

First steps towards **Self-Adaptive IDEs**



Roberto Minelli

Andrea Mocchi and Michele Lanza

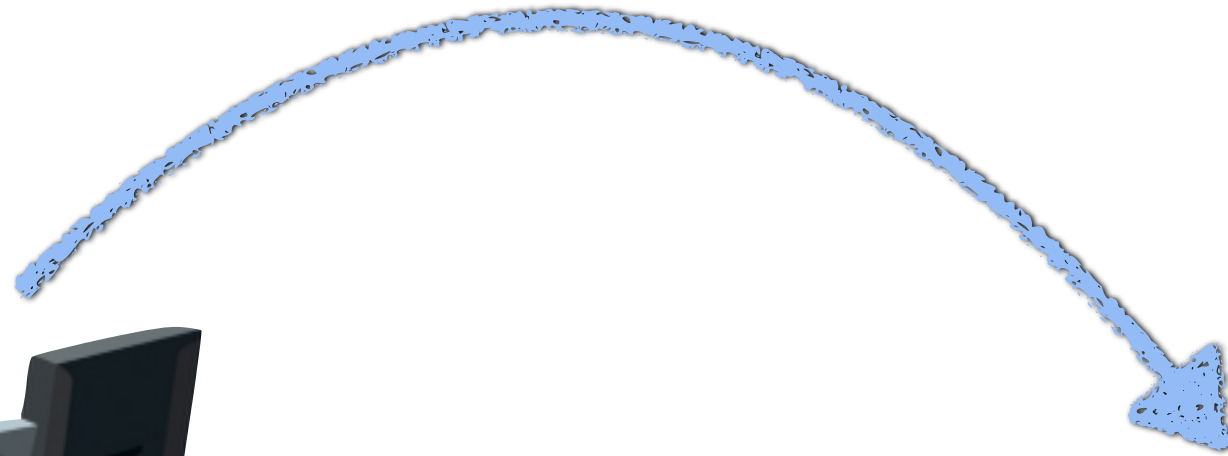
REVEAL @ University of Lugano

<http://dflow.inf.usi.ch>

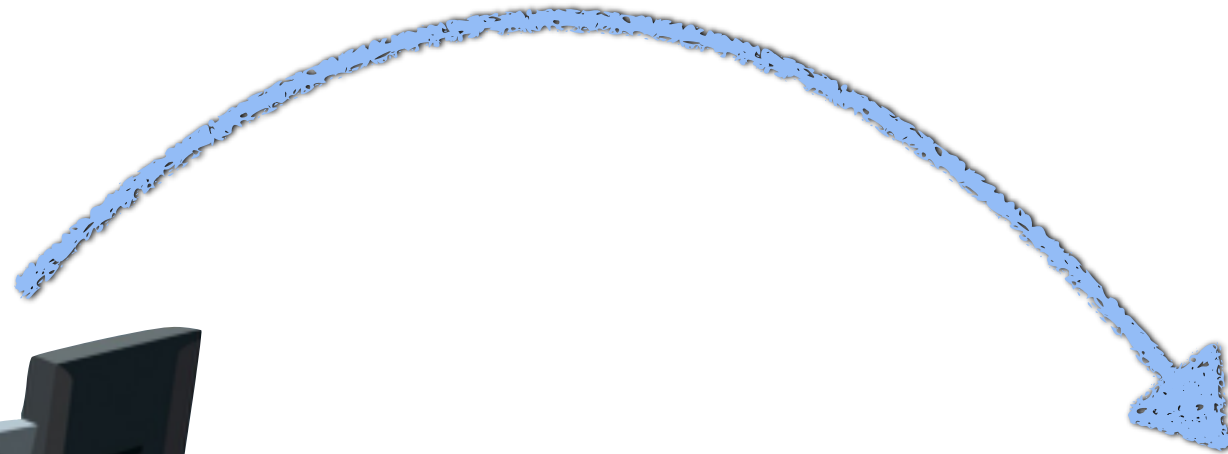




Phar 

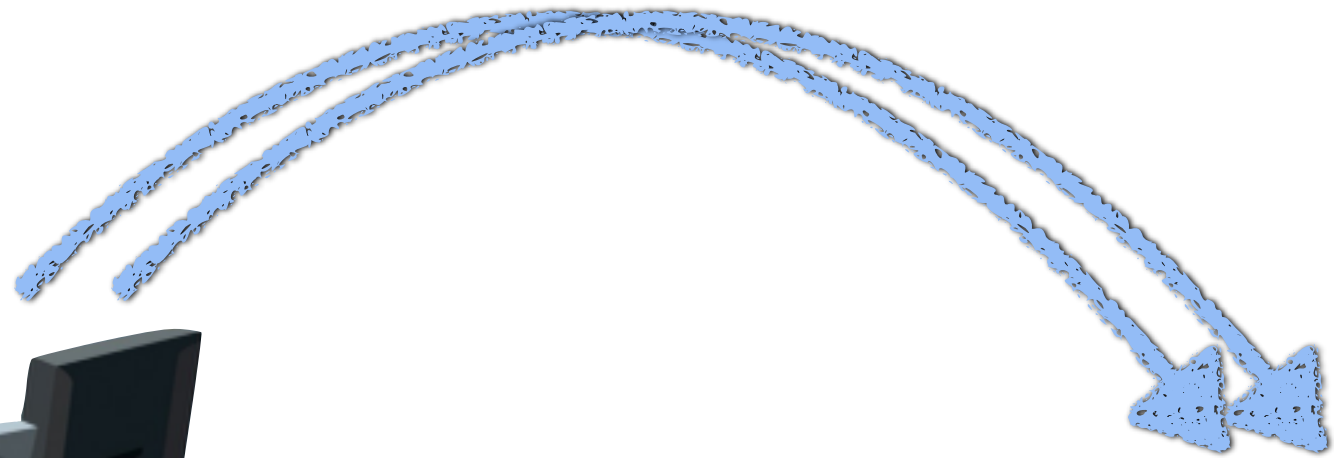


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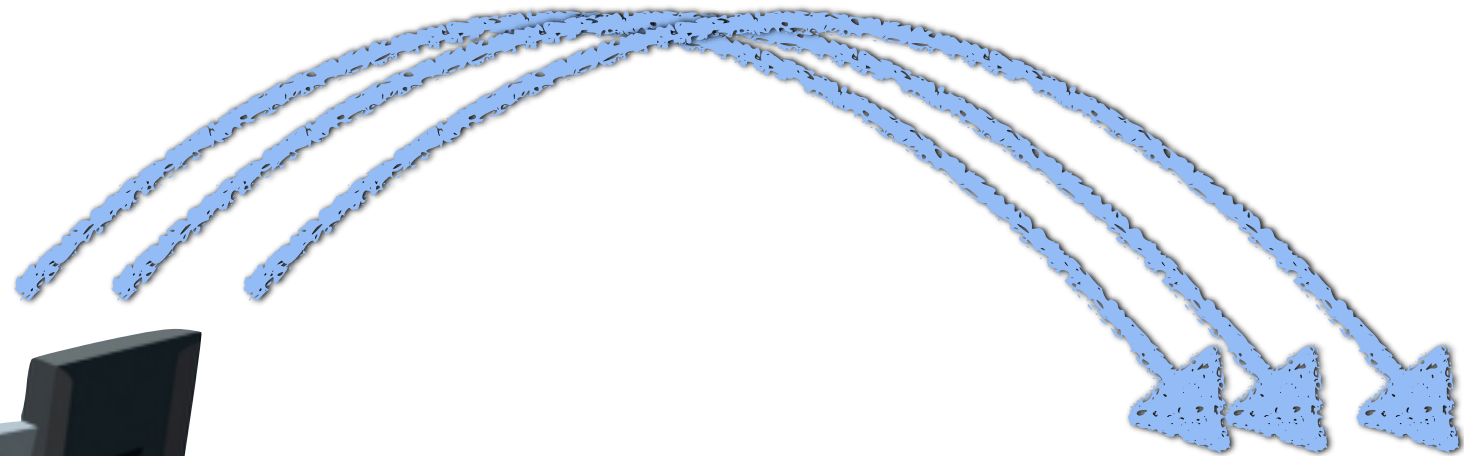
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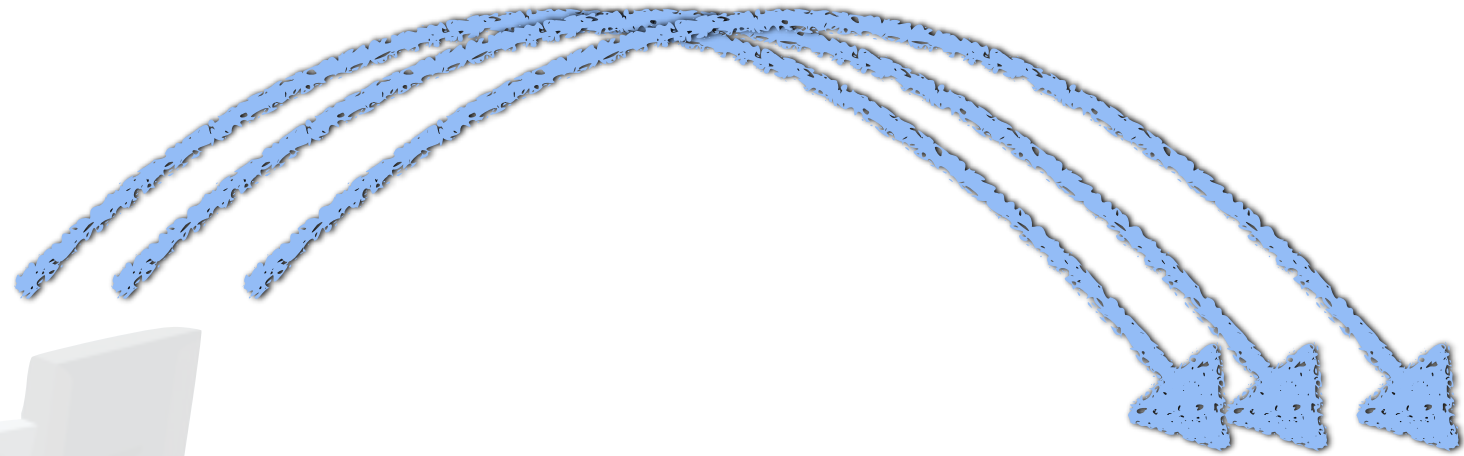
PharO 





Pharo 





Interaction data



Editing a method

Removing a method

Adding a class

Opening & closing a window

Interaction data

Popping up a **refactoring** menu

Inspecting an object at run-time

Opening a **browser** on a method

G. C. Murphy, M. Kersten, and L. Findlater.
*How are java software developers using the
Eclipse IDE? IEEE Software, 2006.*



