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

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The Comment Soup

How do developers
write comments?

How do comments evolve?
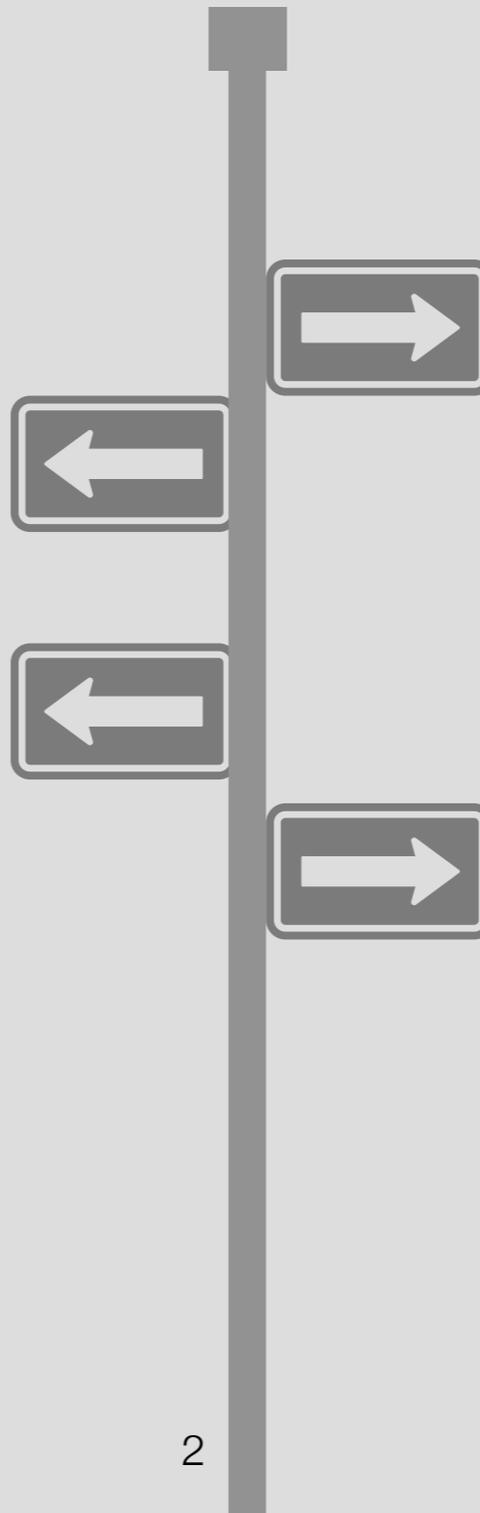
A Pinch of Types

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?
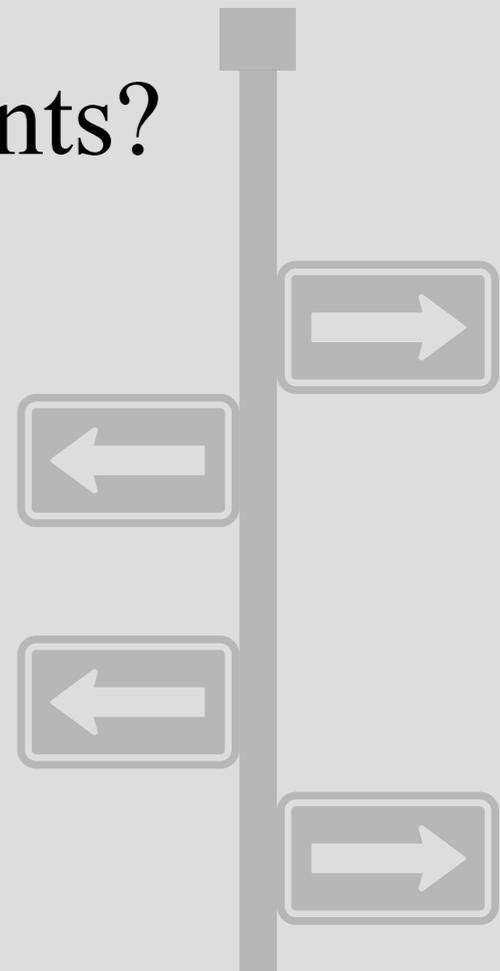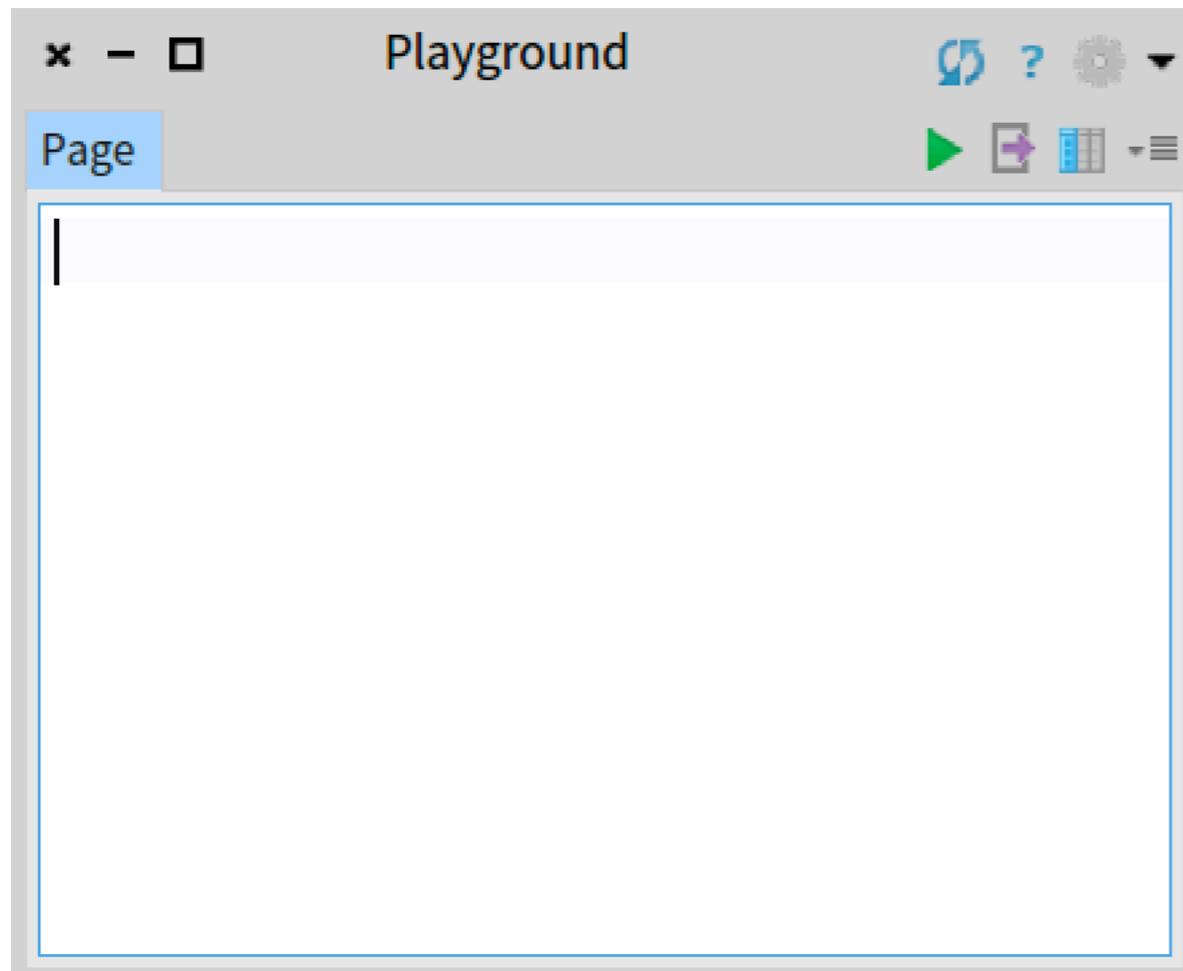
Playground to play with code

