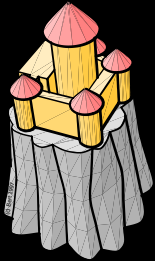


AN INTRODUCTION TO SMALLTALK



Hands on session about the Squeak Smalltalk system

by

ckeen@vernunftzentrum.de



WELCOME!

Preparations:

- Download a VM for your OS at <https://squeak.org> → Downloads → “All in one”
- Start the VM
- Ask questions anytime!



WHAT IS SMALLTALK?

- A programming language
- A class system
- An IDE
- A UI toolkit



THE LANGUAGE



```
exampleWithNumber: x

<syntaxOn: #postcard>
"A ""complete"" Pharo syntax"
| y |
true & false not & (nil isNil)
ifFalse: [ self perform: #add: with: x ].
y := thisContext stack size + super size.
byteArray := #[2 2r100 8r20 16rFF].
{ -42 . #($a #a #'I''m' 'a' 1.0 1.23e2 3.14s2 1) }
do: [ :each |
| var |
var := Transcript
show: each class name;
show: each printString ].
^ x < y
```

Annotations for the code above:

- method name: exampleWithNumber
- parameter: x
- pragma: <syntaxOn: #postcard>
- comment: "A ""complete"" Pharo syntax"
- local variable: y
- boolean literals: true, false, nil
- nil literal: nil
- binary message: &
- unary message: isNil
- block: [self perform: #add: with: x].
- keyword message: #add: with: x
- assignment: y :=
- pseudo variables: thisContext, super
- instance variable: stack size
- integer literals: 2, 100, 20, 16
- byte array: byteArray := #[2 2r100 8r20 16rFF].
- array generated at runtime: { -42 . #(\$a #a #'I''m' 'a' 1.0 1.23e2 3.14s2 1) }
- literal array: #(\$a #a #'I''m' 'a' 1.0 1.23e2 3.14s2 1)
- symbols: \$a, #'I''m'
- character: 'a'
- string: 'a'
- floating point: 1.0, 1.23e2, 3.14s2
- scaled decimal: 1
- local block variable: var
- block parameter: each
- global variable: Transcript
- cascade: show: each class name; show: each printString]
- keyword message: #add: with: x
- return instruction: ^ x < y

other method definition examples:
unary + binaryMessageArgument
keyword: arg
keyword: arg1 withTwo: arg2

<https://www.pharo.org>

PLACE
STAMP
HERE

.....
.....
.....
.....



CLASS SYSTEM

```
Workspace  
SmalltalkImage current allClasses size 2713
```

THE IDE

Useful interfaces in the system (and the most used):

- ◆ Workspace (a REPL / scratch space)
- ◆ System Browser
- ◆ Transcript (“stdout”)
- ◆ Debugger



WORKSPACE



```
SmalltalkImage current allClasses size 2713

3 + 5 '8'

c := CircleMorph new openInWorld.
c color: Color blue

Transcript show: 'hello world!'; cr.

1 to: 10 do: [:n | Transcript show: n; cr].
```

Let's you also define anything

Has some interesting properties:

'button for it'

CLASS BROWSER

The screenshot shows a window titled "System Browser: SmallInteger". It features a tree view on the left with "Kernel-Numbers" selected. A central pane lists classes like "Fraction", "Integer", and "SmallInteger" (which is highlighted). A right-hand pane shows a list of methods including "arithmetic", "bit manipulation", and "private". Below the panes are tabs for "instance", "class", and "?". At the bottom, there are navigation tabs: "browse", "senders", "implementor", "versions", "inheritance", "hierarchy", "vars", and "source". The main content area displays the method signature "messageSelectorAndArgumentNames" with a comment "comment stating purpose of message" and a list of "statements".



DEBUGGER

MessageNotUnderstood: TranscriptStream>>narf: [v] [+ -]

Proceed Abandon Debug Create

```
TranscriptStream(Object)>>doesNotUnderstand: #narf:
UndefinedObject>>Dolt
Compiler>>evaluateCue:ifFail:
Compiler>>evaluateCue:ifFail:logged:
Compiler>>evaluate:in:to:environment:notifying:ifFail:logged:
[] in SmalltalkEditor(TextEditor)>>evaluateSelectionAndDo:
◆ BlockClosure>>on:do:
SmalltalkEditor(TextEditor)>>evaluateSelectionAndDo:
SmalltalkEditor(TextEditor)>>evaluateSelection
SmalltalkEditor(TextEditor)>>dolt
SmalltalkEditor(TextEditor)>>dolt:
```

MessageNotUnderstood: TranscriptStream>>narf: [v] [+ -]

Proceed Restart Into Over Through Full Stack Where Tally

```
TranscriptStream(Object)>>doesNotUnderstand: #narf:
UndefinedObject>>Dolt
Compiler>>evaluateCue:ifFail:
Compiler>>evaluateCue:ifFail:logged:
Compiler>>evaluate:in:to:environment:notifying:ifFail:logged:
[] in SmalltalkEditor(TextEditor)>>evaluateSelectionAndDo:
◆ BlockClosure>>on:do:
SmalltalkEditor(TextEditor)>>evaluateSelectionAndDo:
```

Dolt

```
^ Transcript narf: 'hello world!';
cr
```

self all inst vars	<- Select receiver's field	thisContext stack top all temp vars	<- Select context's field
-----------------------	----------------------------	---	---------------------------



A SMALL GAME

“smalltalk’s way of curl | sh”

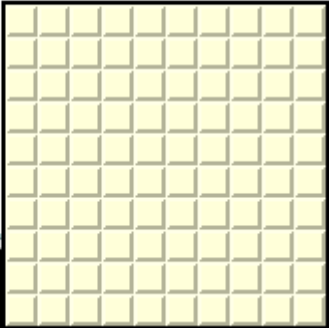
Installer installUrl:

‘<https://vernunftzentrum.de/36c3/SBE-Quinto.st>’



Workspace

```
Installer installUrl: 'https://vernunftzentrum.de/36c3/SBE-Quinto.st'.
SBEGame new openInWorld.
```



MorphicExtrasTests-Postscript
SBE-Quinto

- instance
- class
- ?
- browse
- senders
- implementors
- versions
- inheritance
- hierarchy
- vars
- source

initialize

```
| sampleCell width height n |
super initialize.
n := self cellsPerSide.
sampleCell := SBEGame new.
width := sampleCell width.
height := sampleCell height.
self bounds: (5@5 extent: ((width*n) @(height*n)) + (2 * self borderWidth)).
cells := Matrix new: n tabulate: [ :i j | self newCellAt: i at: j ].
```

on 6/14/2007 21:36 · initialization · 986 implementors · only in change set Unnamed1 ·

