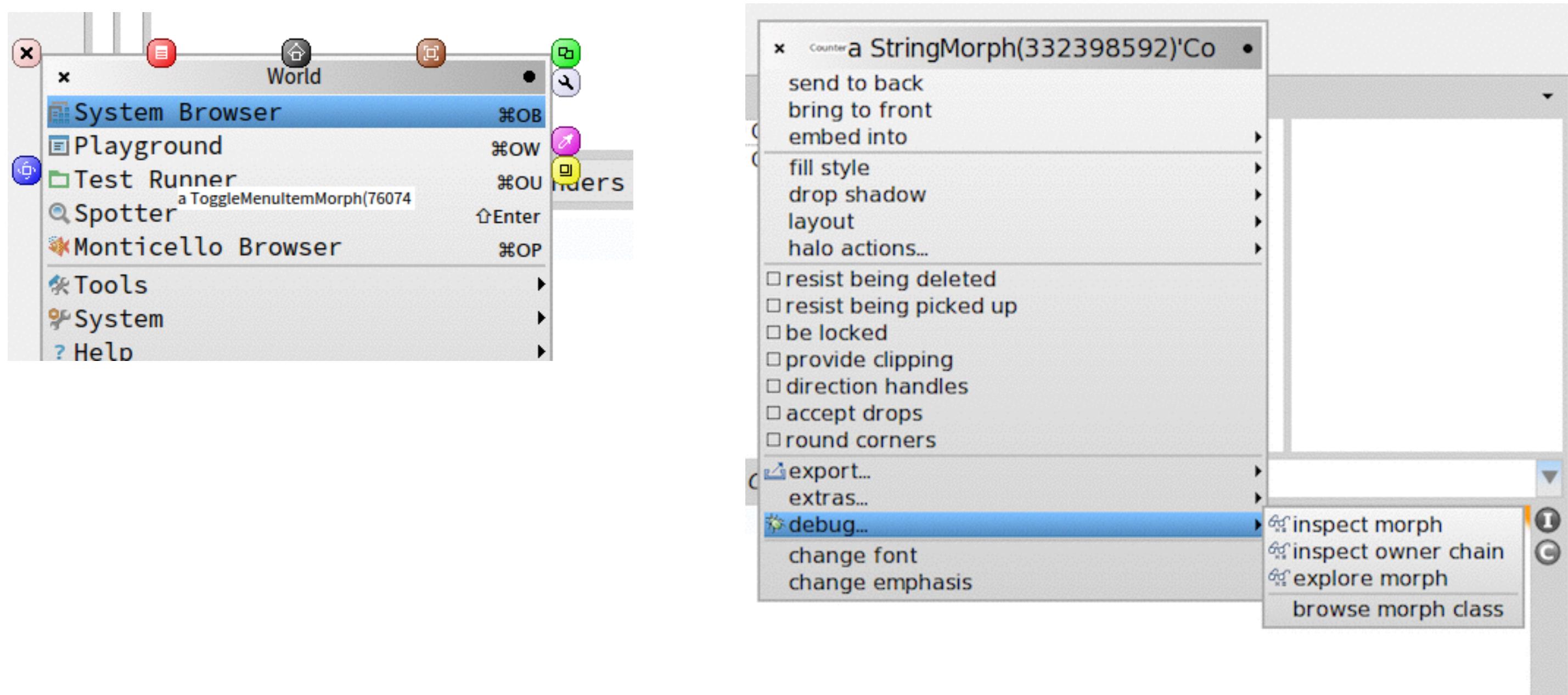
Numerical Methods

- * <https://github.com/SquareBracketAssociates/NumericalMethods>
- * Data mining
- * Clustering
- * Iterative algorithms
- * Series
- * Statistical analysis