Developers express their code

! *Comment ✕
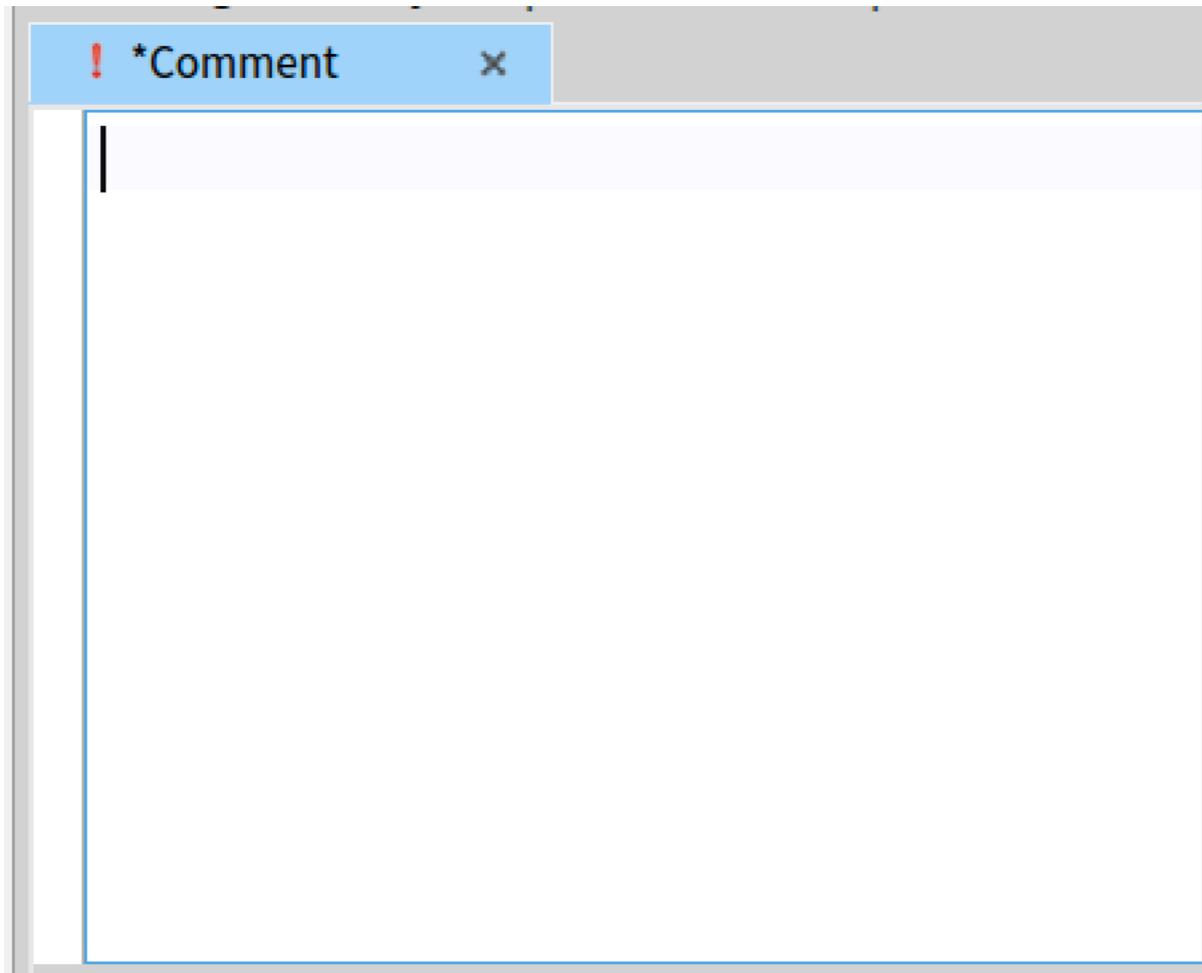
Playground to play with words

Developers express themselves

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

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

Part of Zinc HTTP Components.

