

Comment soup  
with a pinch of types,  
served in a leaky bowl

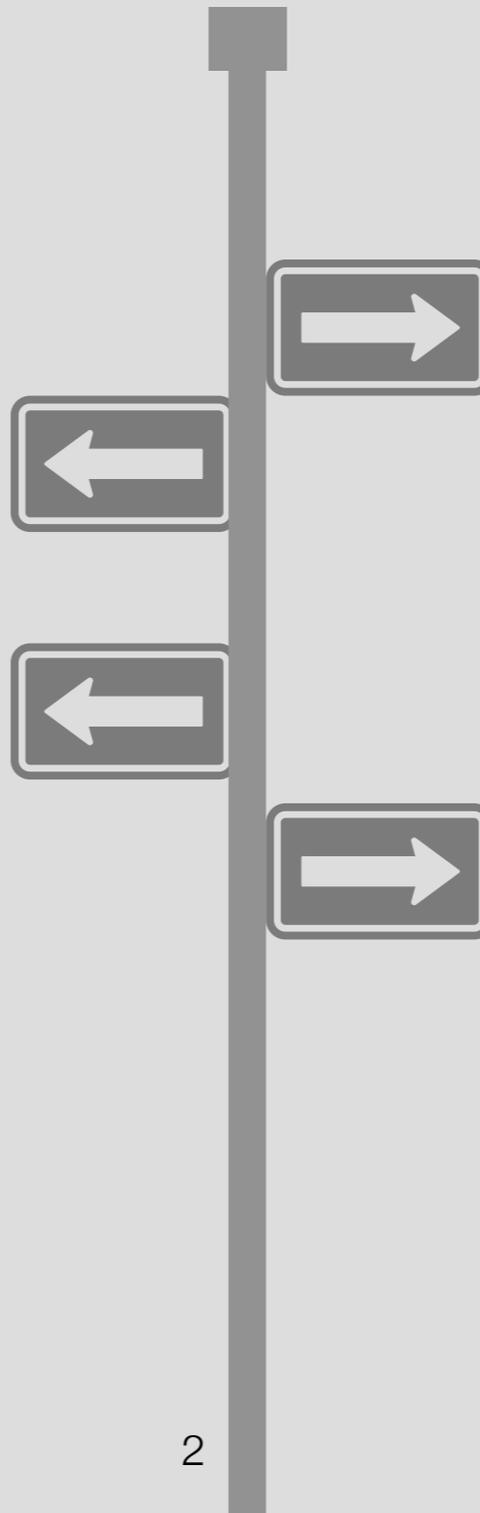
Pooja Rani  
Manuel Leuenberger

Software Composition Group  
Bern, Switzerland

# The Comment Soup

How do developers write comments?

How do comments evolve?



# A Pinch of Types

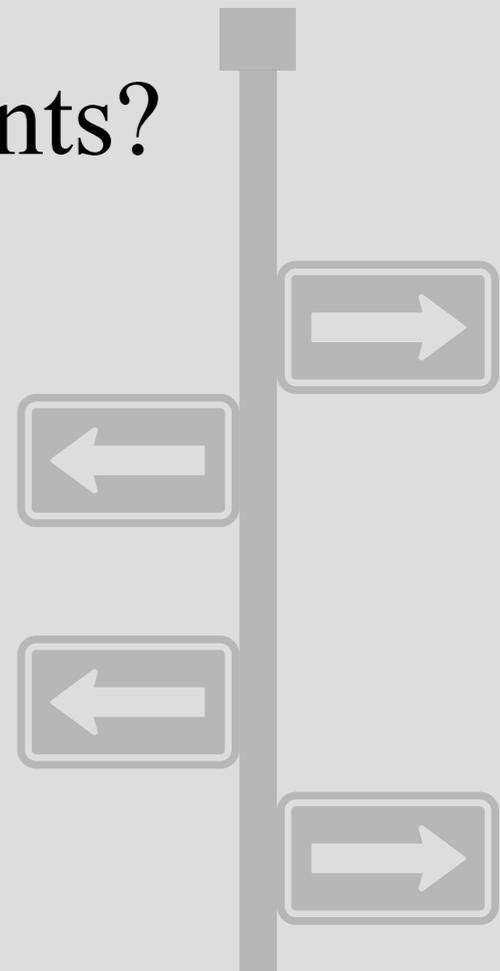
How gradual types can be useful for migration

