

Pharo: an immersive object-oriented system

<http://www.pharo.org>

D.Cassou - S. Ducasse - L. Fabresse
Univ. Lille / Inria / Mines-Telecom



Pharo?

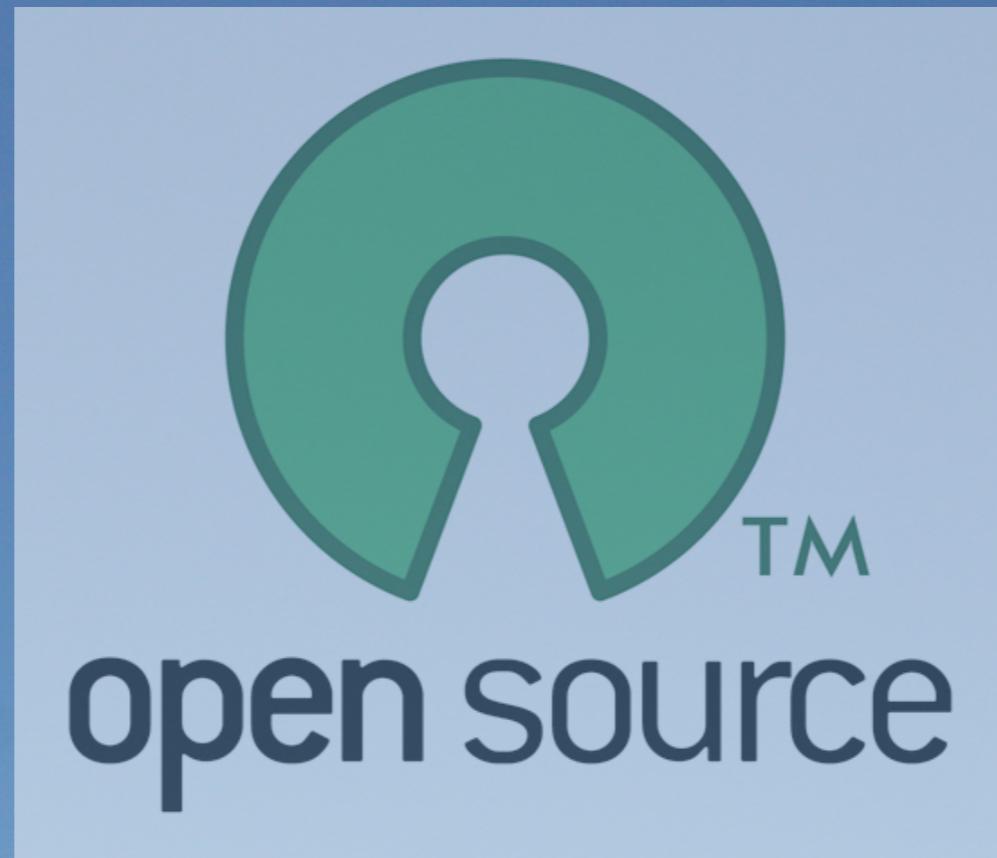


Pharo!

- <http://www.pharo.org>
- System: Pure object language + full IDE
- Inspired by Smalltalk
- Powerful, elegant and fun to program
- Great community
- Living system under your fingers



License



Elegant!

- Full syntax on a postcard
- Simple but powerful object model

Complete Syntax on a Postcard

```
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
```

Object Model

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

2007

Immersive?



Immersive!

- Deep contact with objects
- Highly interactive programming sessions
- Reflective, inspectable