Interaction data is a
valuable information



**IDEs do not exploit
this information**



Self-Adaptive IDEs



Record



Self-Adaptive IDEs

Record

Process

Self-Adaptive IDEs



Record

Process

**Interaction
data**

Leverage

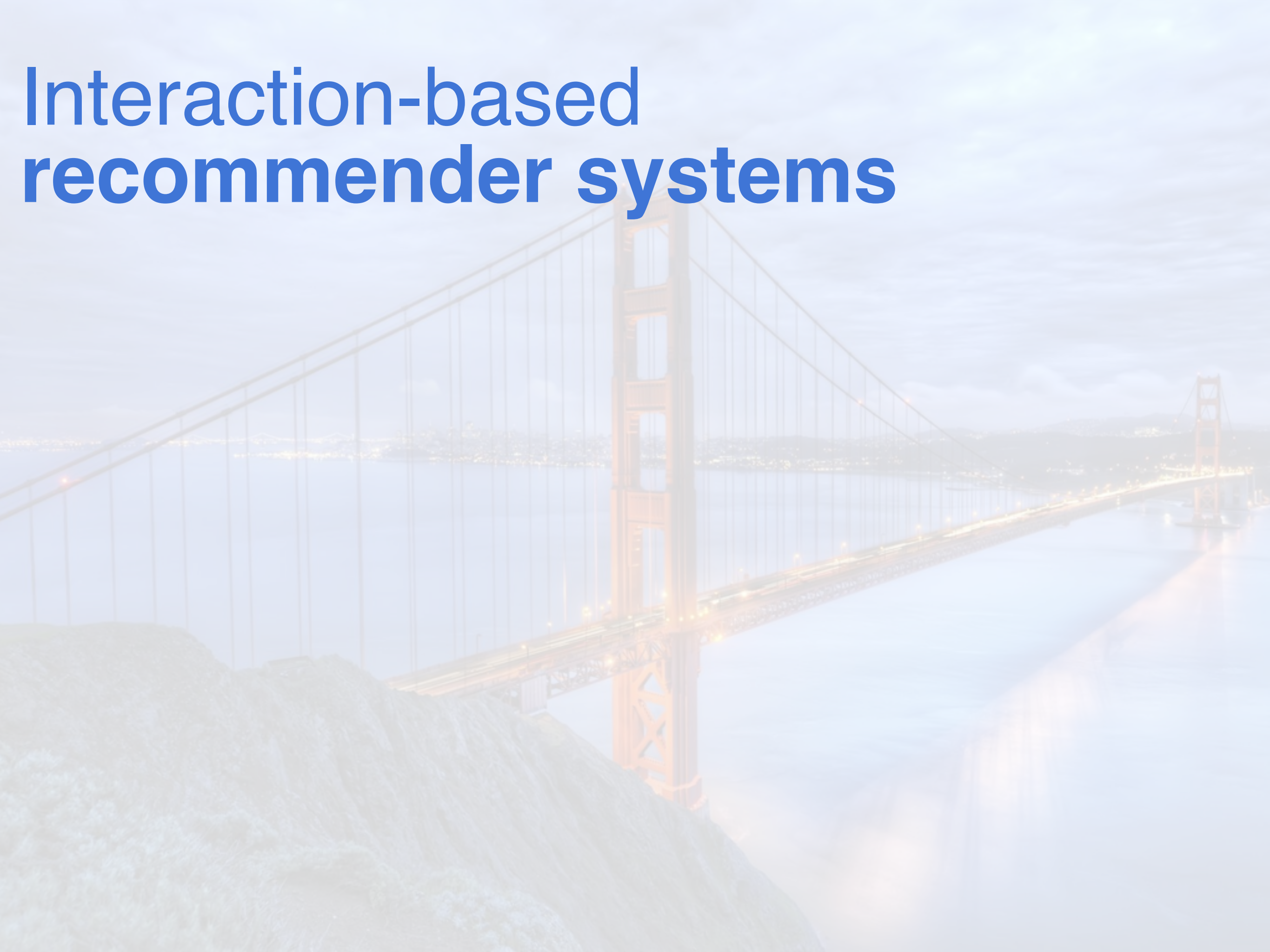
Self-Adaptive IDEs

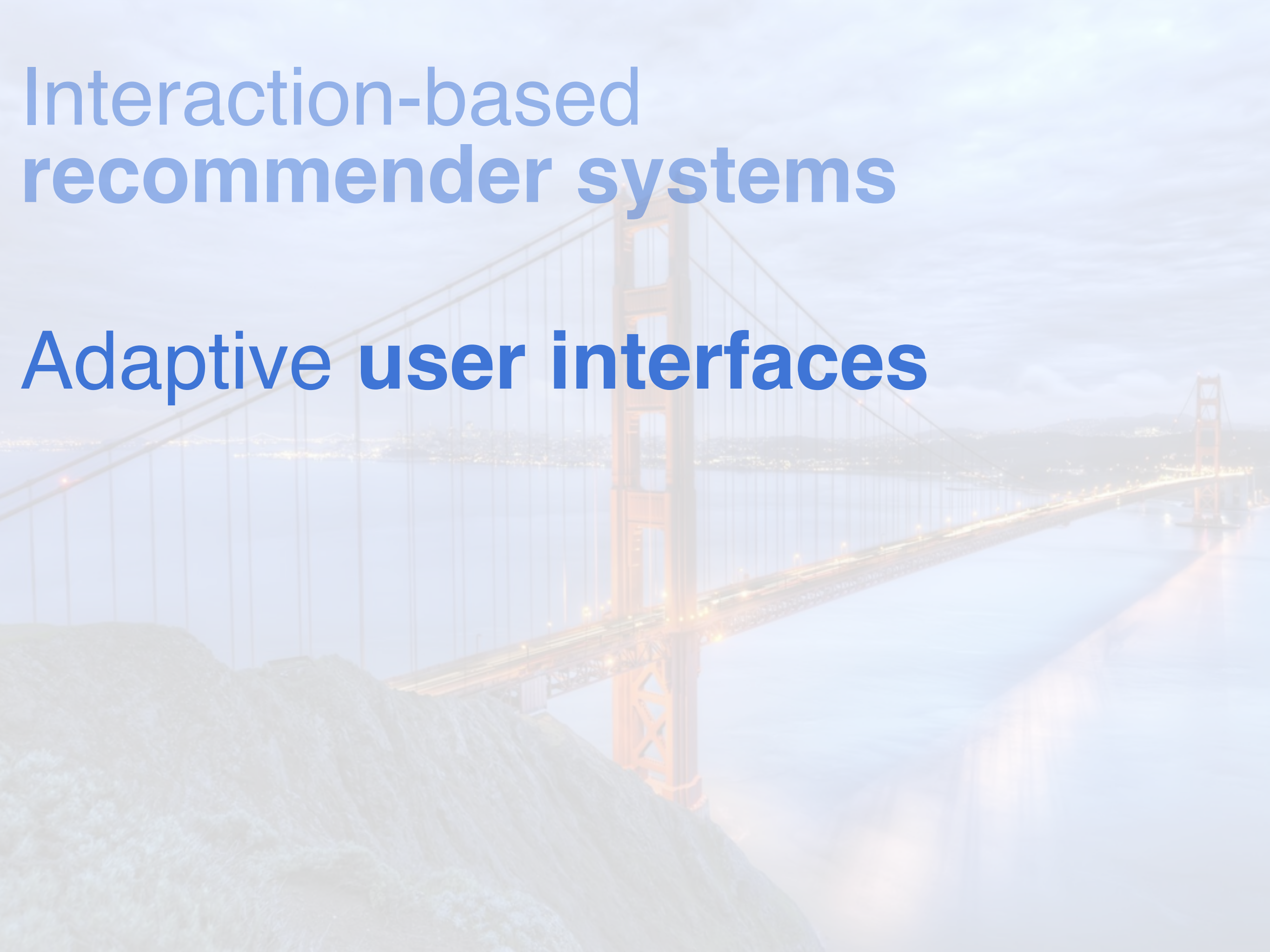




What is it to you?

Interaction-based recommender systems



A photograph of the Golden Gate Bridge in San Francisco at night. The bridge's towers and suspension cables are illuminated with warm lights, and the city lights are visible in the background across the water. The sky is dark with some clouds.

**Interaction-based
recommender systems**

Adaptive user interfaces

Interaction-based recommender systems

Adaptive

Live/adaptive **visualizations**



Interaction-based recommender systems

Provide developers with suggestions on how to **navigate** code more efficiently or how to **debug** code in a faster way.

Adaptive user interfaces

The background of the slide is a photograph of the Golden Gate Bridge in San Francisco, California. The bridge is a suspension bridge with two prominent towers and a long span. The image is slightly faded and has a light blue tint, serving as a background for the text.

Code **browsers** that automatically **reshape themselves** to better support different activities, such as source code navigation.

Visualizations

Live

Visualizations that **co-evolve** with the evolution of the software system. This views can act as a “**visual memory**” for developers.

Visualizations

Live

Visualizations that **co-evolve** with the evolution of the software system. This views can act as a “**visual memory**” for developers.

Adaptive

Visualizations that depending on context, history, and the type of session, **reshape themselves** (e.g., changing layout, colors).