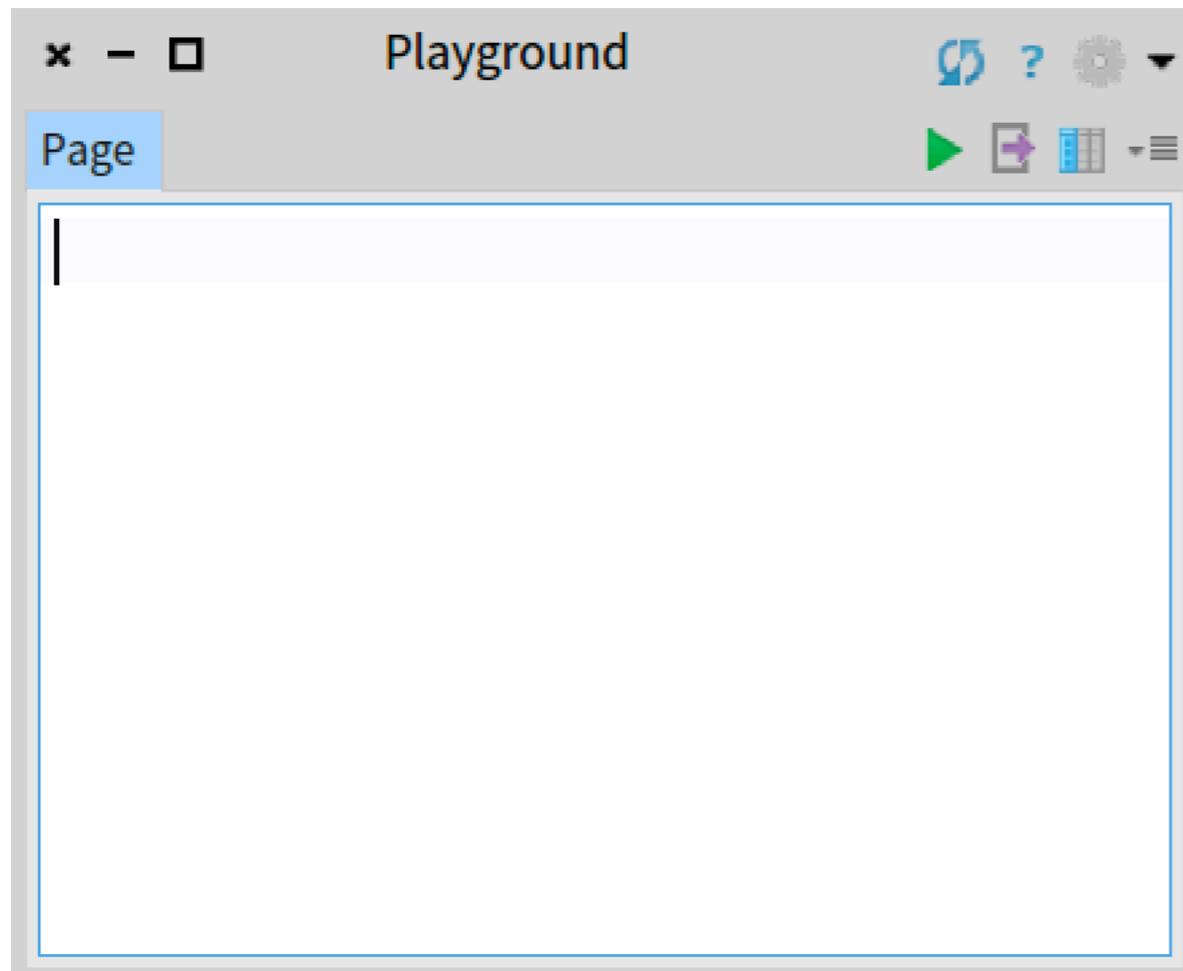
# The Leaky Bowl

A startling encounter in the VM world

# How do developers write comments?

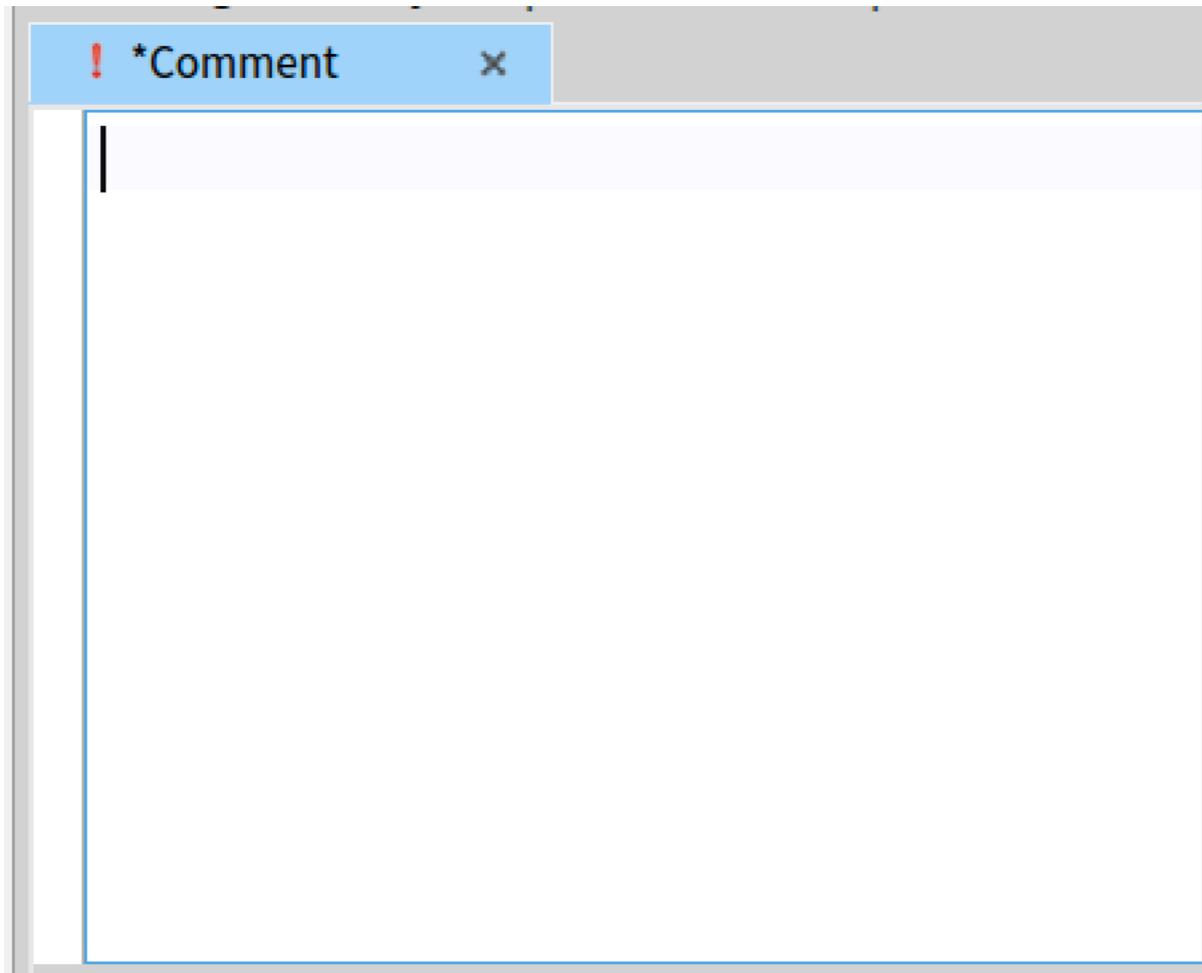
- How do class comments evolve over time?
- What is the impact of template on the comments?
- What information is present in class comments?
- What is the writing style of developers?





Playground to play with code

Developers express their code



Playground to play with words

Developers express themselves

**Note** that to encode a String as Base64, you first have to encode the characters as bytes using character encoder.

Warning

See also <http://en.wikipedia.org/wiki/Base64>

Link

Part of Zinc HTTP Components.

Dependency

**Wow! I am the bezier shape 4 4 control points.**

**Maybe we need roassal3 now with a better system for bezier lines**

**Excitement,  
Future discussion**

```
/**  
 * Options for connecting through a proxy  
 *  
 * Note that not all types may be supported,  
 depending on  
 * the platform and compilation options.  
 */
```