The image shows a software interface with two windows. The left window is titled "Workspace" and 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
```

The right window is titled "Uber Presenter" and displays a 3D perspective view of a wall. The wall is constructed from five gray cubes arranged in a stepped, pyramid-like pattern, corresponding to the code in the workspace.

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

Uber Presenter

Any object can be lively updated
3D
Network connection
Dynamic web applications
GPU
Code

Pharo by Example

- ❖ Pharo by example <http://www.pharobyexample.org>
 - ❖ translated to french, merci!
 - ❖ translated to spanish, gracias!
 - ❖ translated to japanese, ありがとう!
- ❖ Currently updated to Pharo 40



Deep into Pharo

<http://books.pharo.org>



Entrepri\$e Pharo: a Web perspective

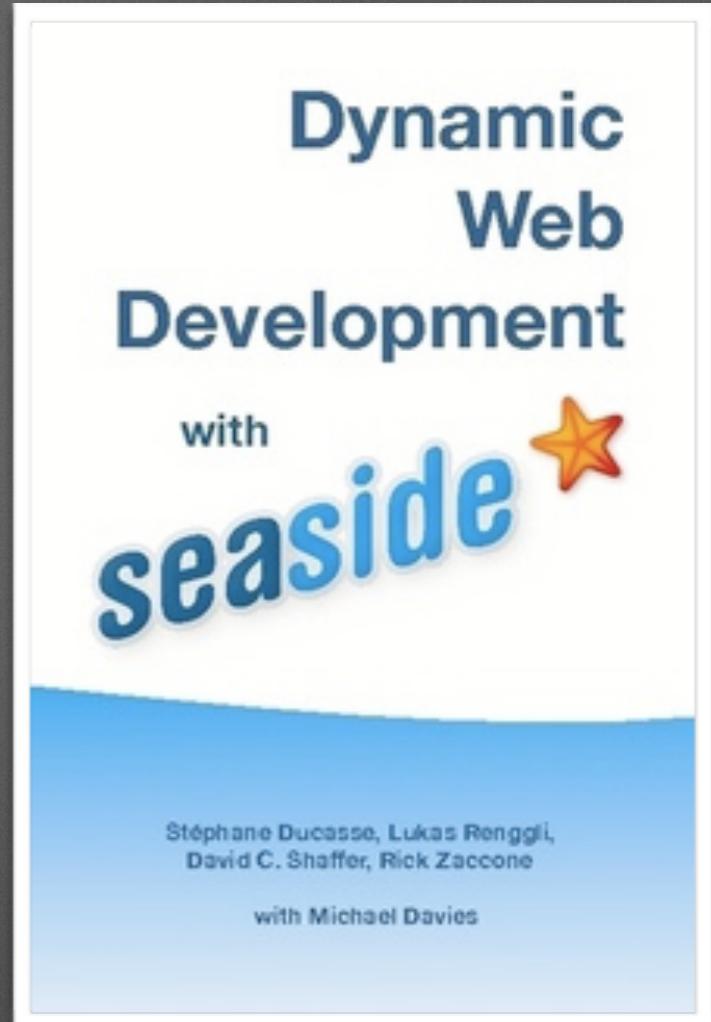