...now



DFlow

<http://dflow.inf.usi.ch>

 ~RobertoMinelli/DevFlow



An interaction profiler for the Pharo IDE

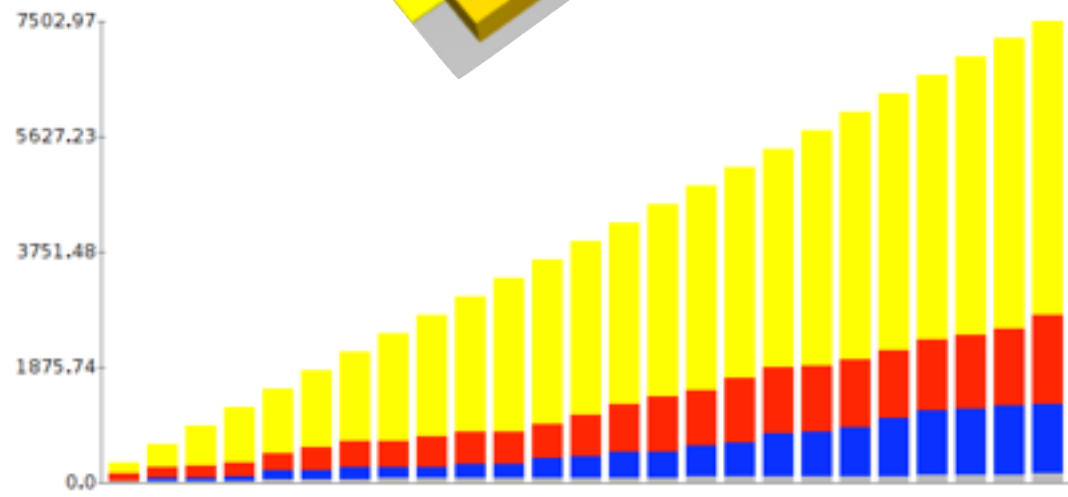
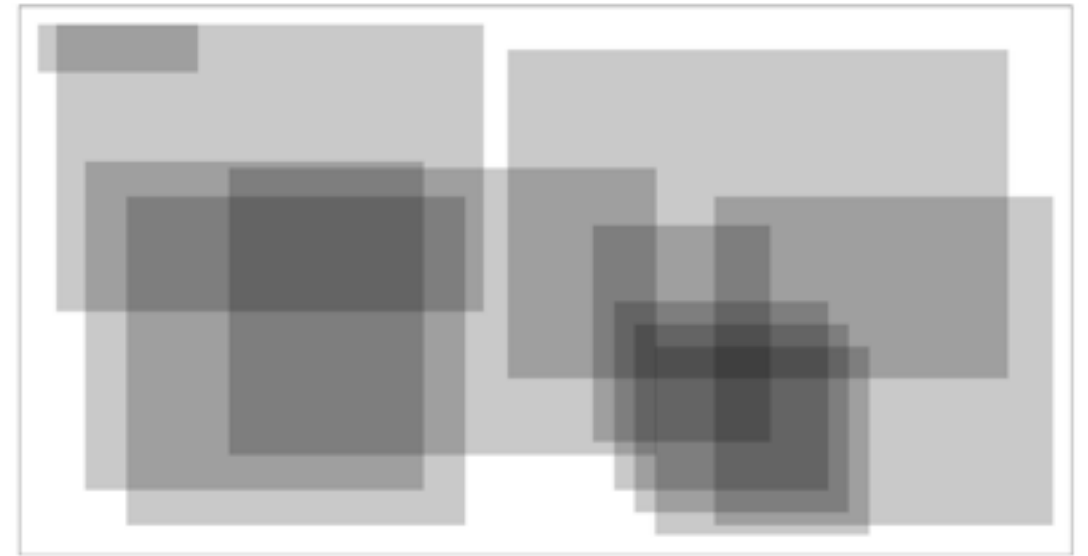
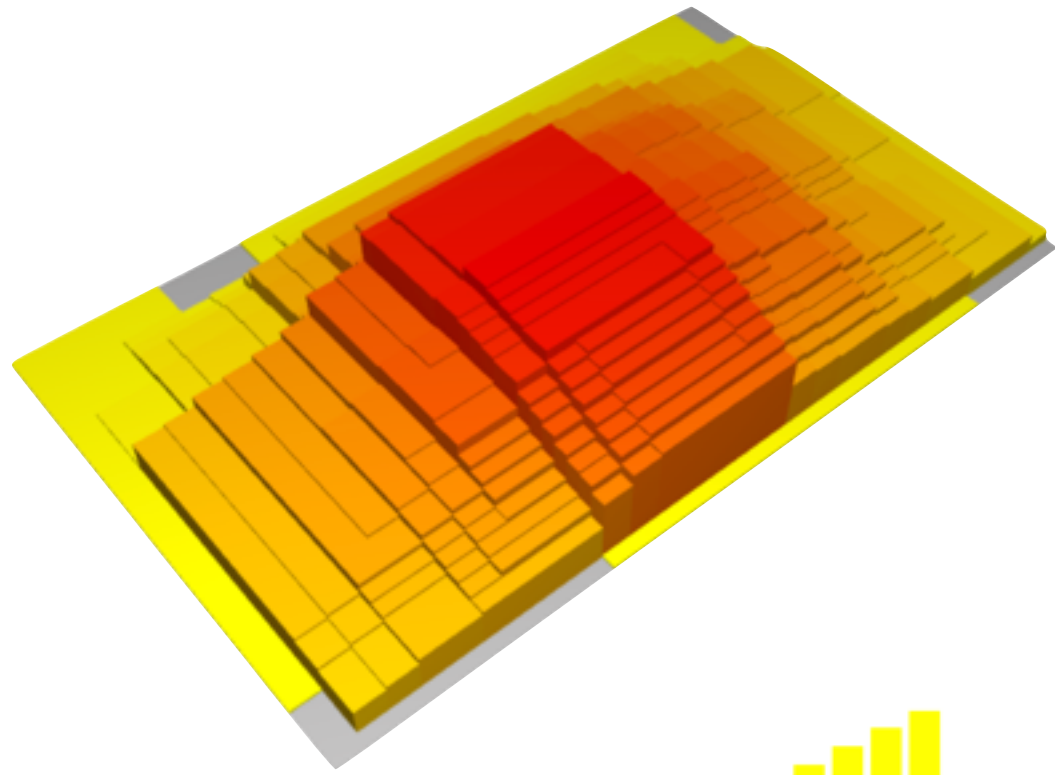
DFlow