**Missing Java  
documentation**

**asdasd**

**For the sake of commenting**

**Warning**

**Dependency**

**Link**

**Random information**

**Coding guideline**

**Excitement,  
Future  
discussion**

**Word of advice**

**Warning**

**Dependency**

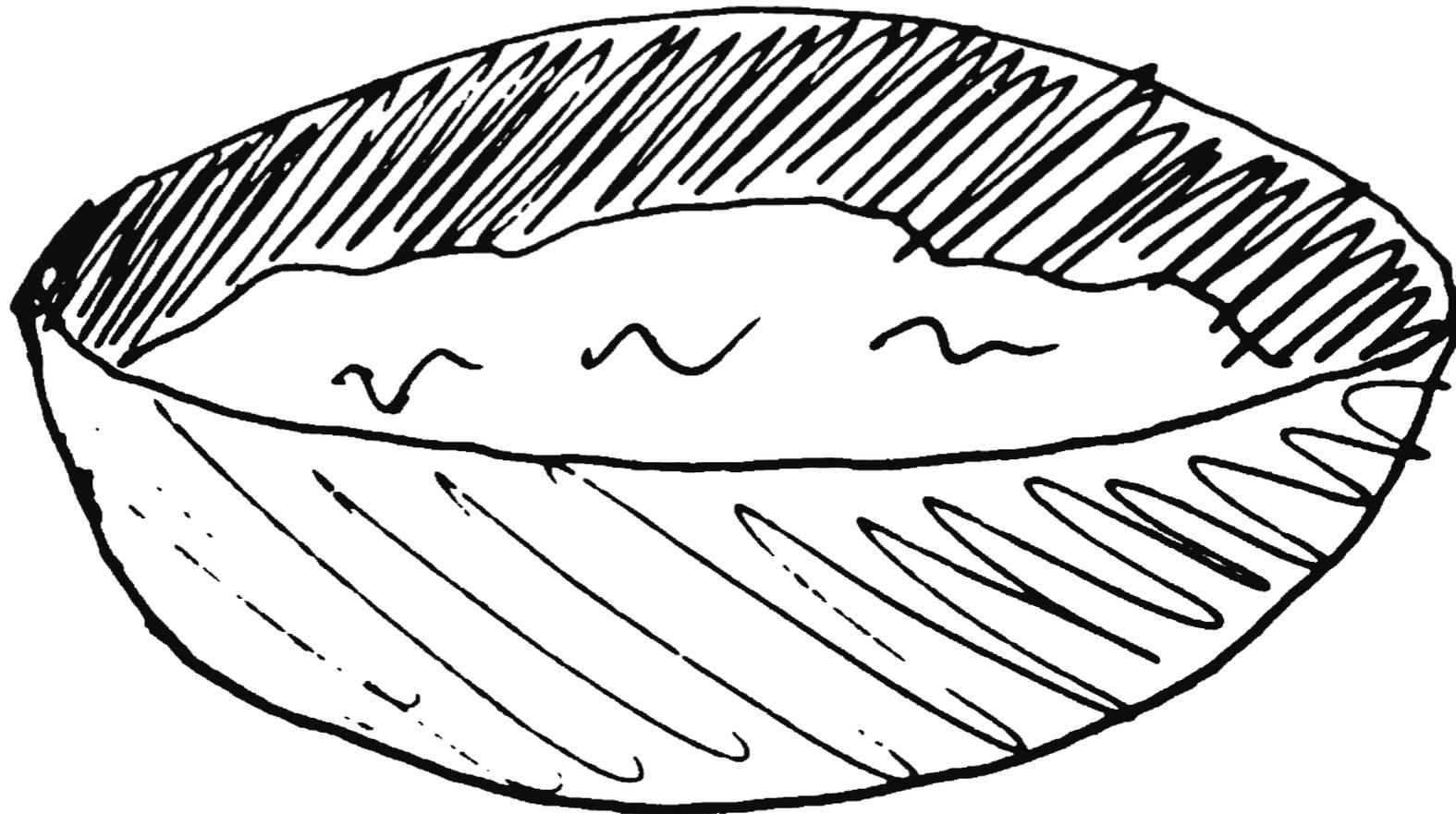
**Link**

**Random information**

**Coding guideline**

**Excitement,  
Future  
discussion**

**Word of advice**



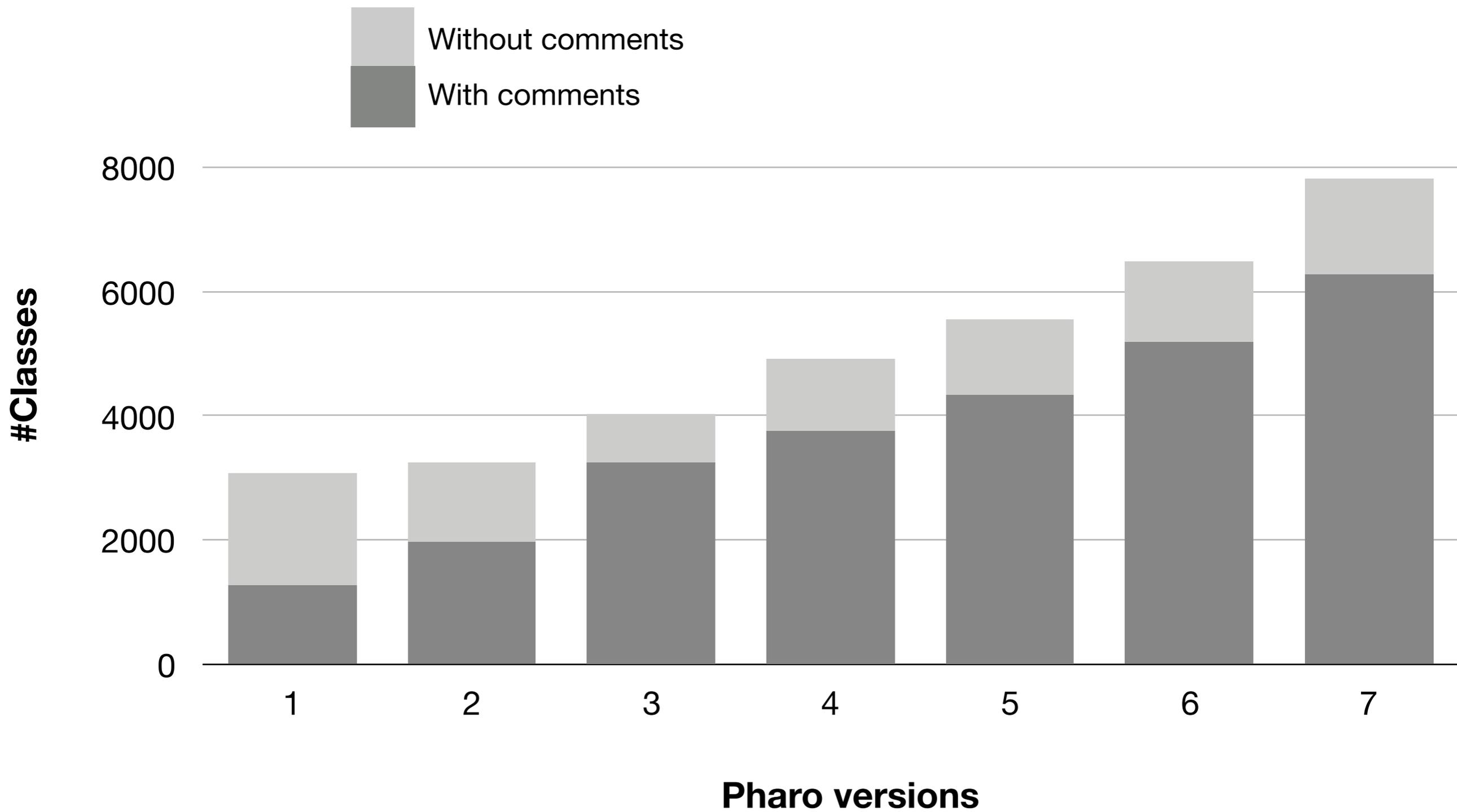
**15% comments**  
**85% code**

# How do developers write comments?

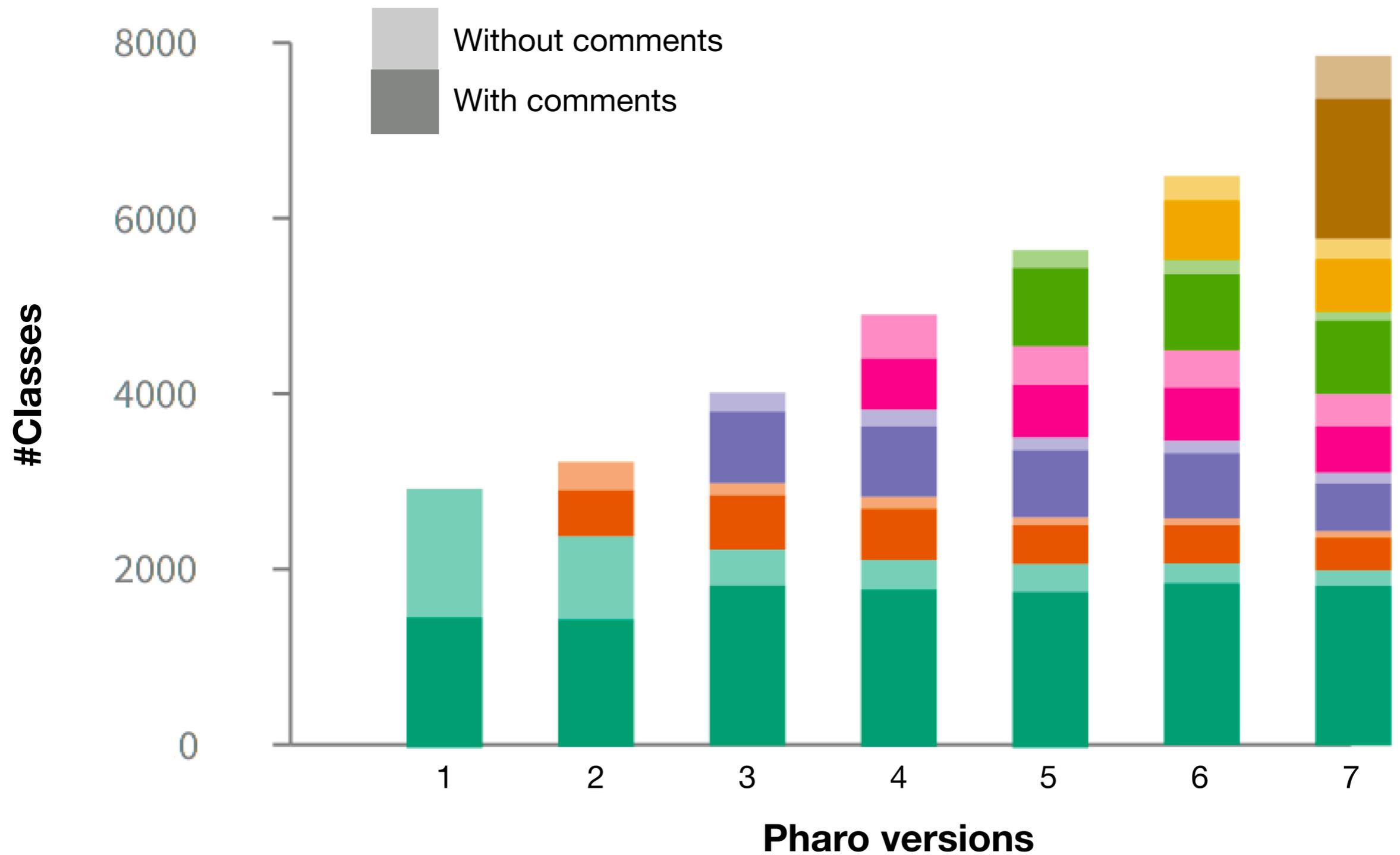
- **How do class comments evolve over time?**
- What is the impact of template on the comments?
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- What is the writing style of developers?



# Evolution of Class Comments



# Evolution of Class Comments



# How do developers write comments?

- How do class comments evolve over time?
- **What is the impact of template on the comments?**
- What information is present in class comments?
- What is the writing style of developers?



# Developers are guided by a default template

```
! Comment x
Please comment me using the following template inspired by Class Responsibility Collaborator (CRC) design:

For the Class part: State a one line summary. For example, "I represent a paragraph of text".

For the Responsibility part: Three sentences about my main responsibilities - what I do, what I know.

For the Collaborators Part: State my main collaborators and one line about how I interact with them.

Public API and Key Messages

- message one
- message two
- (for bonus points) how to create instances.

    One simple example is simply gorgeous.

Internal Representation and Key Implementation Points.
```

# Comment markup?

Please comment me using the following template inspired by Class Responsibility Collaborator (CRC) design:

For the Class part: State a one line summary. For example, "**I represent** a paragraph of text".

For the Responsibility part: Three sentences about my main responsibilities – what **I do**, what **I know**.

For the **Collaborators** Part: State my main collaborators and one line about how I interact with them.

## **Public API and Key Messages**

- message one
- message two
- (for bonus points) how to create instances.

One simple **example** is simply gorgeous.

Internal Representation and Key Implementation Points.

Implementation Points

# Comment markup!

**I am** an abstract class to define an Item use by a tree data source of FastTable.

Intent

## Description

---

**I define** the basics methods needed by a FTTreeDataSource.

**I use** FTTreeItem to manage my elements and I am use by a FTFastTable.

## Public API and Key Messages

---

– #data. anObject from: aFTTreeDataSource  
This is my constructor that is use by FTTreeDataSource and

Key Messages

## Example

---

Should not be instanciate.

Internal Representation and Key Implementation Points.