<http://books.pharo.org>

*ENTERPRISE PHARO:
A WEB PERSPECTIVE*



Other books

- Numerical Methods in Pharo
- Dynamic Web Development with Seaside
 - <http://book.seaside.st>

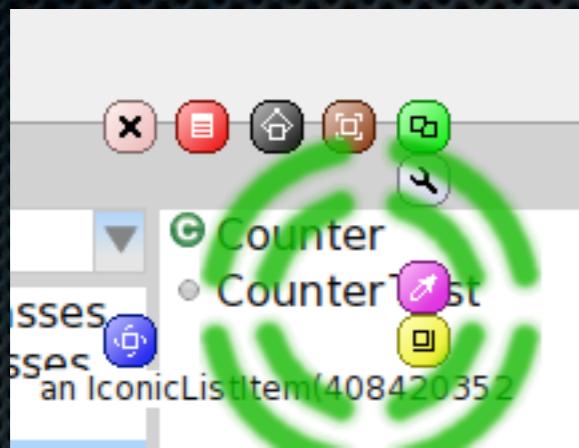


seaside*

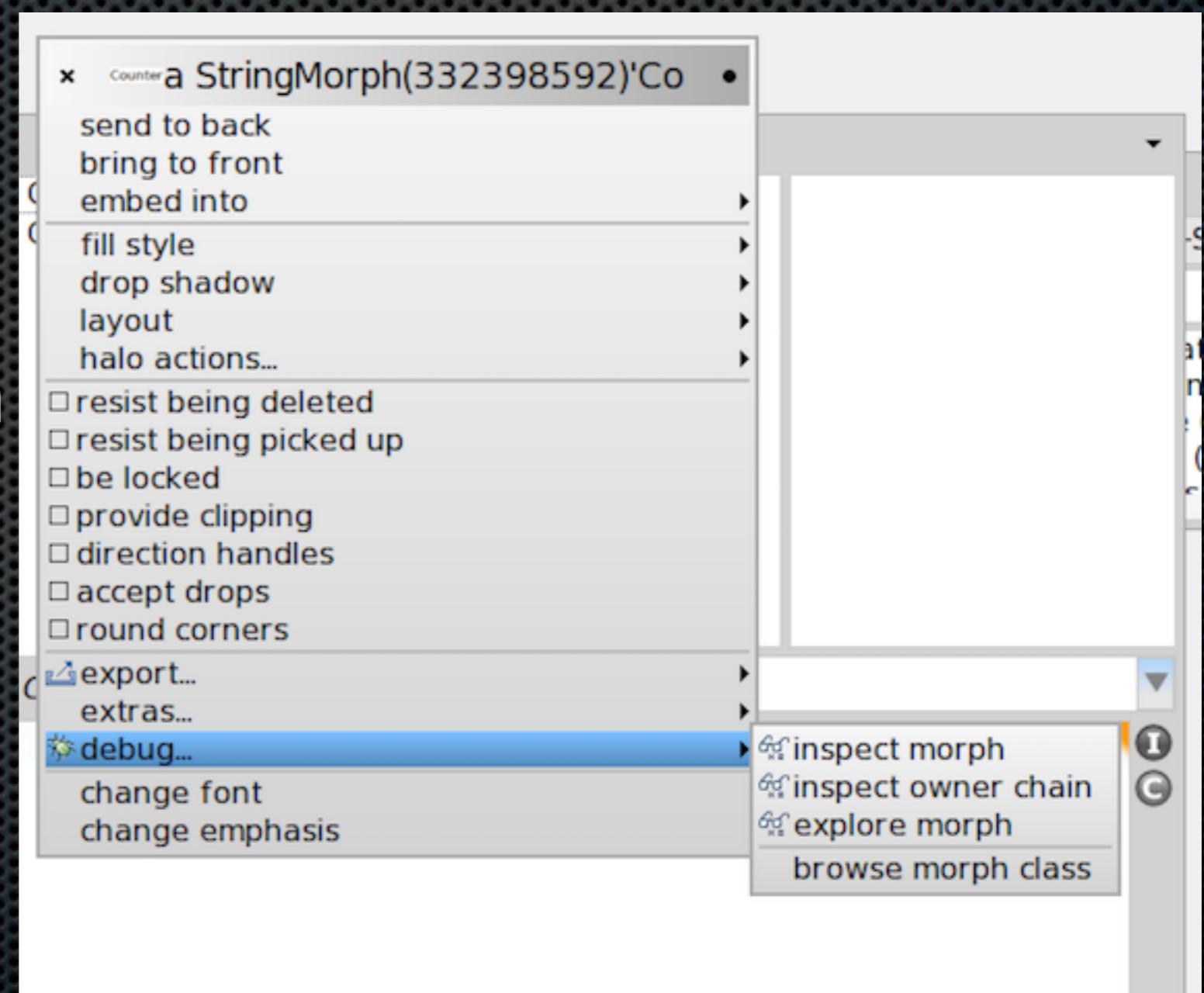
**Learning from the
system...**

Click on it :)

Cmd+shift+option



- Cmd-Shift+option



Finder :)

The screenshot shows a 'Finder' window with the following interface:

- Toolbar:** Includes buttons for 'Search' (selected), 'Regexp', 'Selectors', 'Packages...', and 'All Packages'.
- Search Bar:** Displays the search term 'match'.
- Results List:** Shows several matching entries:
 - cachedMatchingPresentations: (GLMPane)
 - canAnnounceMatchingPresentationsChanged: (GLMTransmissionContext)
 - canMatch:
 - canMatchMethod:
 - canStartMatch:in: (RxMatchOptimizer) **(highlighted)**