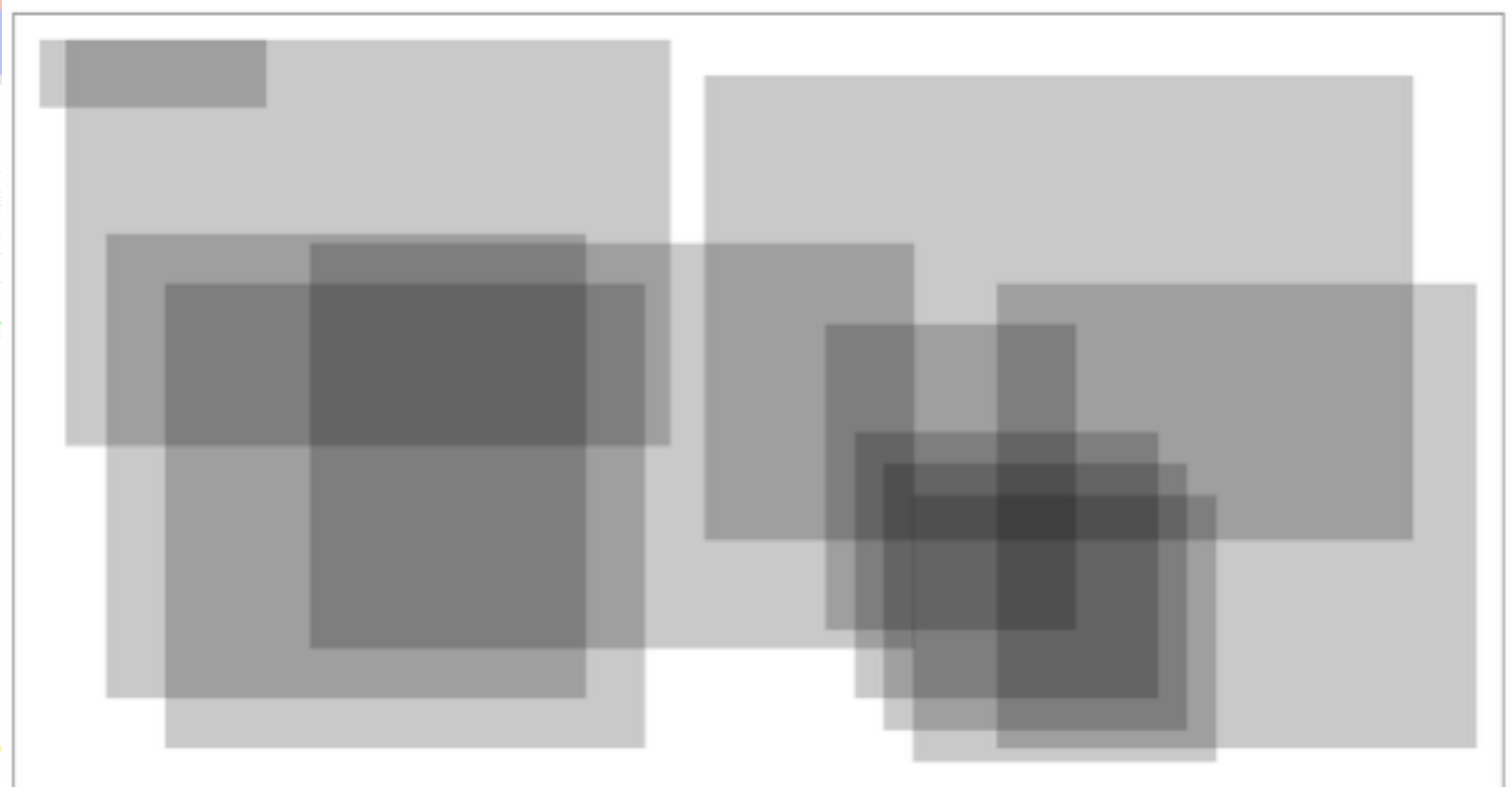
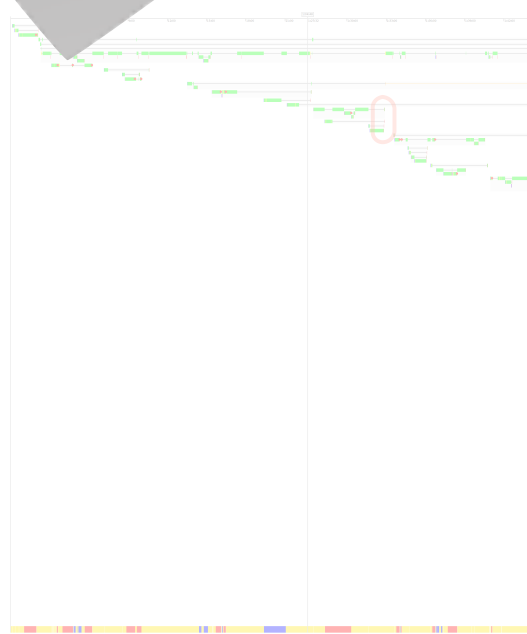
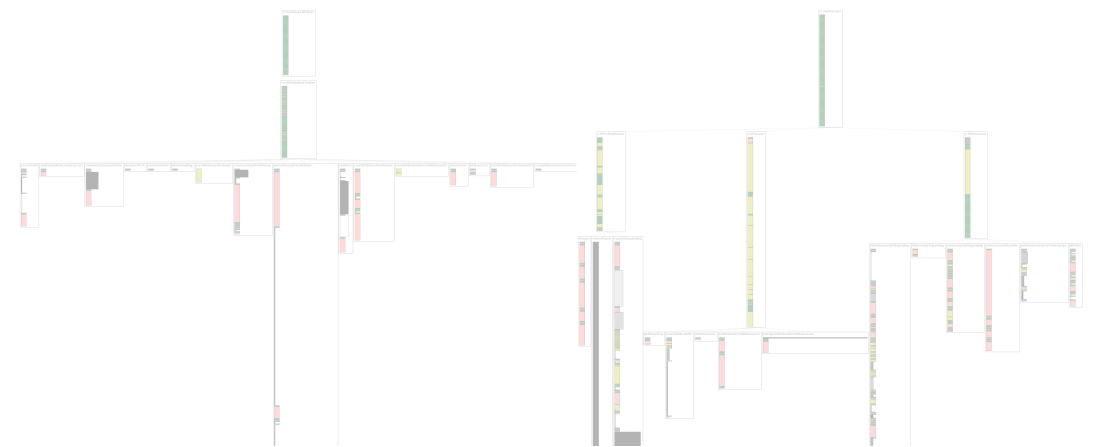
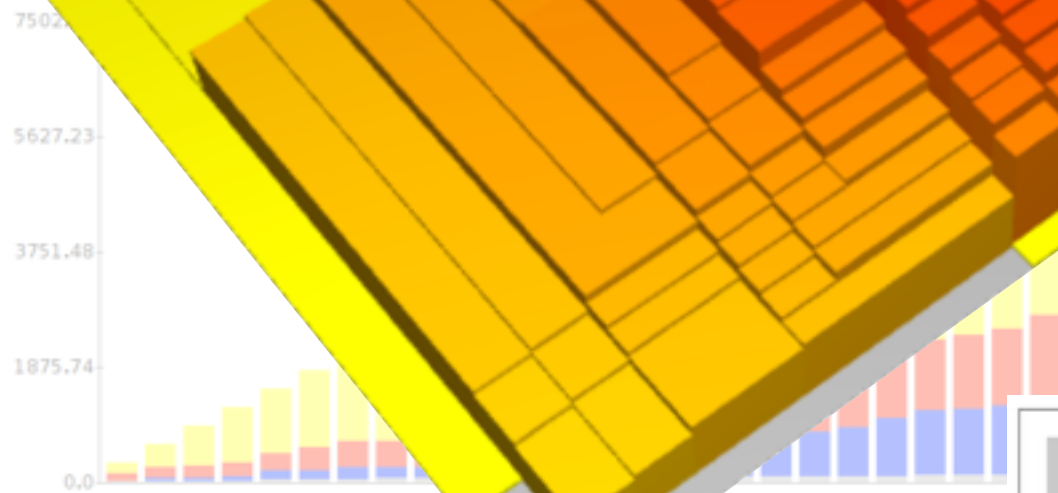
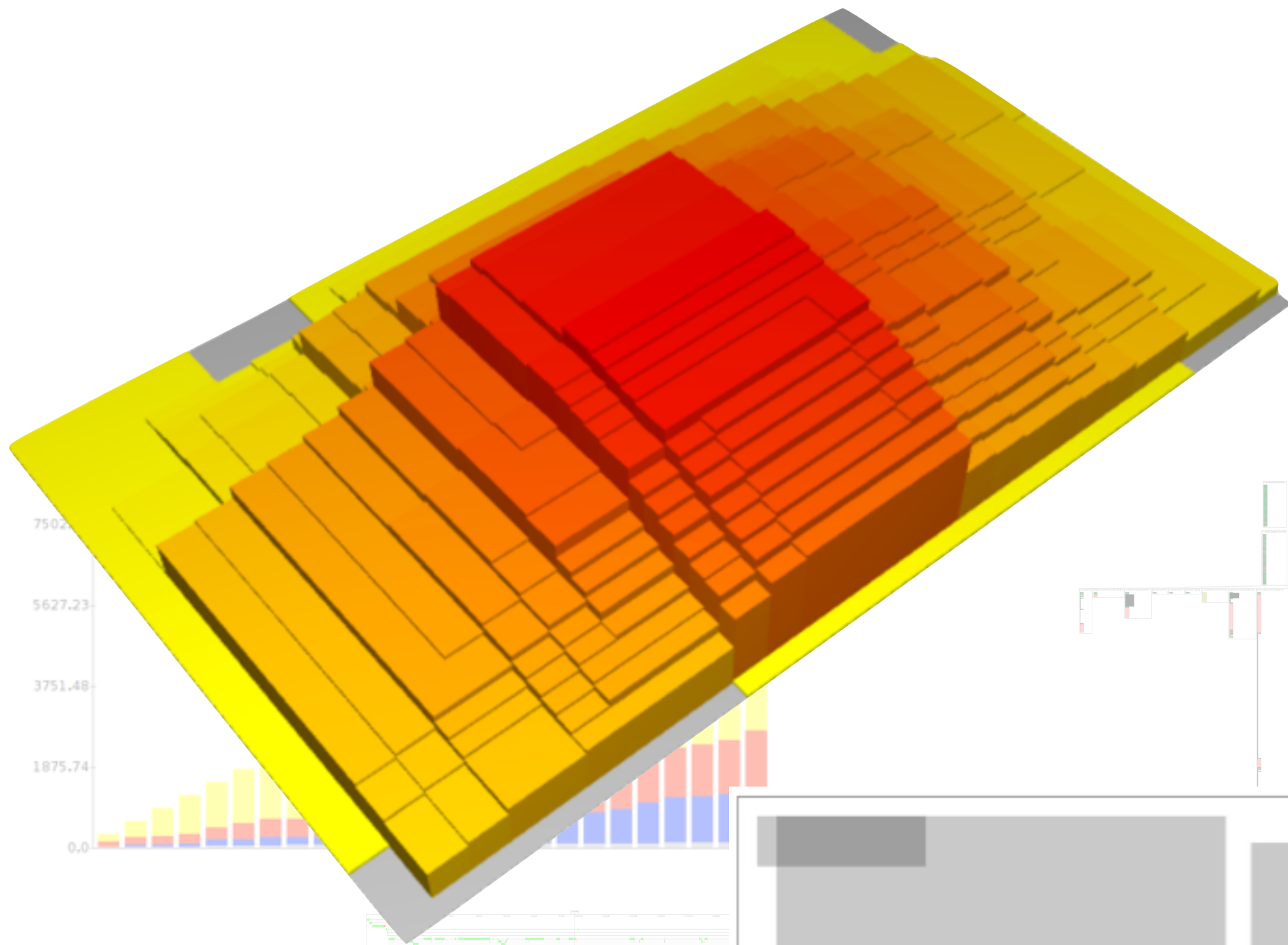
<http://dflow.inf.usi.ch>