Warning

Link

Dependency

Wow! I am the biezer 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
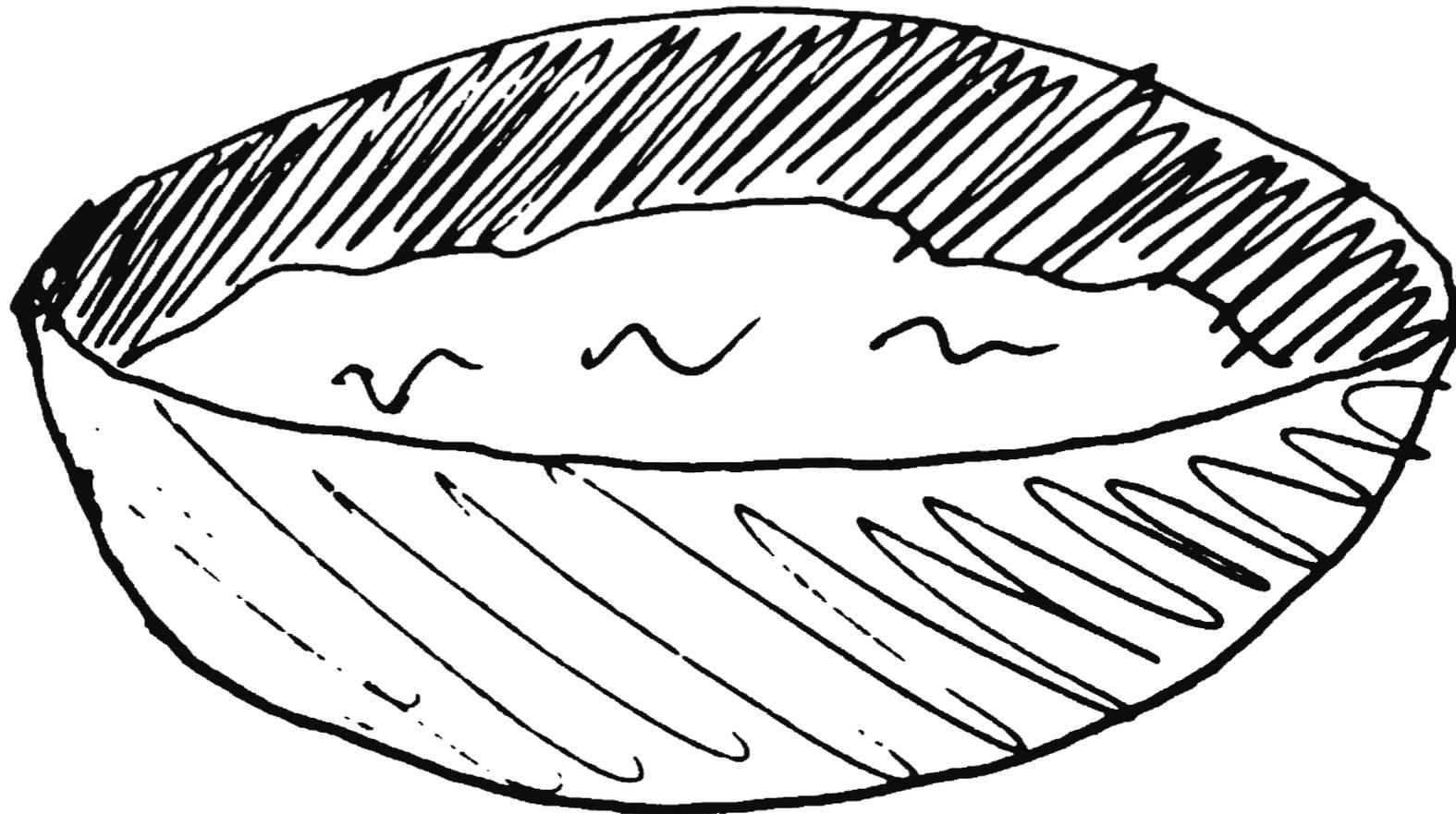
15% comments
85% code

How do developers write comments?