 - categoriesMatching: (SystemOrganizer)
 - categoriesMatching:
- Bottom Navigation:** Buttons for 'Browse', 'Senders', 'Implementors', 'Versions', 'Inheritance', and 'Hierarchy'.

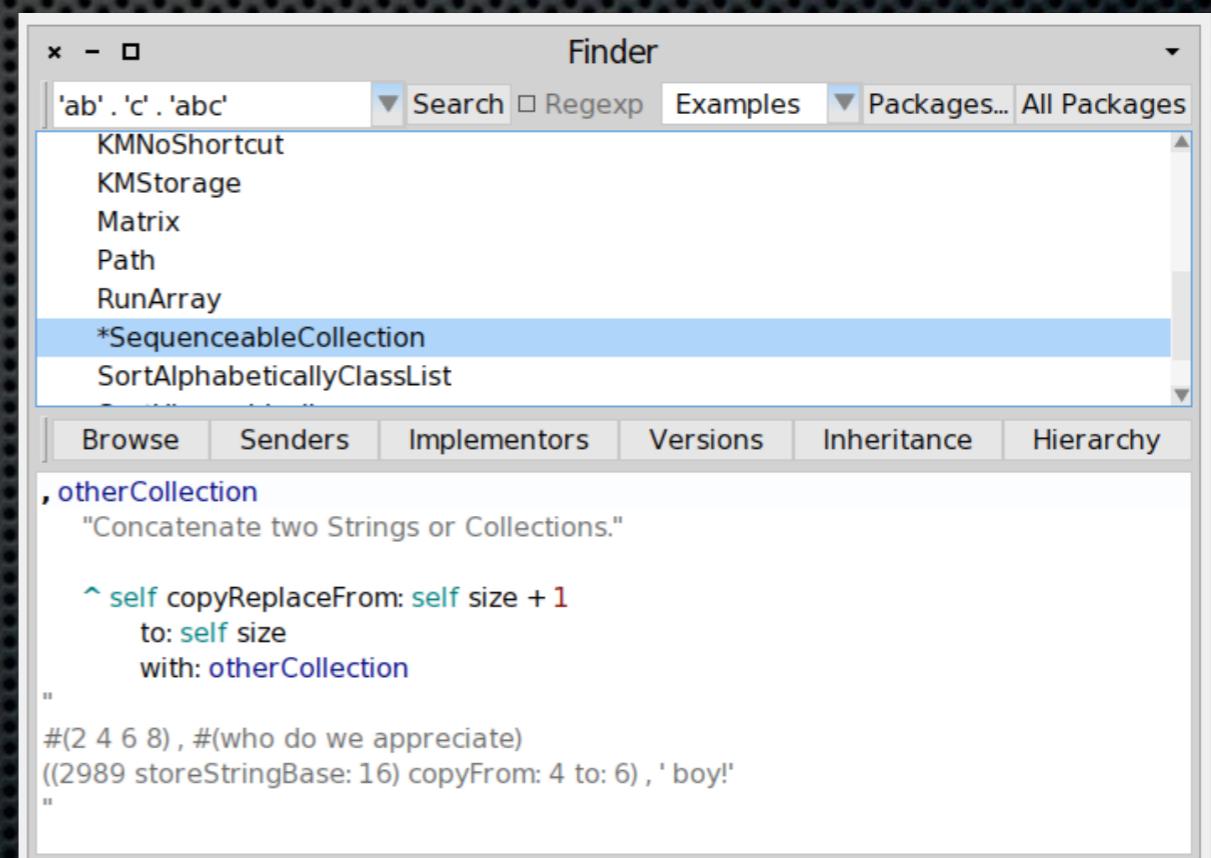
Selected Method Detail:

canStartMatch: aCharacter in: aMatcher

"Answer whether a match could commence at the given lookahead character, or in the current state of <aMatcher>. True answered by this method does not mean a match will definitely occur, while false answered by this method **does** guarantee a match will never occur."

aCharacter isNil ifTrue: [^true].
^testBlock == nil or: [testBlock value: aCharacter value: aMatcher]

give examples and
get the methods that works!



A system to learn advanced
oo design

How to implement not?

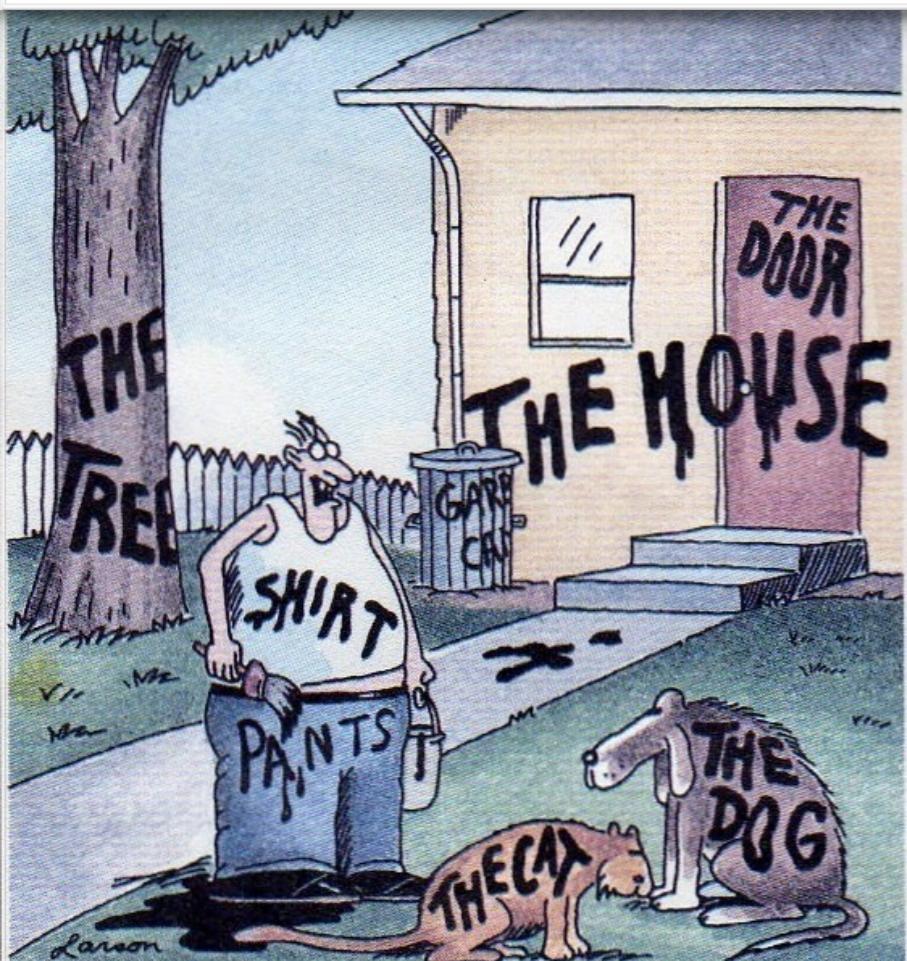
- false not -> true
- true not -> false



IT'S SAD HOW SOME PEOPLE
CAN'T HANDLE A LITTLE
VARIETY.



WABSON



"Now! ... That should clear up
a few things around here!"

Pharo Humour

<http://pharo.org>

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





THALES

d^p:debris
publishing



Yesplan
Let's make it happen

Sensus
Systems that make sense

MINES
Douai
IA
Informatique
et Automatique

Pleiad^{project} uqbar

esug
EUROPEAN SMALLTALK USER GROUP

Lam[®]
RESEARCH

netstyle.ch

GEMTALKTM
SYSTEMS

BetaNine
software engineering

CæsarSystems
Accelerate Confidently

OBJECT PROFILE

FAST
Fundación Argentina de Smalltalk

Q^b
 u^b
b
UNIVERSITÄT
BERN

Inria
INVENTEURS DU MONDE NUMÉRIQUE

projector
software

HR works

denker

MAD[®]
ENVIRONNEMENT

HOD

TA MÈRE^{SCRL}
BADASS MOBILE DEVELOPMENT

Gagnez une Qualité d'Avance
CZECH TECHNICAL UNIVERSITY
IN PRAGUE

RMod

Lifl
Laboratoire
d'Informatique
Fondamentale
de Lille