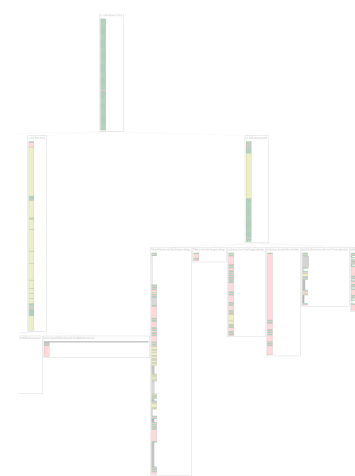
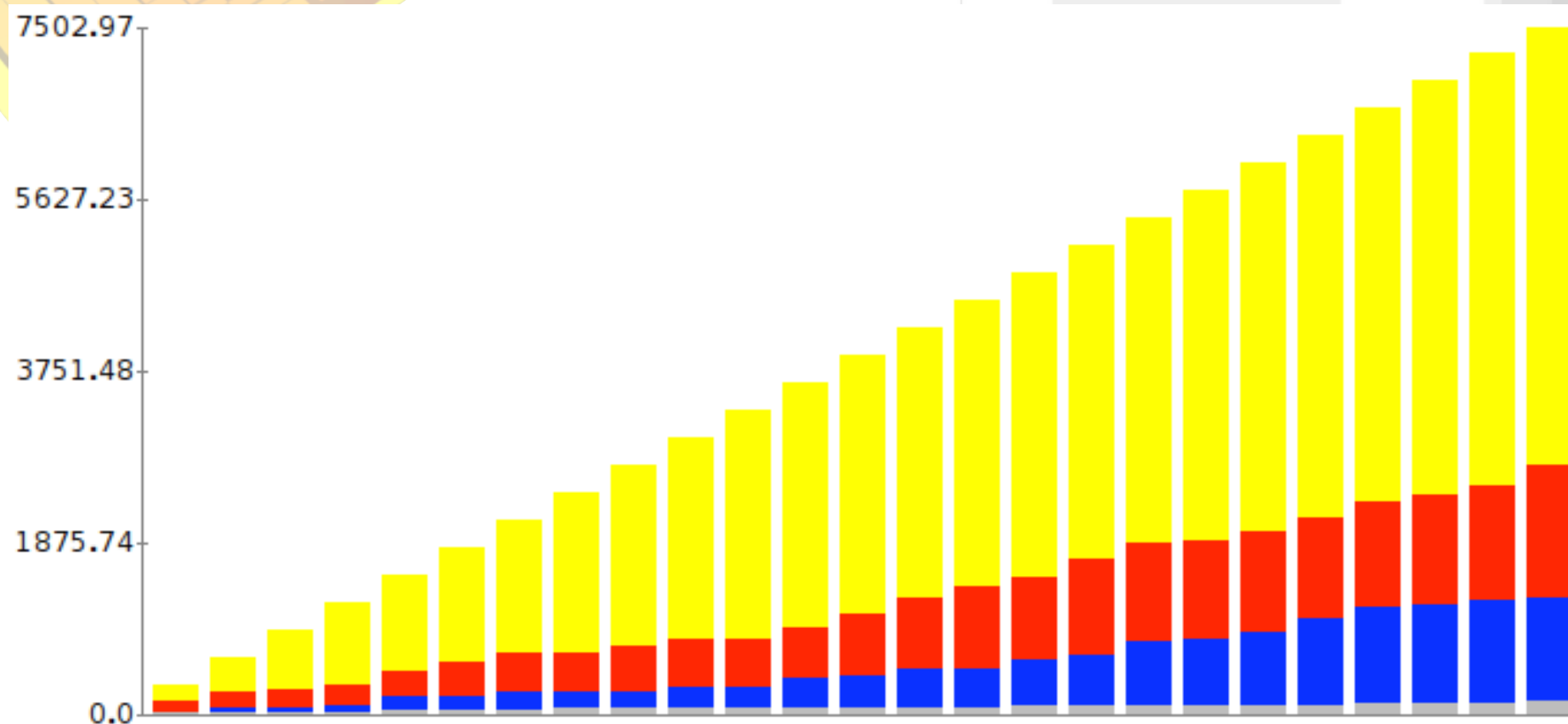
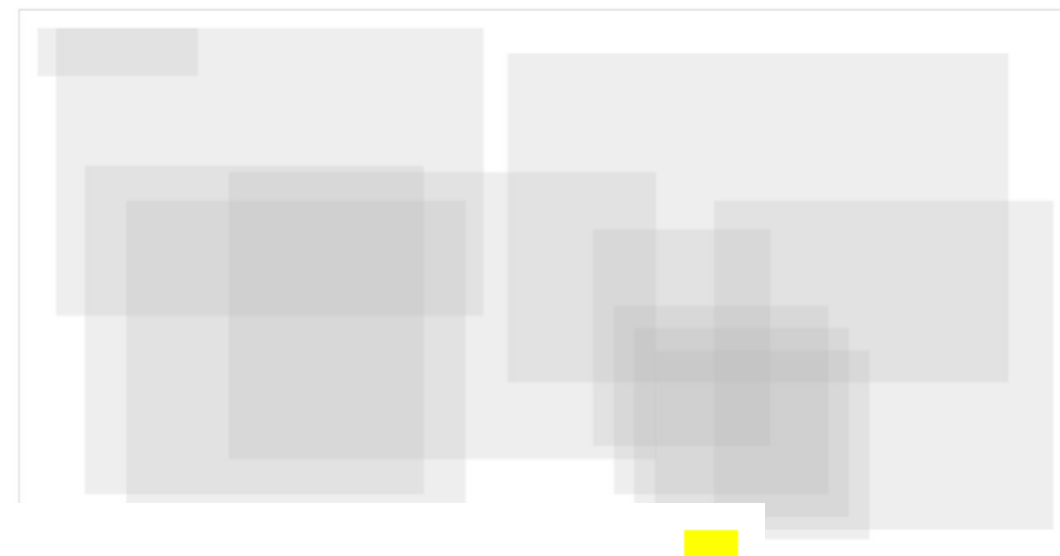
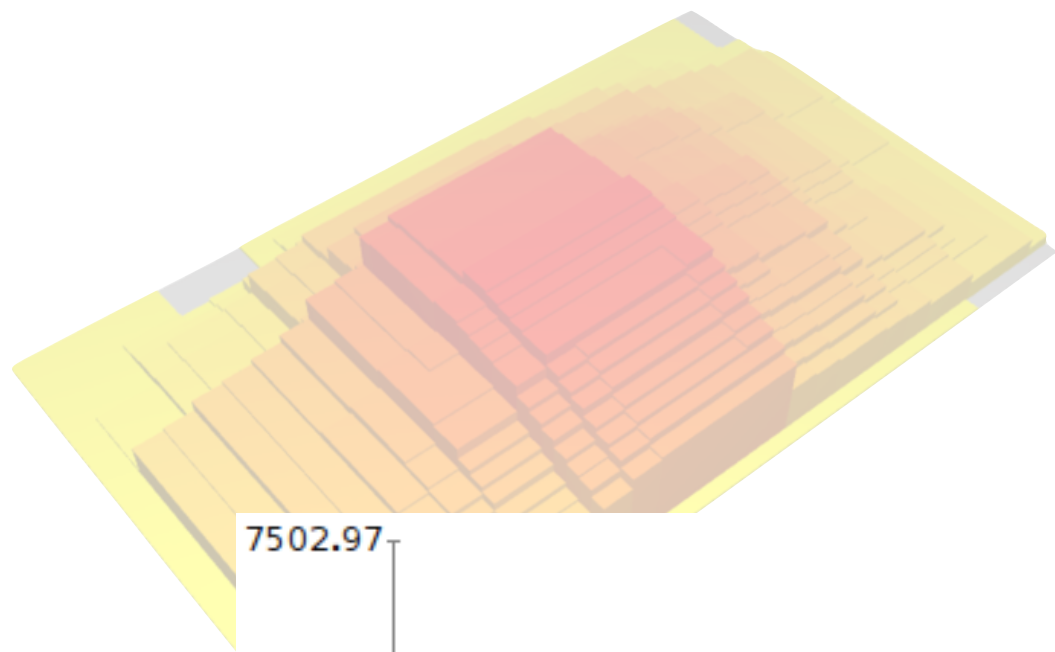
 ~RobertoMinelli/DevFlow

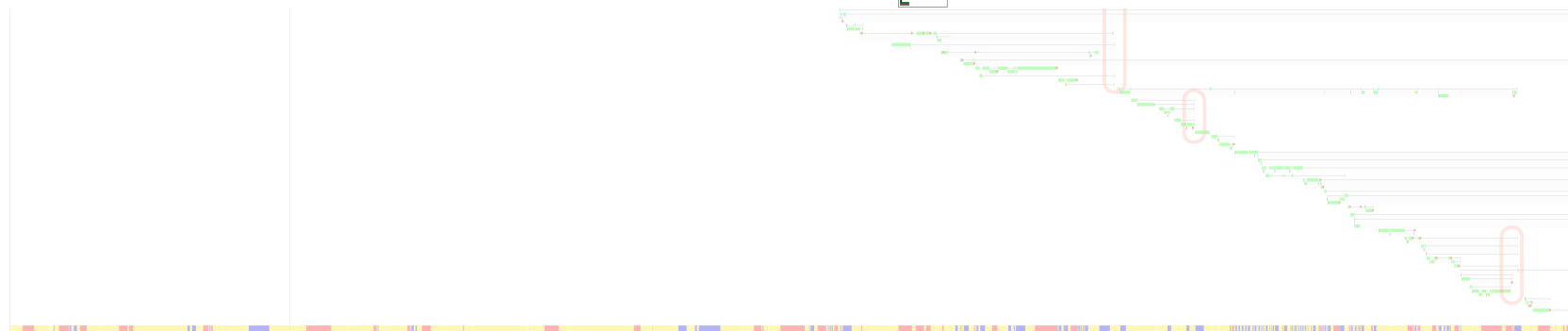
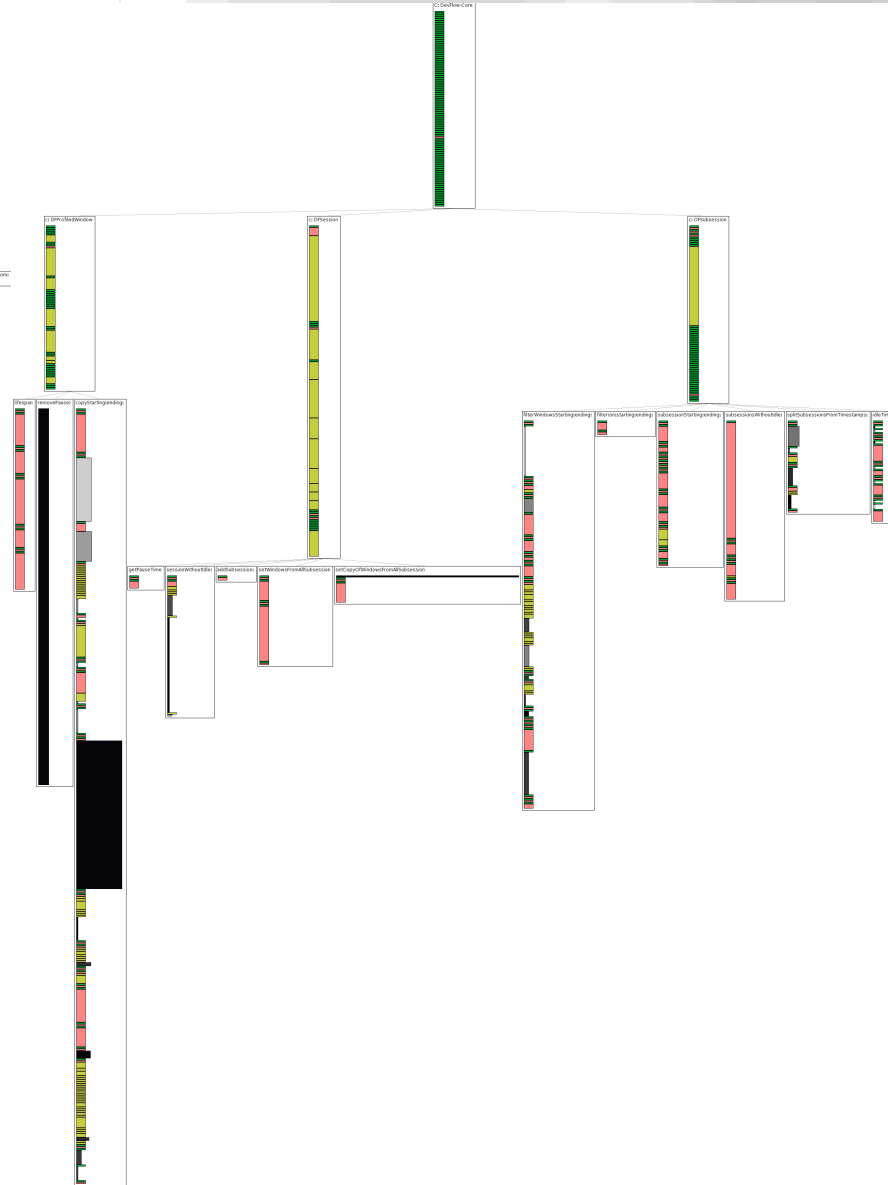
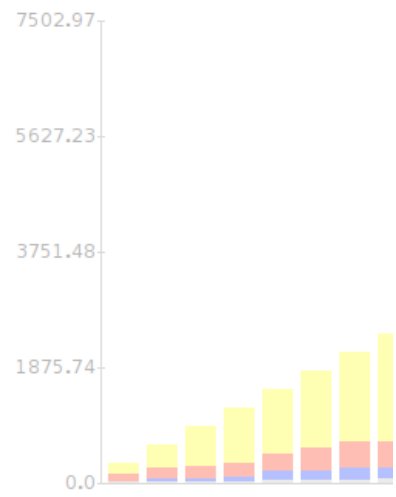
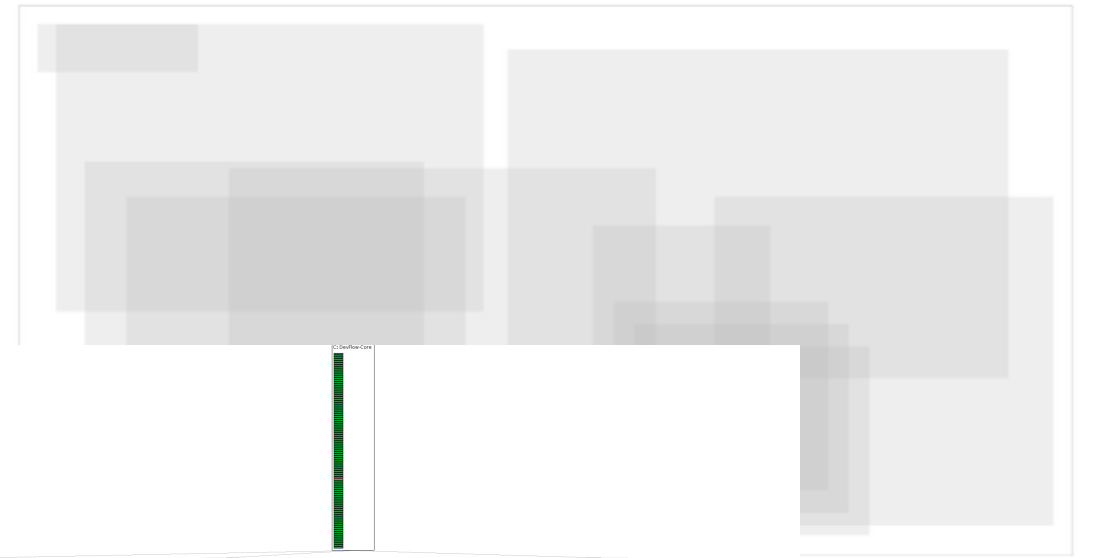
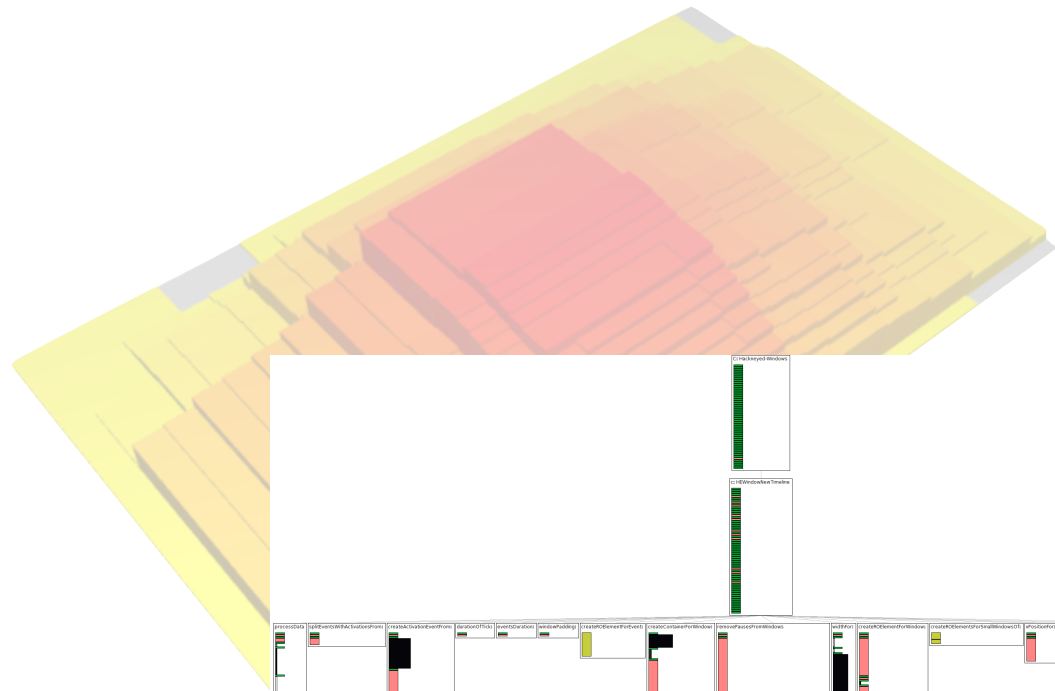