- **How do class comments evolve over time?**

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Evolution of Class Comments
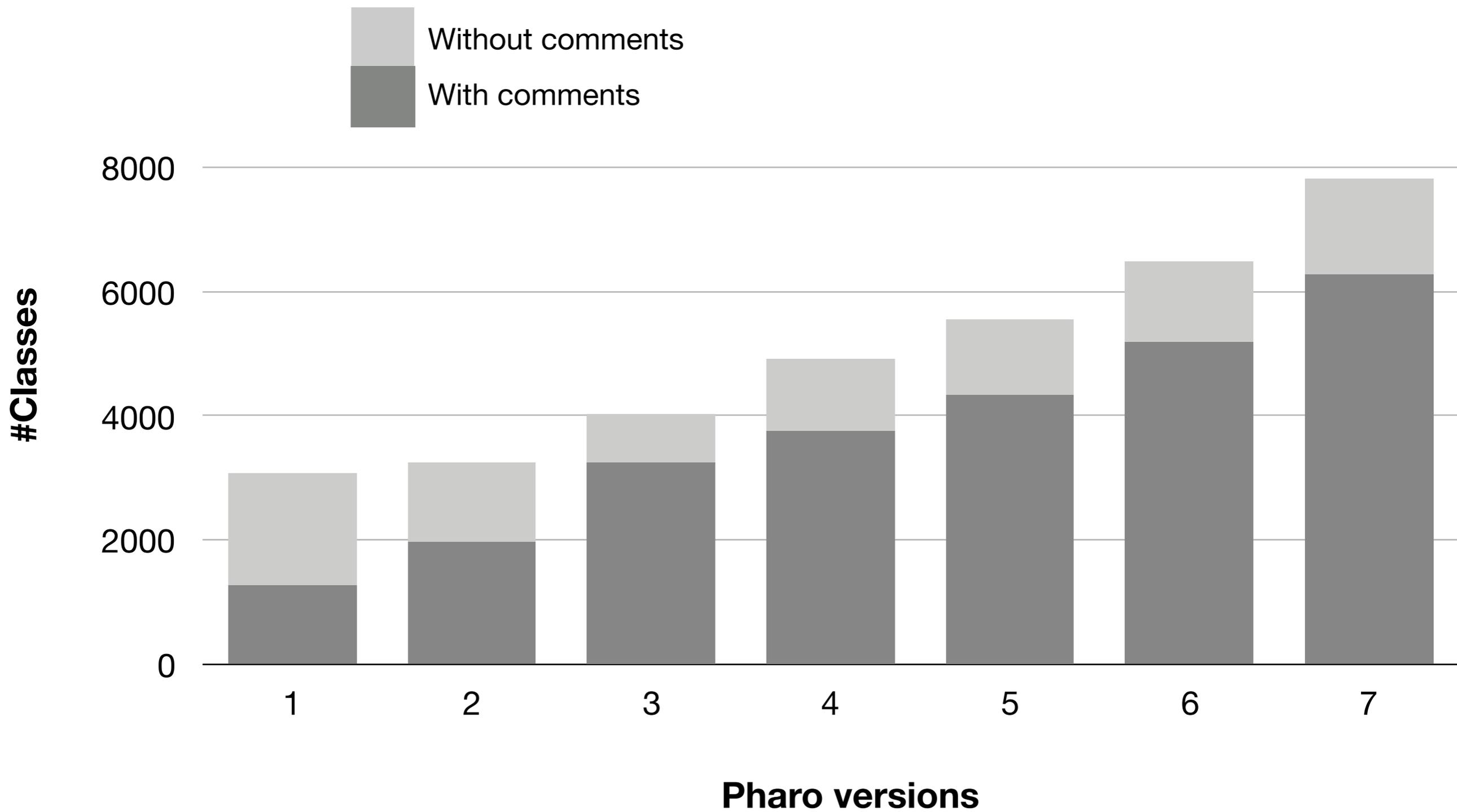
Evolution of Class Comments
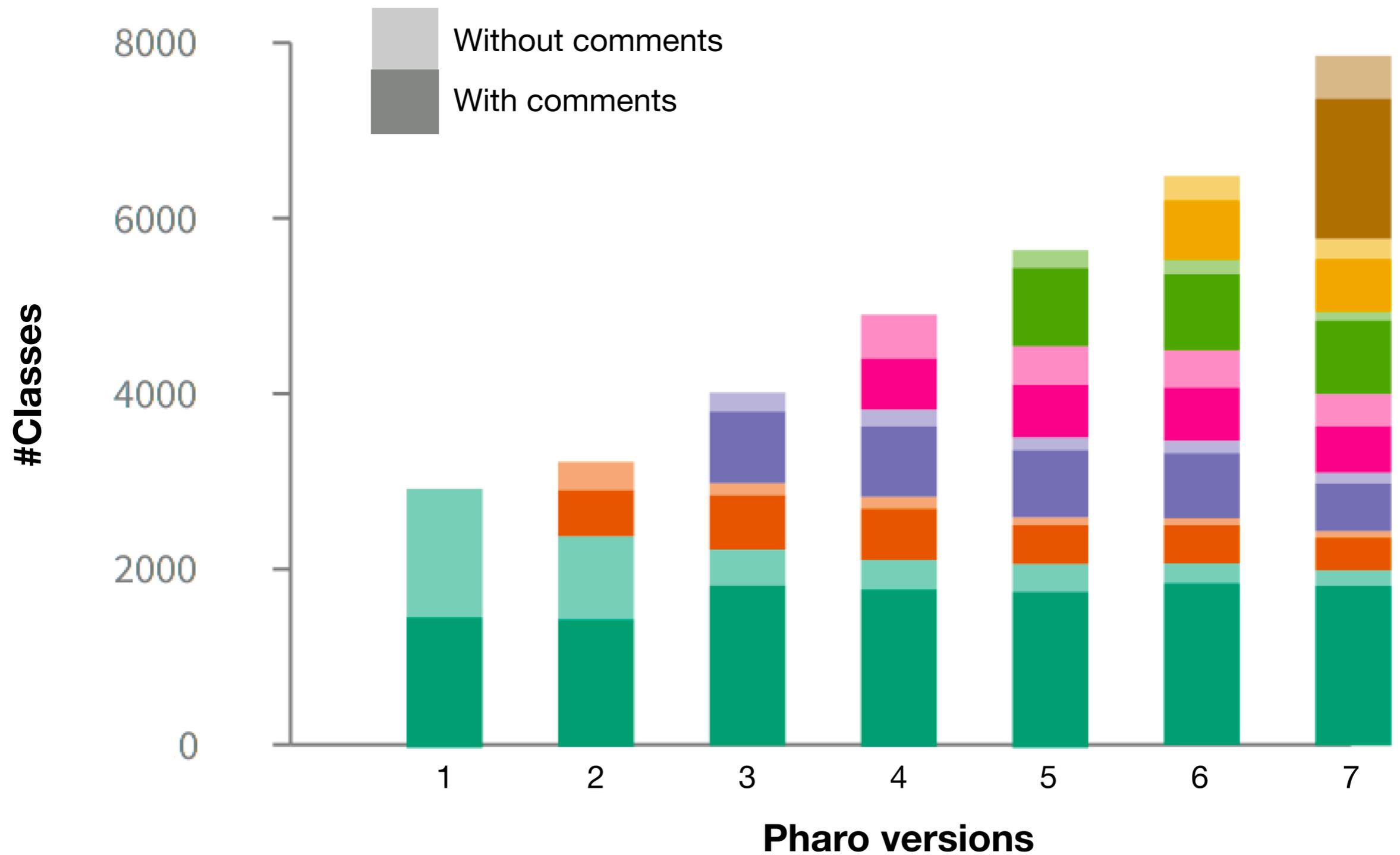
Without comments