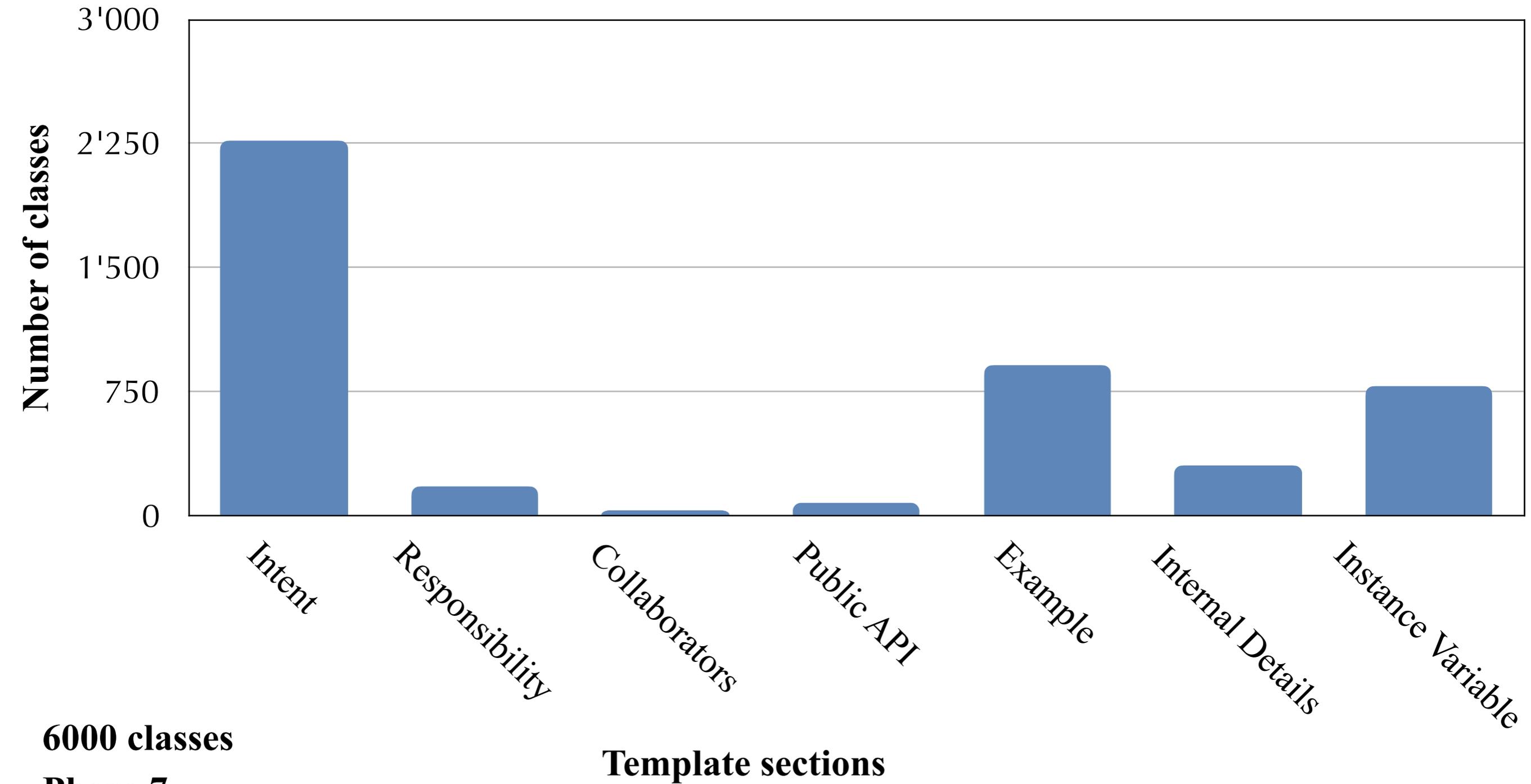
---

### Instance Variables

dataSource: I am the dataSource that holds this Item.

children: I am a collection of Items calculate by the item. I contains the children of the Item.