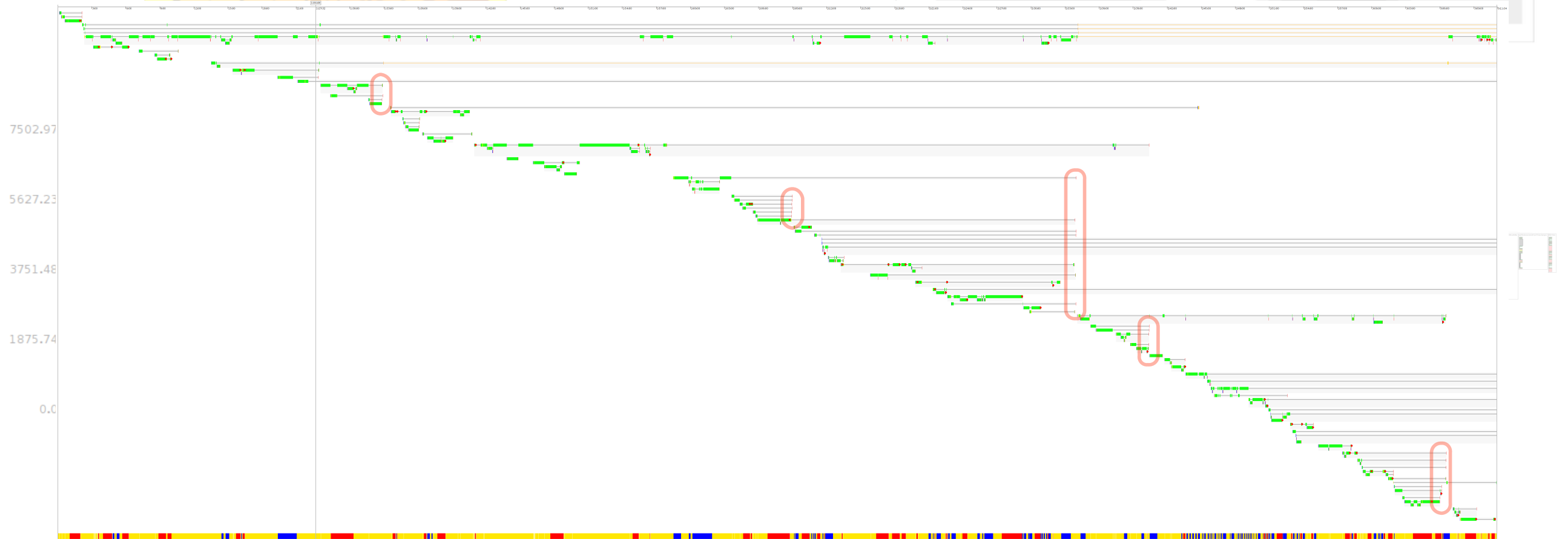
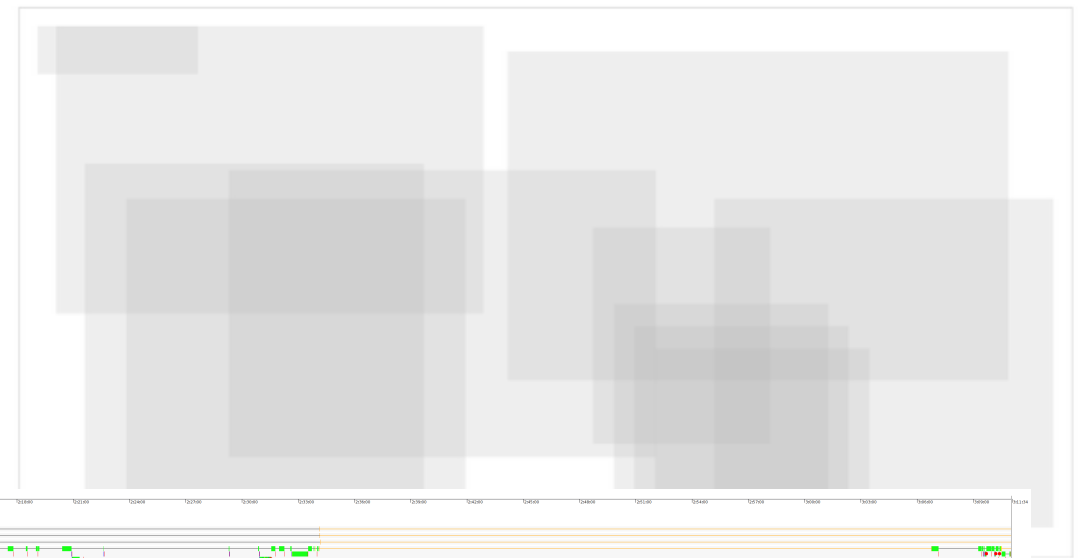
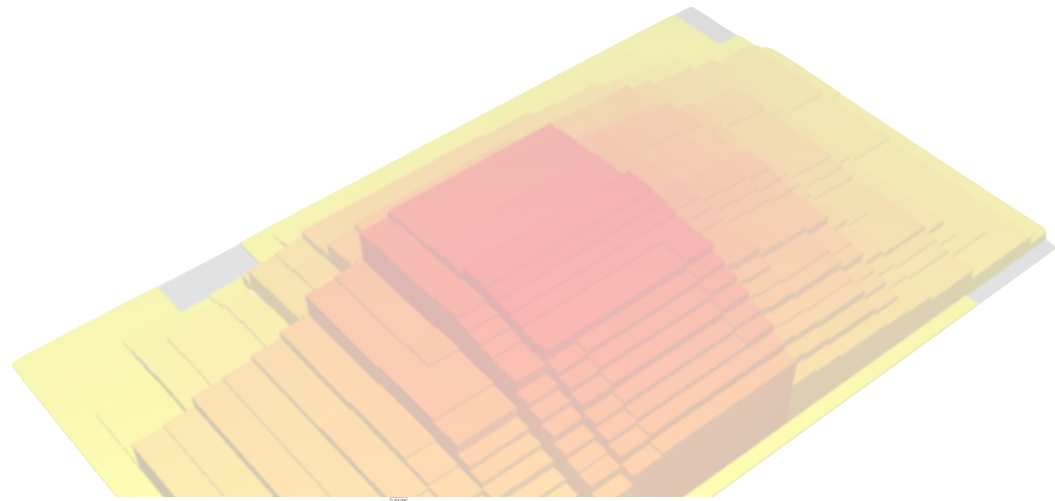
An interaction profiler for the Pharo IDE