With comments

#Classes

8000

6000

4000

2000

0

1   2   3   4   5   6   7

Pharo versions

How do developers write comments?

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Developers are guided by a default template

```
! Comment          ×

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?

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

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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 Fast
table.                                                              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                    Key Messages
    This is my constructor that is use by FTTreeDataSource and

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 chldren of the Item.
```

Template sections found in classes
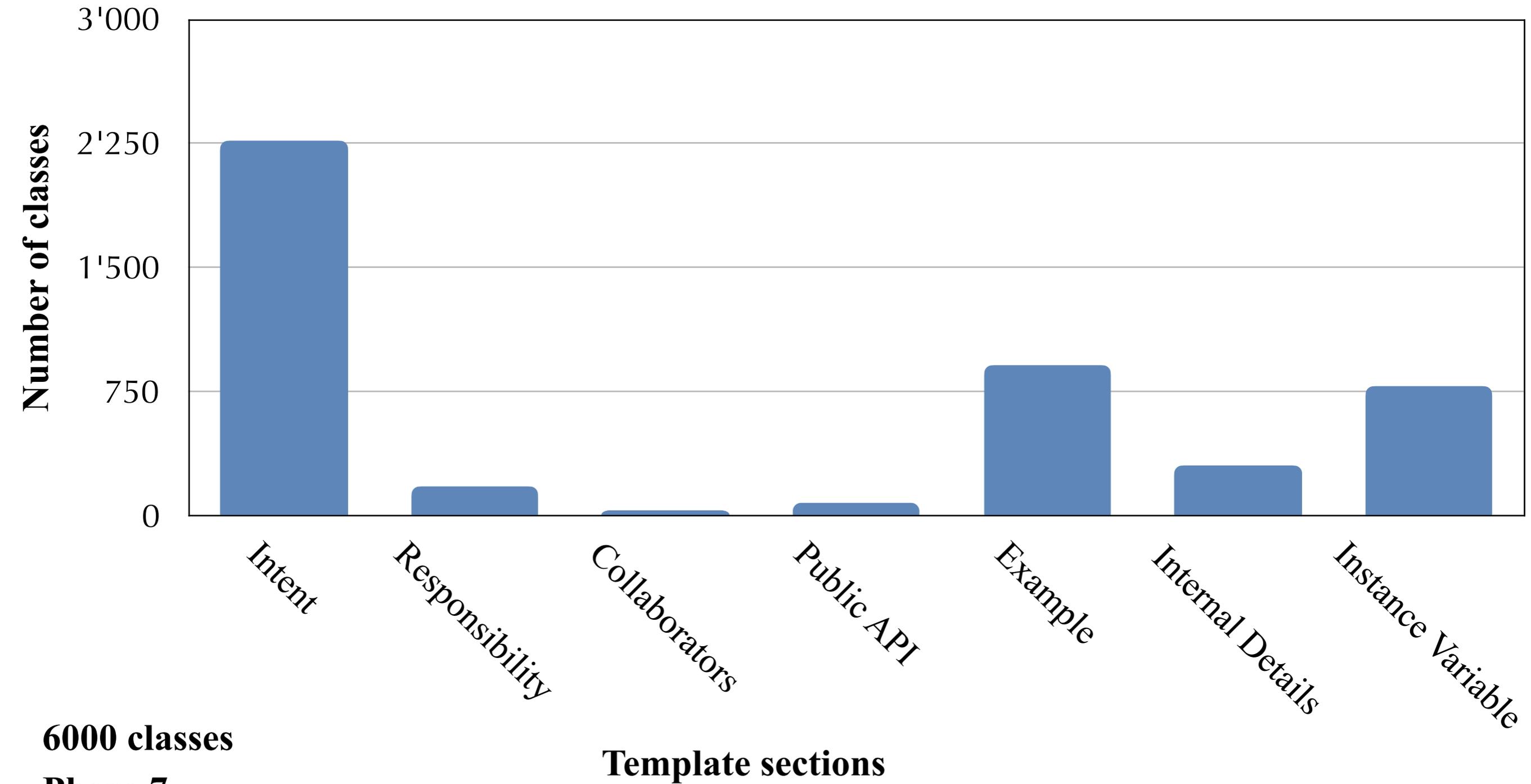
6000 classes
Pharo 7