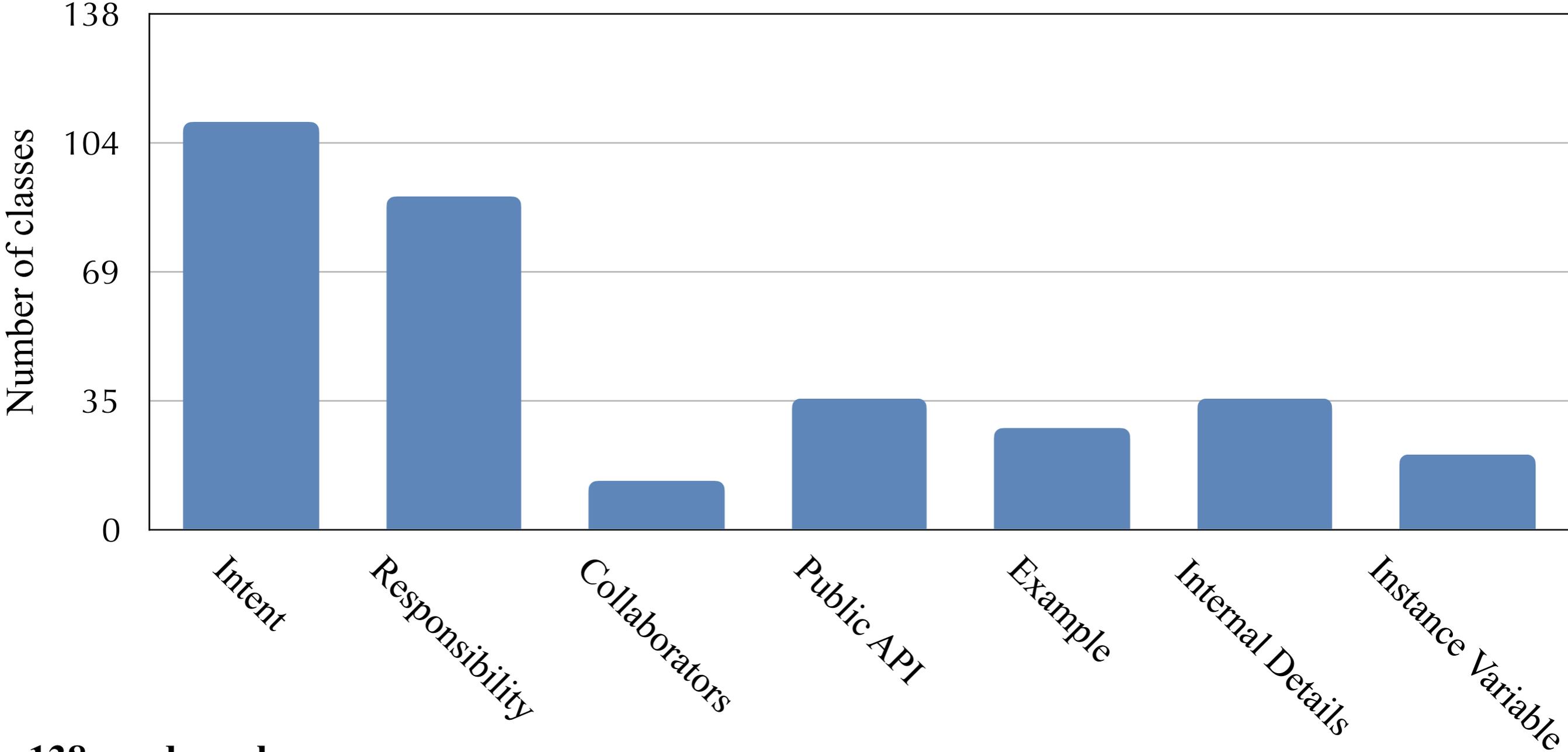
# Template sections found in classes



6000 classes

Pharo 7

# Template sections found- Manual analysis

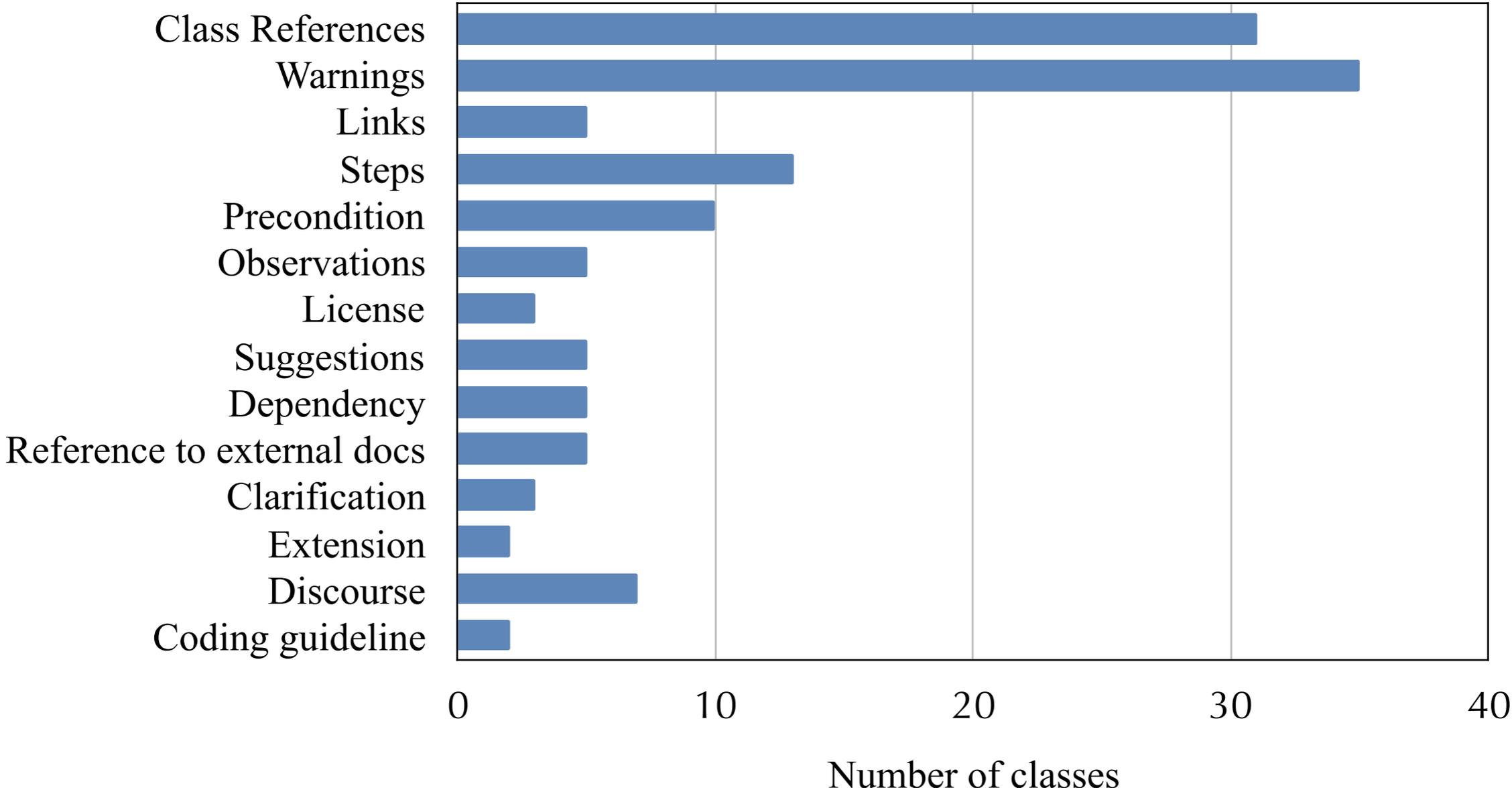


**138 random classes**

**Pharo 7**

**Template sections**

# Extra Information - Manual analysis



**100 random classes**

**Pharo 7**

**Extra categories**

# How do developers write comments?

- How do class comments evolve over time?
- What is the impact of template on the comments?
- **What information is present in class comments?**
- What is the writing style of developers?



# What information is present in class comments?

Responsibility Collaborators Public API  
Intent  
Example Internal Details Instance Variable  
Class References Observations Definition  
Warnings **Comment Soup** License  
Links Suggestions  
Coding guideline Dependency Reference to external docs  
Extension Discourse Clarification

# What information is present in class comments?

## Template Inspired

Intent	Responsibility	Collaborators	Public API
	Example	Internal Details	Instance Variable

## Extra but frequent

Warnings	Class References	Observations	Precondition	License
	Steps	Links	Suggestions	

## Extra but rare

	Coding guideline	Dependency	Reference to external docs
	Extension	Discourse	Clarification

# How do developers write comments?

- How do class comments evolve over time?
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- What information is present in class comments?
- **What is the writing style of developers?**