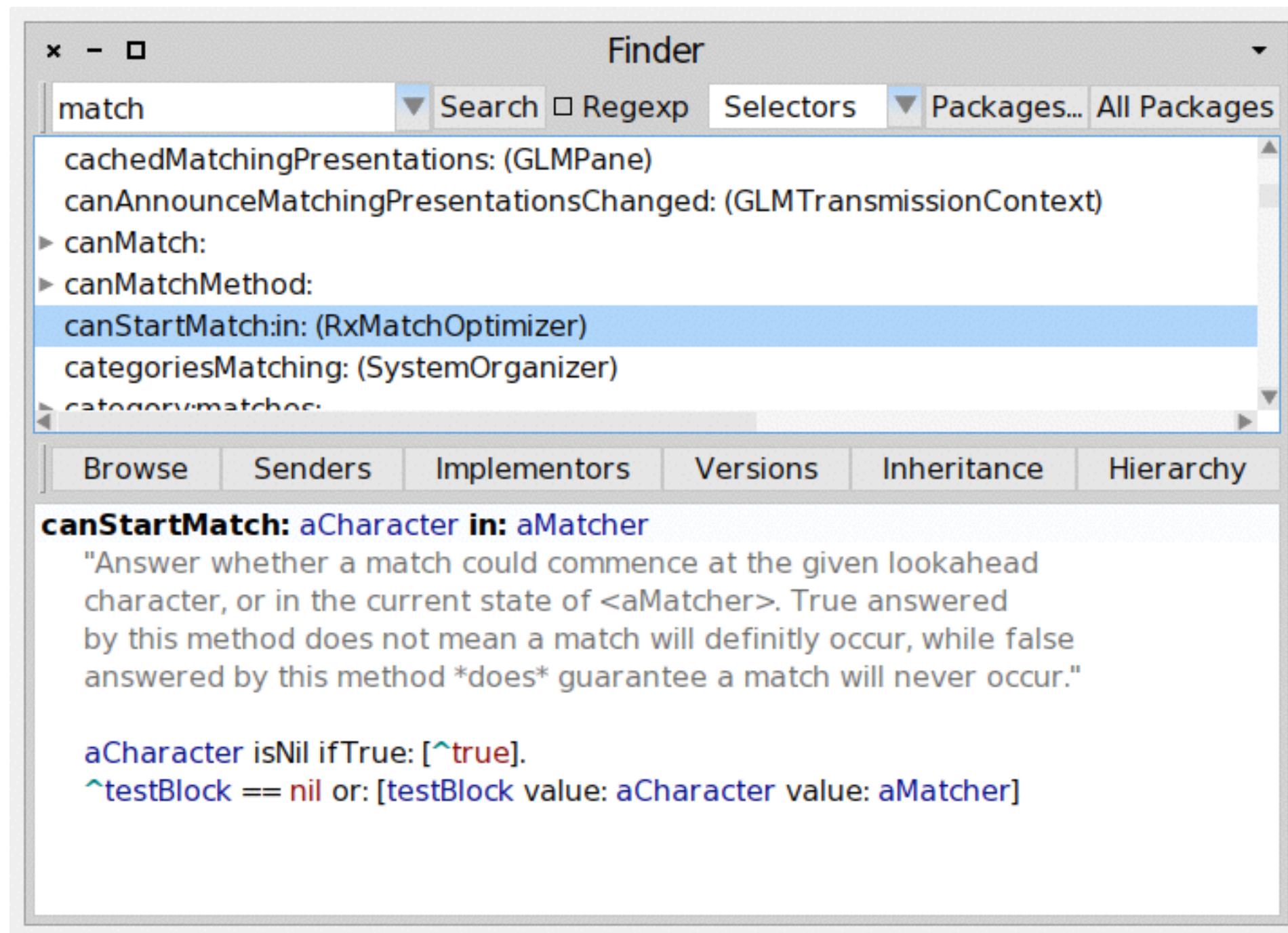


A System to Learn From

- * Click on it
- * Cmd+Shift+Option

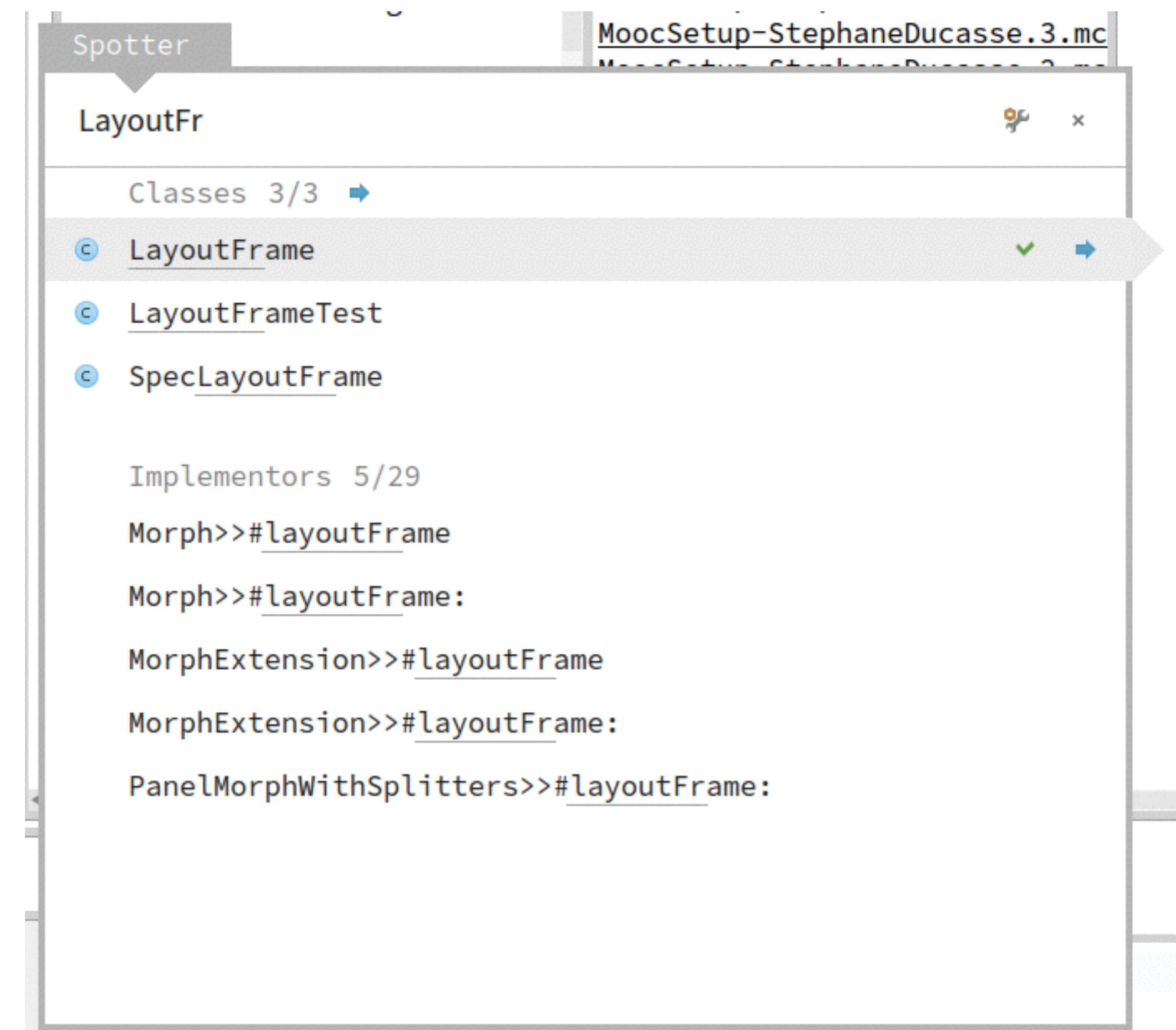


Ask the Finder

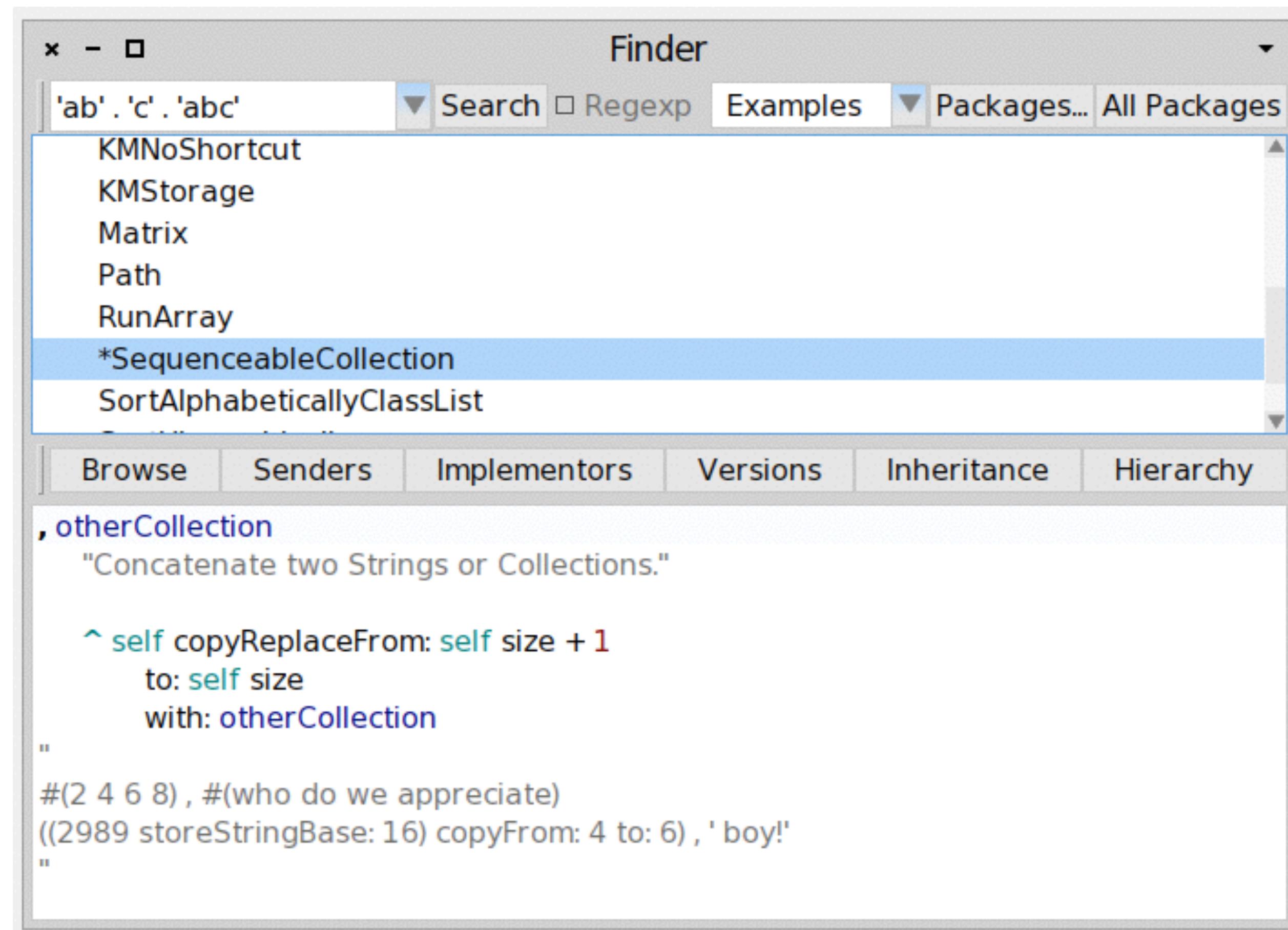


Ask Spotter

- * Shift + Enter



From Examples to Messages



About OO Design

Programming in Pharo will change
the way you program and think OO