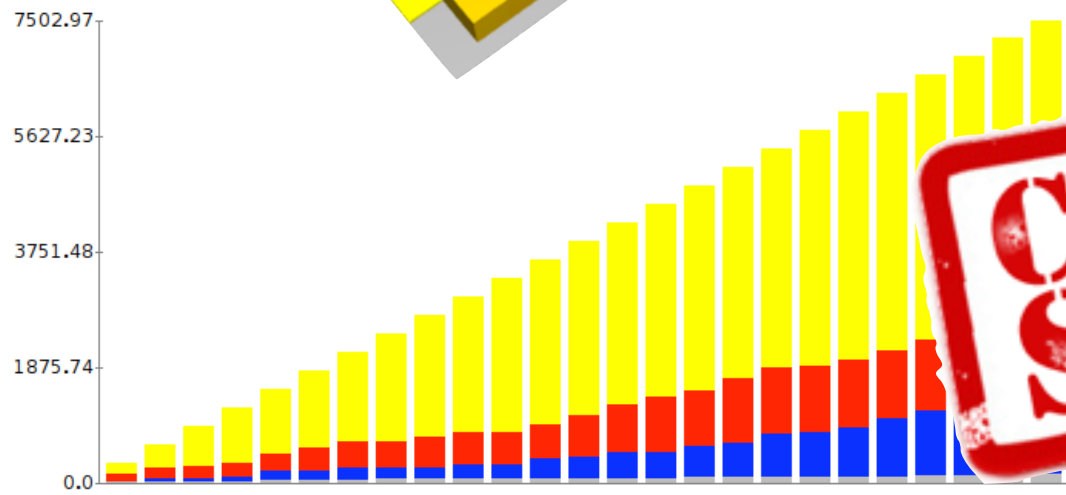
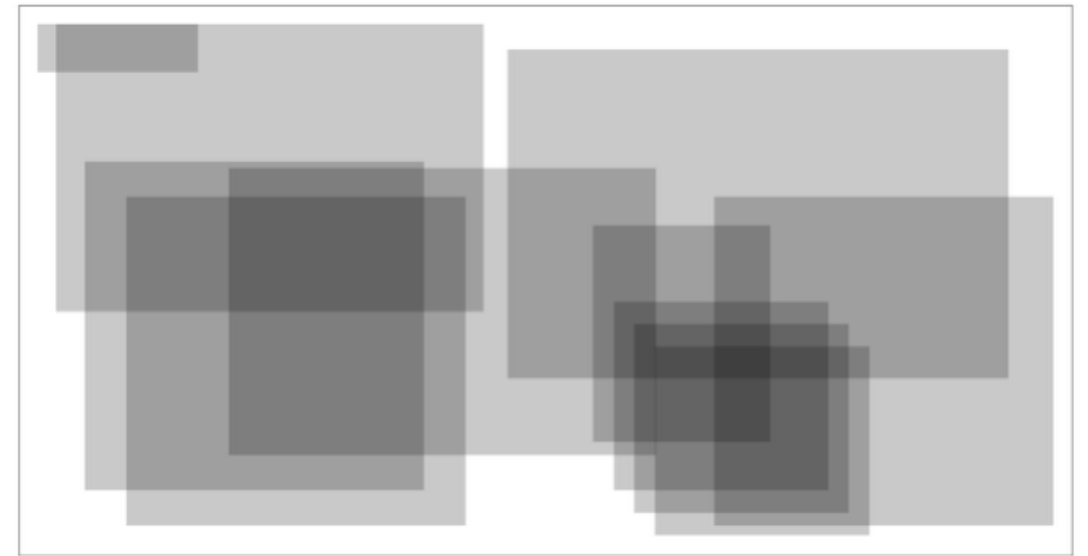
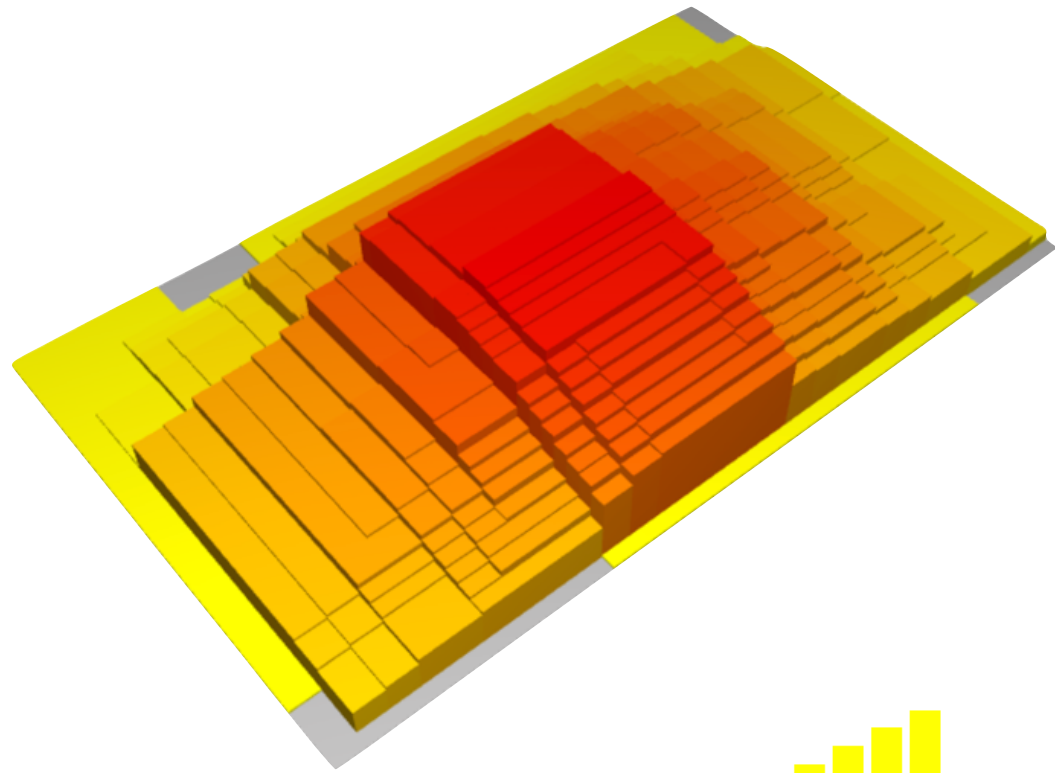




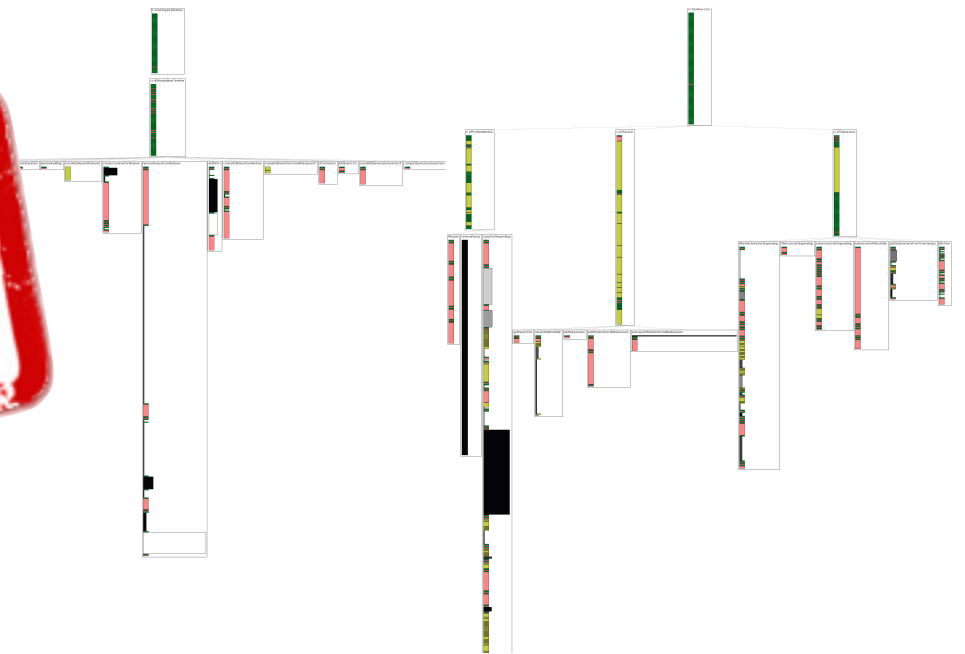








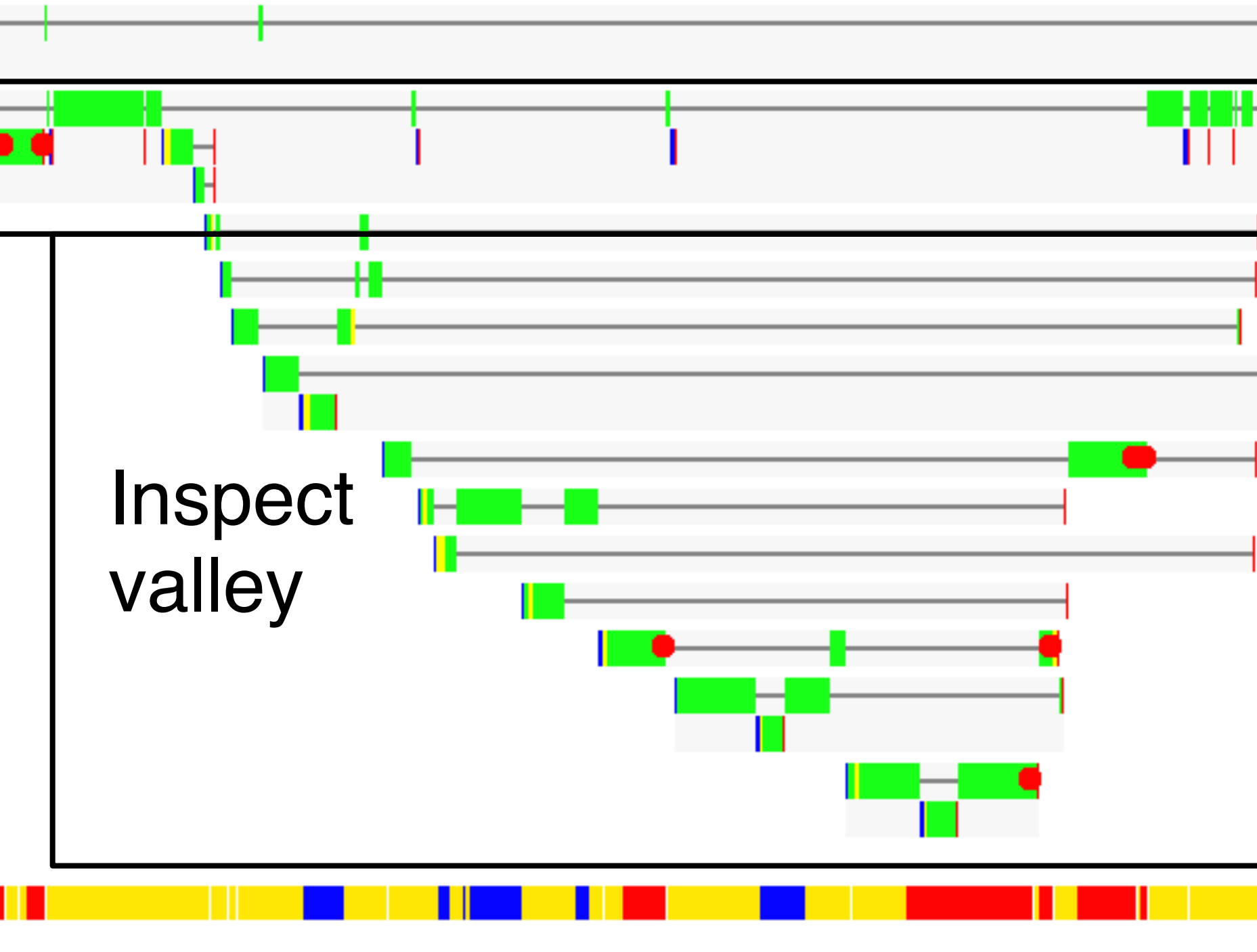
**COMING
SOON!**



R Minelli, L Baracchi, A Mocci and M Lanza
Visual Storytelling of Development Session
 ICSME ERA, 2014