# Writing style

Comments of length 2-5 lines, have lengthy sentences

Different warning words

Use first person pronouns

Inconsistent parentheses

No formatting standards followed

**“All people are living histories – which is why  
History matters”**

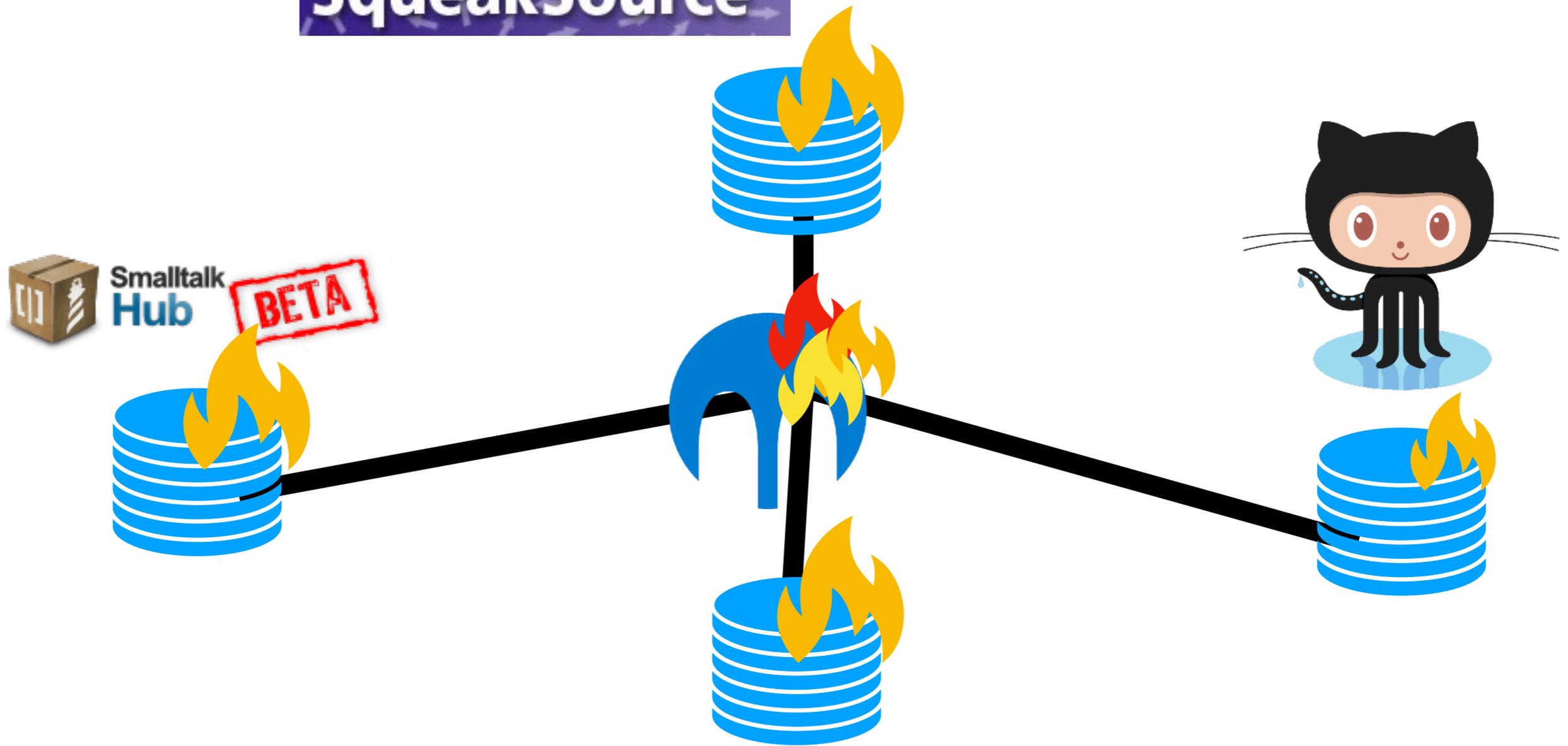
*– Penelope J. Corfield*



**And now for something  
completely different**

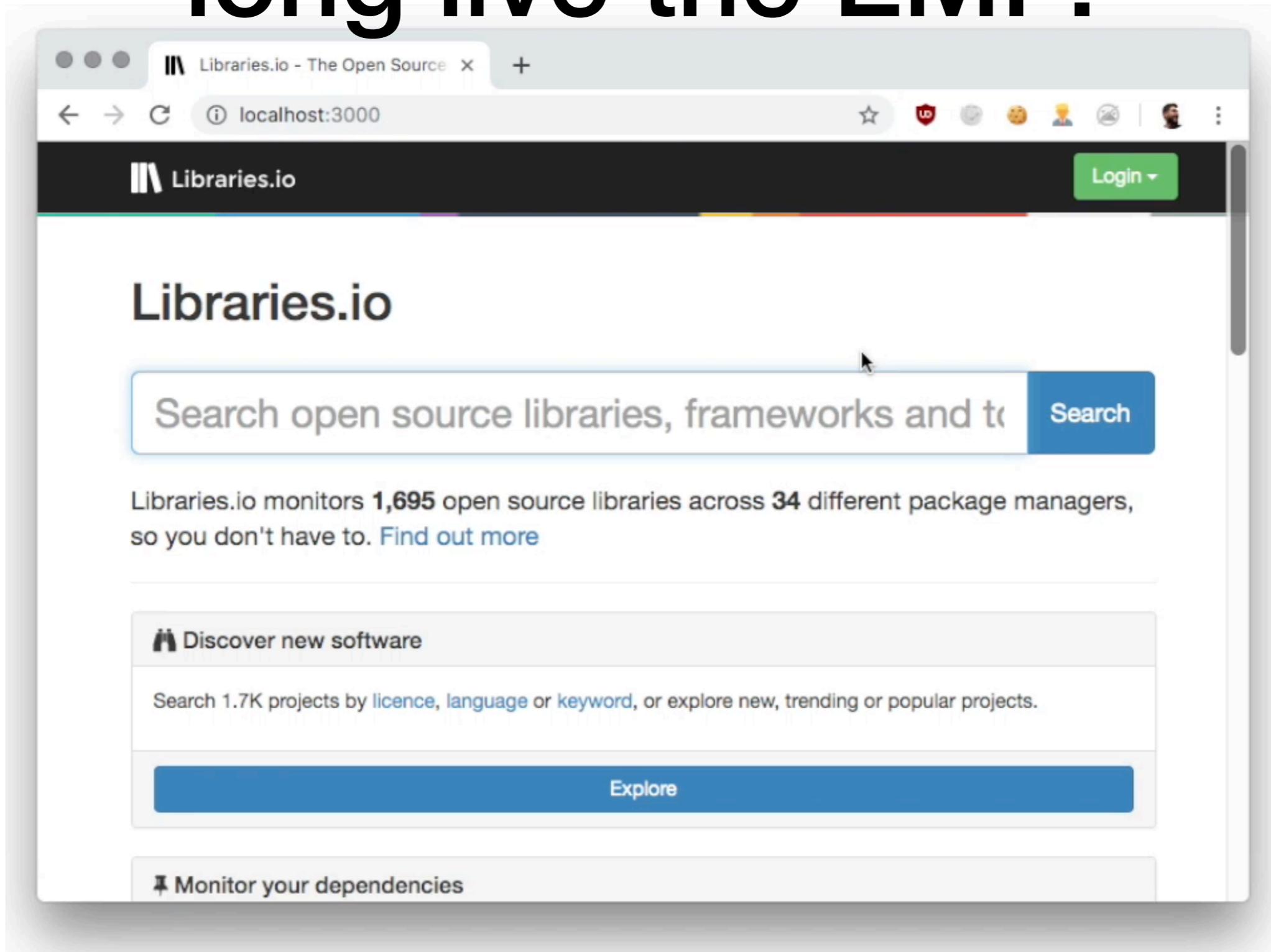
# Gardening the Ecosystem

SqueakSource



SqueakSource<sup>3</sup> Public Alpha

# The EMF is dead, long live the EMF!



And now for something  
completely different



**I am lazy**

**I am lazy**

**very, very lazy**

# Swapping dependencies

```
b := RTMondrian new.  
b shape circle  
  size: 15;  
  color: (Color veryLightGray alpha: 0.4);  
  if: [ :value | toBeRed includes: value ] fillColor: Color red.  
b nodes: (1 to: 100).
```

```
view := GtMondrian new.  
view nodes  
  shape: [ :anInteger :anElement |  
    anElement |  
    geometry: BlEllipse new;  
    size: (anInteger max: 5) asPoint;  
    constraintsDo: [ :constraints | constraints padding: (BlInsets all: 10) ] ];  
with: (1 to: 20).
```