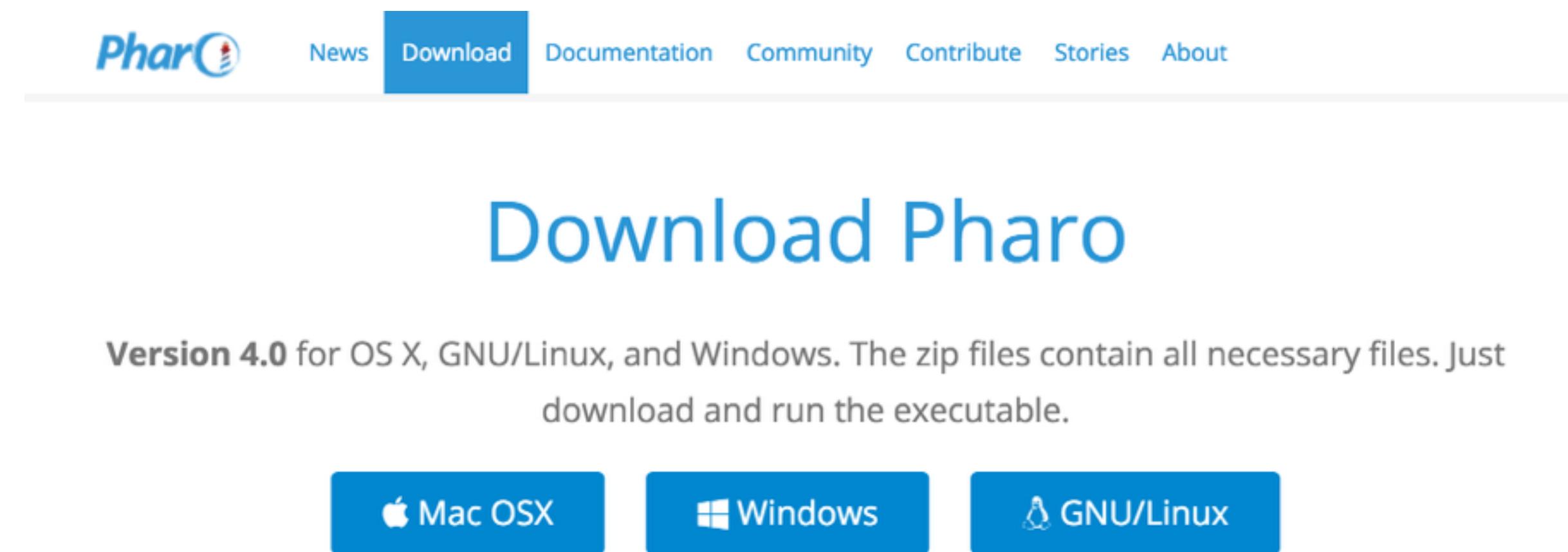
How not is implemented?

- * false not -> true
 - * true not -> false
-
- * Why such question illustrates something so deep?



Try Pharo now!

<http://pharo.org/download>



The screenshot shows the Pharo website's download section. At the top, there is a navigation bar with links: News, Download (which is highlighted in blue), Documentation, Community, Contribute, Stories, and About. Below the navigation bar, the title "Download Pharo" is centered in a large, blue, sans-serif font. Underneath the title, a descriptive text reads: "Version 4.0 for OS X, GNU/Linux, and Windows. The zip files contain all necessary files. Just download and run the executable." Below this text are three blue rectangular buttons, each with a white icon and text: "Mac OSX" (with an Apple icon), "Windows" (with a Windows icon), and "GNU/Linux" (with a Linux icon).



<http://www.pharo.org>

Pure & elegant
Fun, simple
Highly productive
Excellent for teaching
Empowering
Full access



A course by



and



in collaboration with



Inria 2016

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