Template sections found- Manual analysis

Number of classes (y-axis): 138, 104, 69, 35, 0

Template sections (x-axis): Intent, Responsibility, Collaborators, Public API, Example, Internal Details, Instance Variable
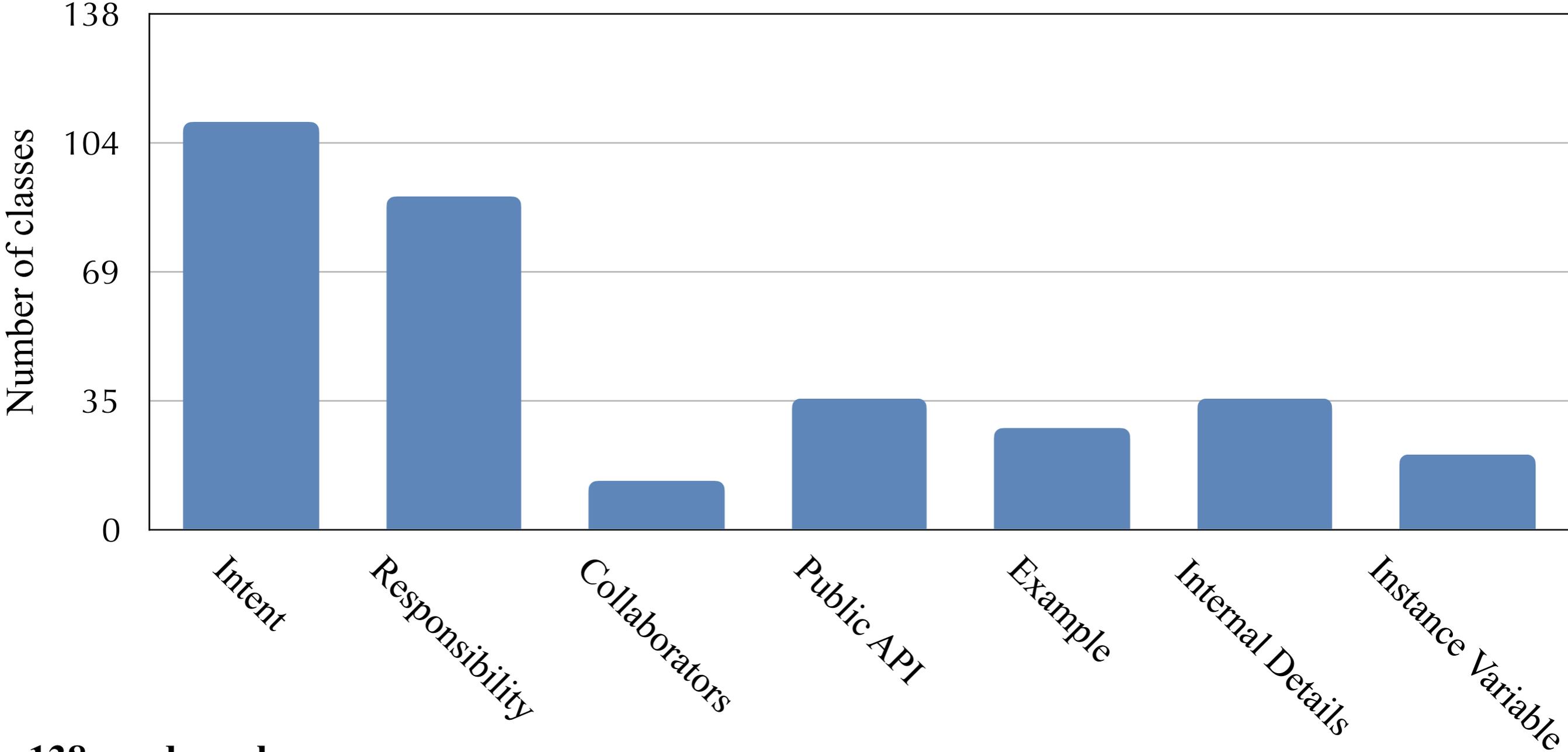
138 random classes
Pharo 7