# A Pinch of Types

How gradual types can be useful for migration



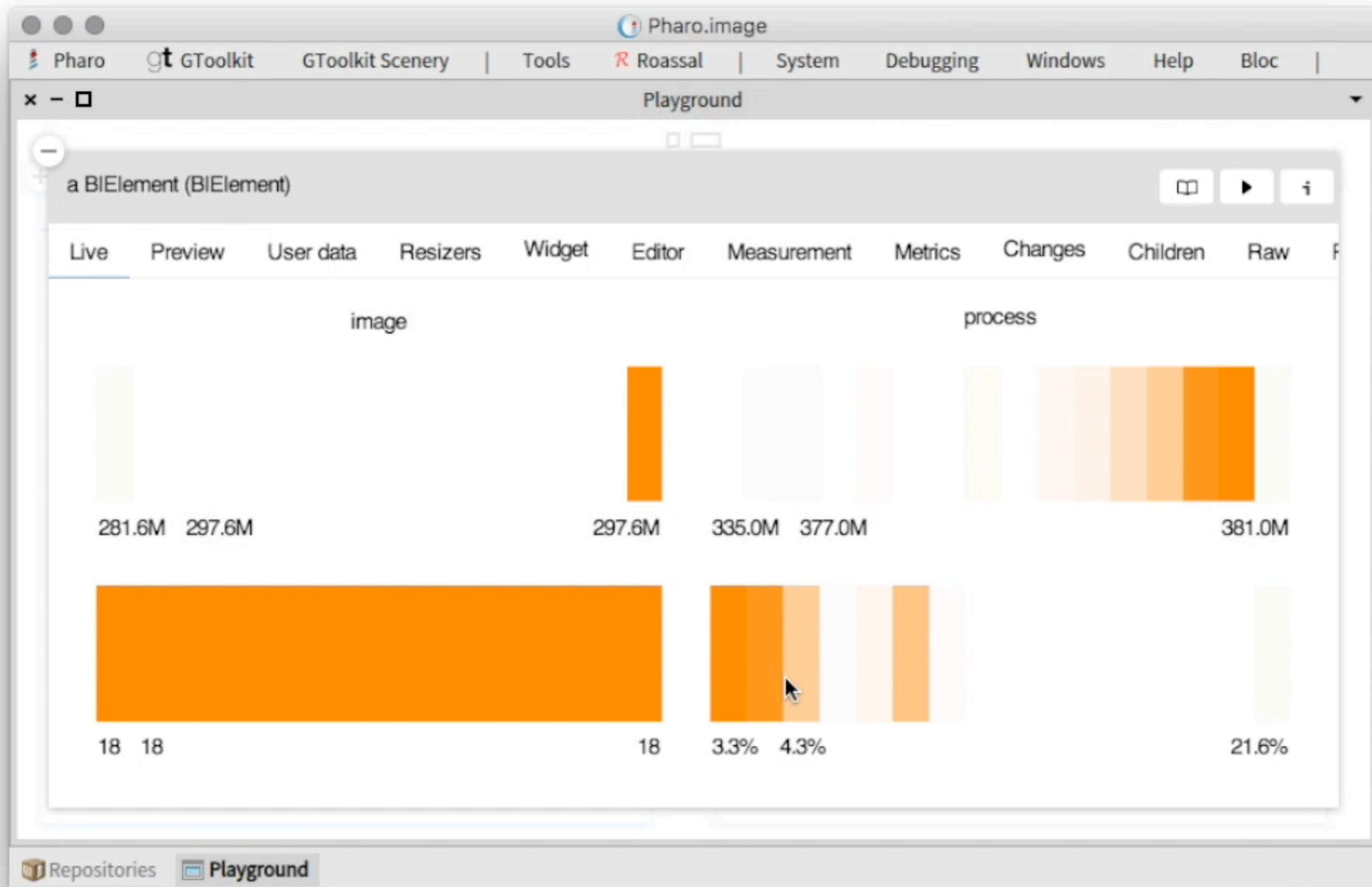
**And now for something  
completely different**



# The Leaky Bowl

A startling encounter in the VM world

# How to write two lines of code in two months



# How to write two lines of code in two months

```
- (void)  
@autorelease  
.  
}  
}
```

OpenSmalltalk / opensmalltalk-vm

Code Issues 63 Pull requests 8 Projects 1 Wiki Insights

Watch 30 Star 221 Fork 67

## fix event memory leak #373

maenu wants to merge 1 commit into OpenSmalltalk:Cog from maenu:leak

Conversation 14 Commits 1 Checks 0 Files changed 1

maenu commented 25 days ago

Fixes a memory leak in the macOS event loop, see discussion on mailing list <http://lists.squeakfoundation.org/pipermail/vm-dev/2019-February/030595.html>

fix event memory leak

krono reviewed 25 days ago

platforms/iOS/vm/OSX/sqSqueakOSXApplication+events.m

```
... @@ -73,6 +73,8 @@ @implementation sqSqueakOSXApplication (events)  
73 73 // If the event does not correspond to this window, we take it from the e  
74 74 // This gives other windows the opportunity to consume their events  
75 75 - (void) pumpRunLoopEventSendAndSignal:(BOOL)signal {  
76 + @autoreleasepool {  
77 + NSEvent *event;  
78 + NSMutableArray *alienEventQueue = [[NSMutableArray alloc] init];  
76 78  
77 79  
79 - NSMutableArray *alienEventQueue = [[NSMutableArray alloc] init;  
79 + NSMutableArray *alienEventQueue = [AUTORELEASEOBJ]([[NSMutableArray alloc] init];
```

```
)signal {
```

giving me those tasty leak

pecting FFI, possibly in Moz2D, to

to be either on the plugin or VM side.

leaks show up in the report or will they

ome variables. But on macOS, Xcode

k on Linux. I can build the VM with this,

ld be perfect. I think Luke Gorrie does

25 January 2019 at 14:26

# The Bern Experience

- People put effort in commenting classes, not only for new, but also old classes
- Comment template impacts developers, structure helps
- The ecosystem needs love
- Dynamically typed does not mean no types
- Deeper integration of code transformation tools