Extra Information - Manual analysis
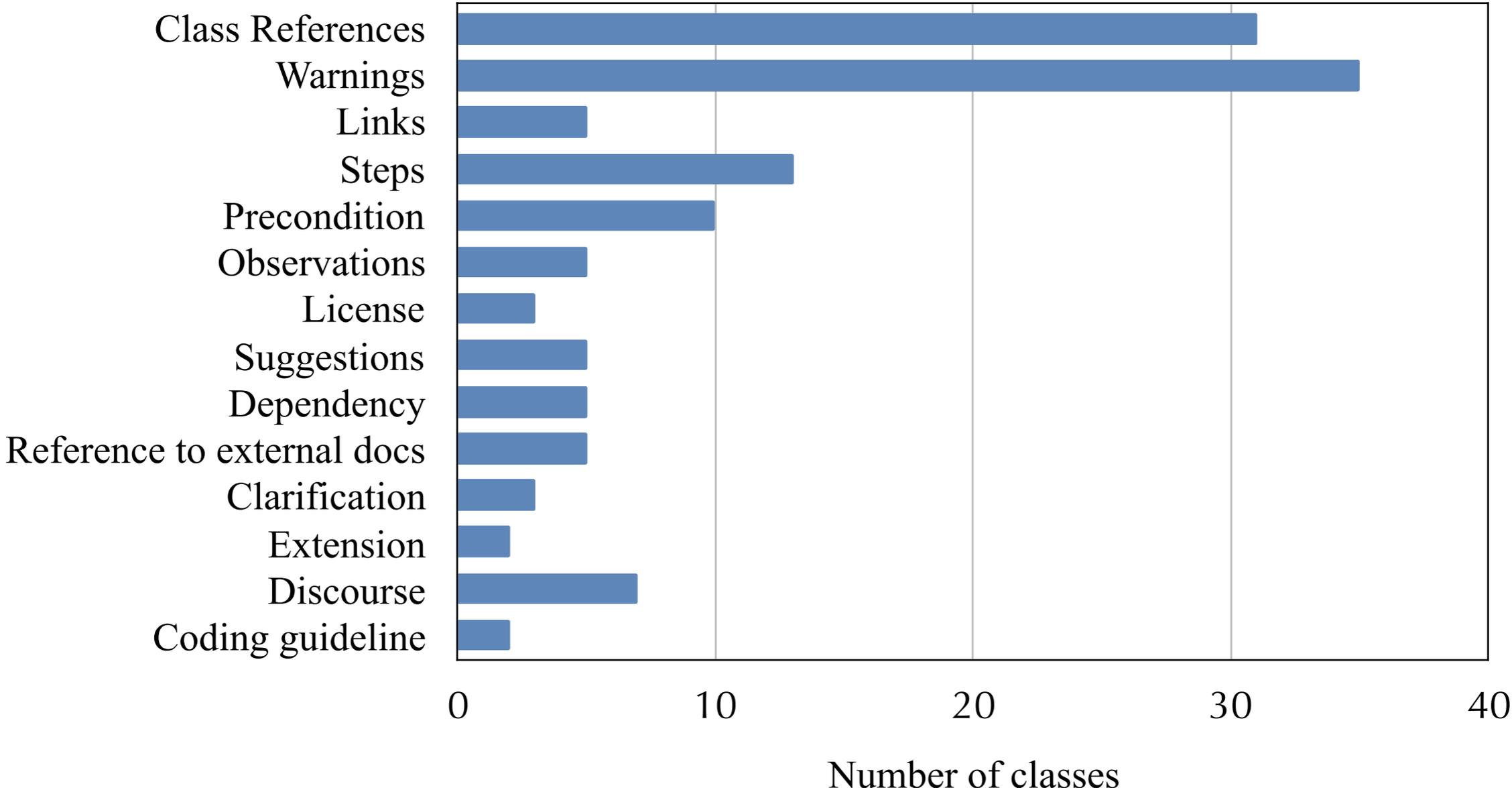
100 random classes

Pharo 7

Extra categories

How do developers write comments?

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What information is present in class comments?

Responsibility   Collaborators   Public API

Intent

Example   Internal Details   Instance Variable

Class References   Observations   ...ition

License

Warnings

Comment Soup

Links   Suggestions

Coding guideline   Dependency   Reference to external docs

Extension   Discourse   Clarification

What information is present in class comments?

Template Inspired

Responsibility	Collaborators	Public API
Intent		
Example	Internal Details	Instance Variable

Extra but frequent

Class References	Observations	Precondition	
			License
Warnings			
Steps	Links	Suggestions	

Extra but rare

Coding guideline	Dependency	Reference to external docs
Extension	Discourse	Clarification

How do developers write comments?

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- **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
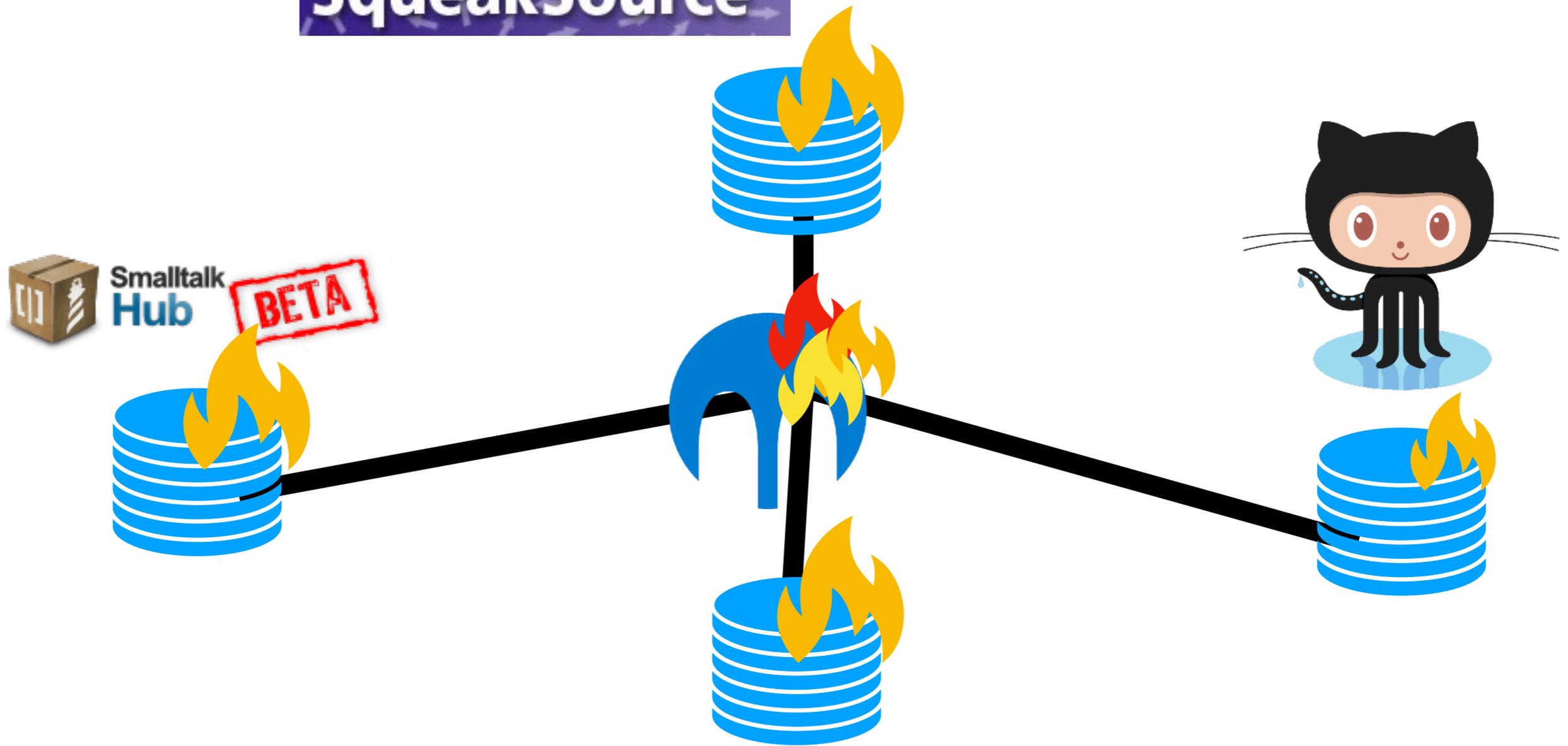
The EMF is dead, long live the EMF!
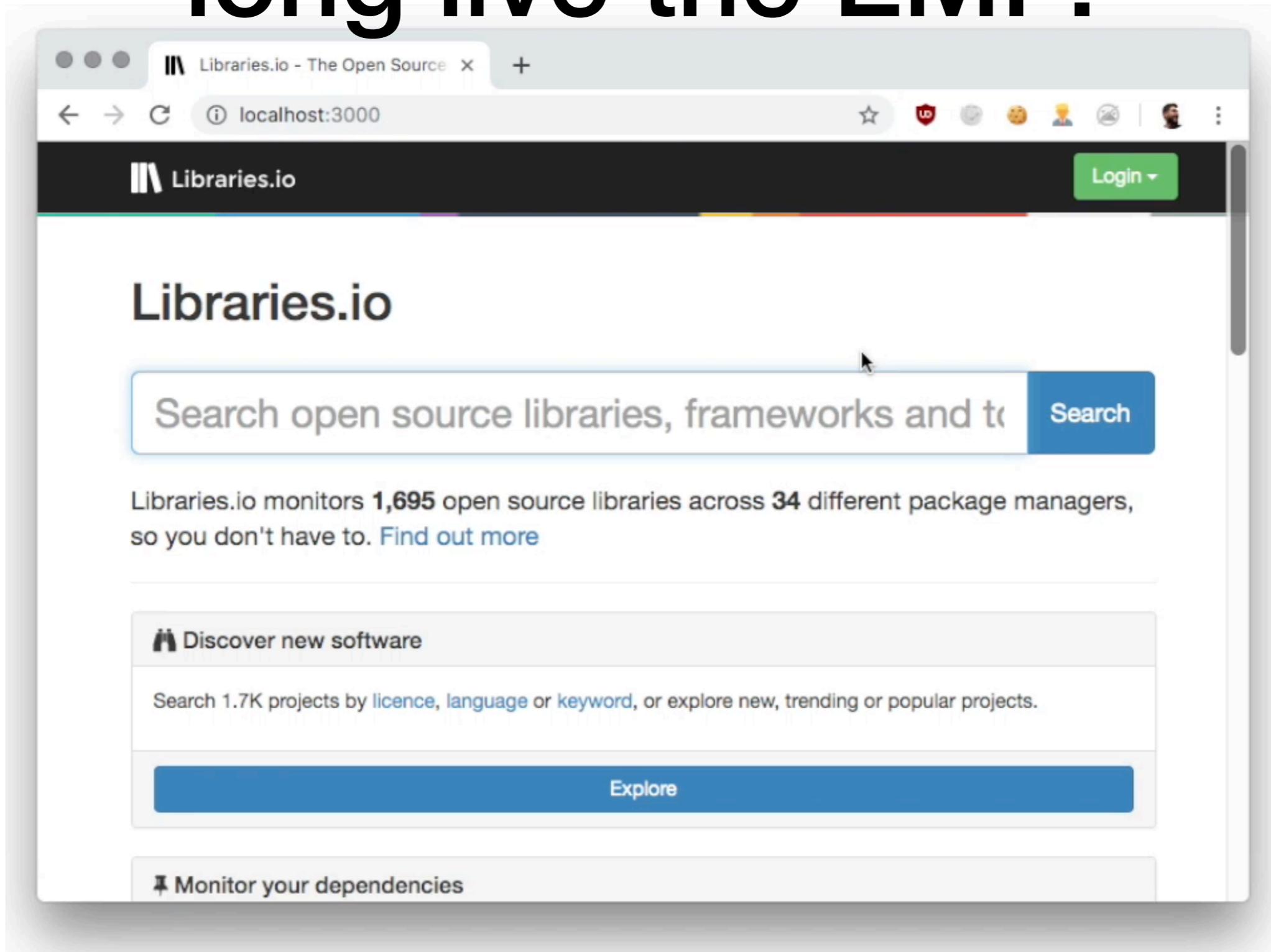
And now for something completely different

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

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