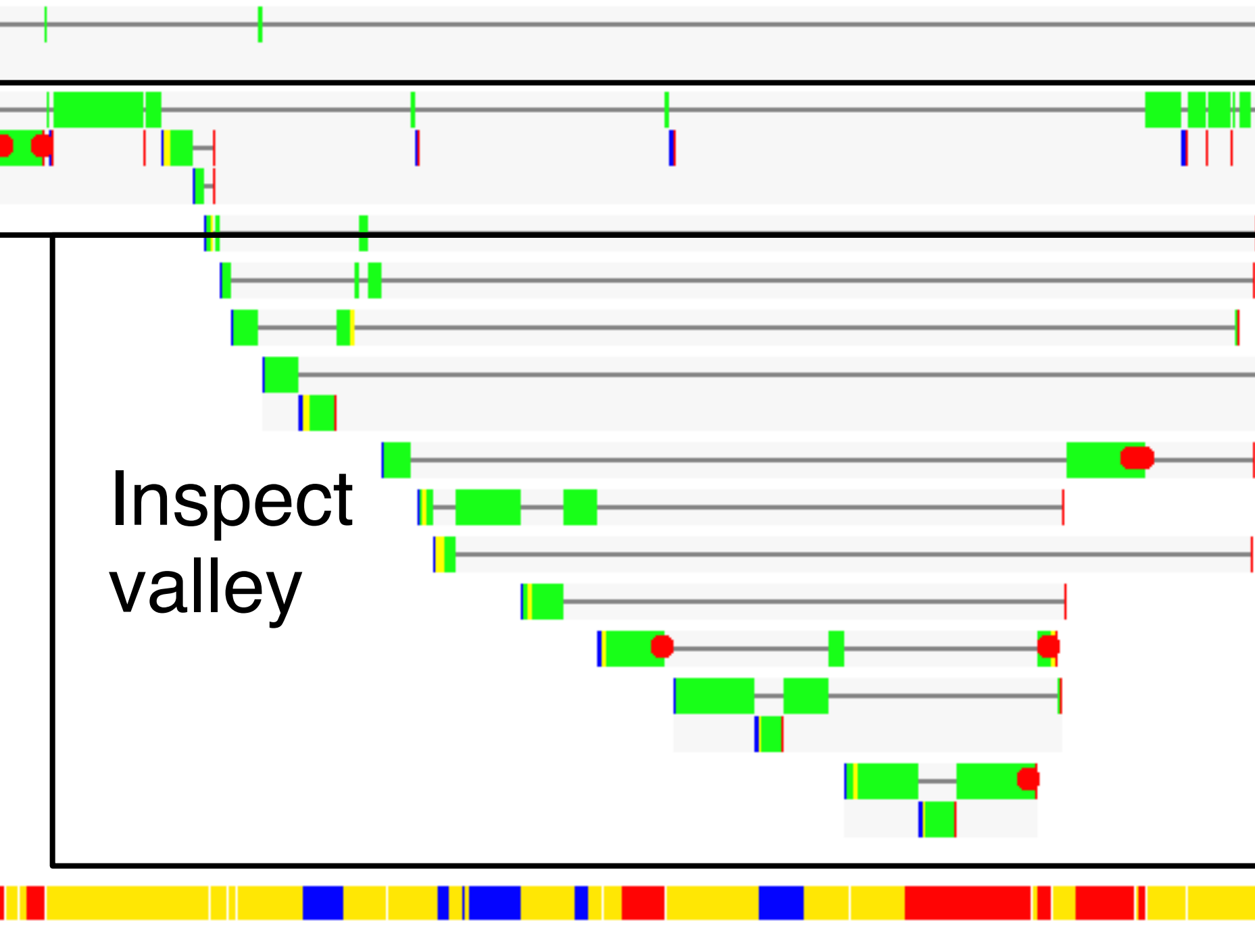
R Minelli, A Mocci, M Lanza and L Baracchi
Visualizing Developer Interactions
 VISSOFT, 2014.

The “Inspect Valley”



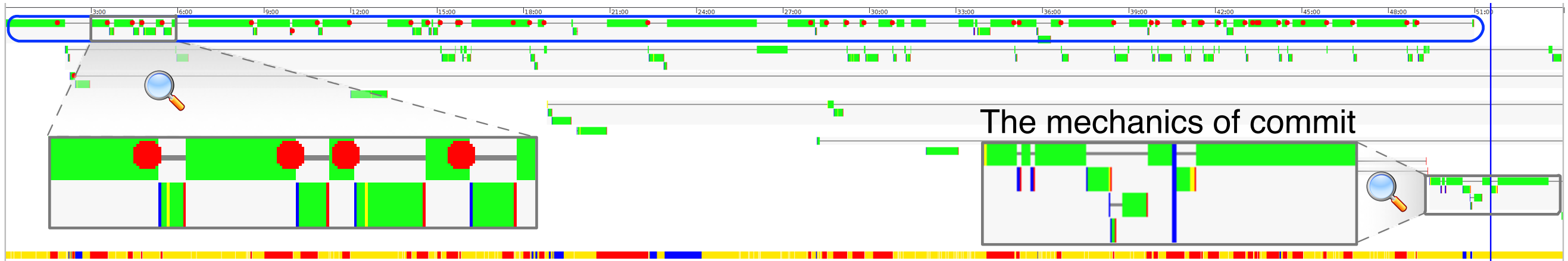
■ Open ■ Activate ■ Resize/move ■ Close ■ Minimize / Expand

The "Inspect Valley"



What about
the GInspector?

Home sweet home



■ Open

■ Activate

■ Resize/move

■ Close

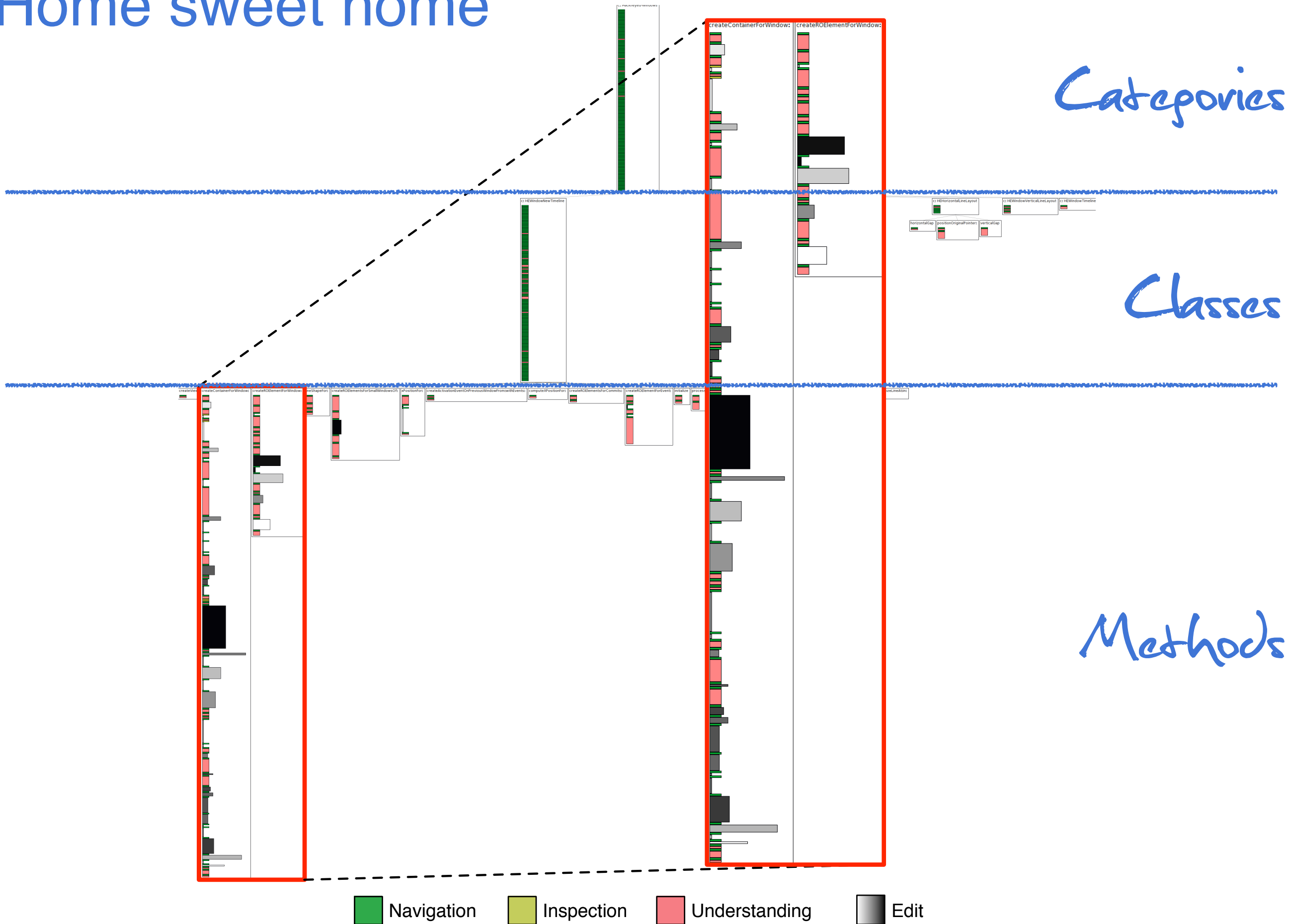
■ Minimize / Expand

Home sweet home

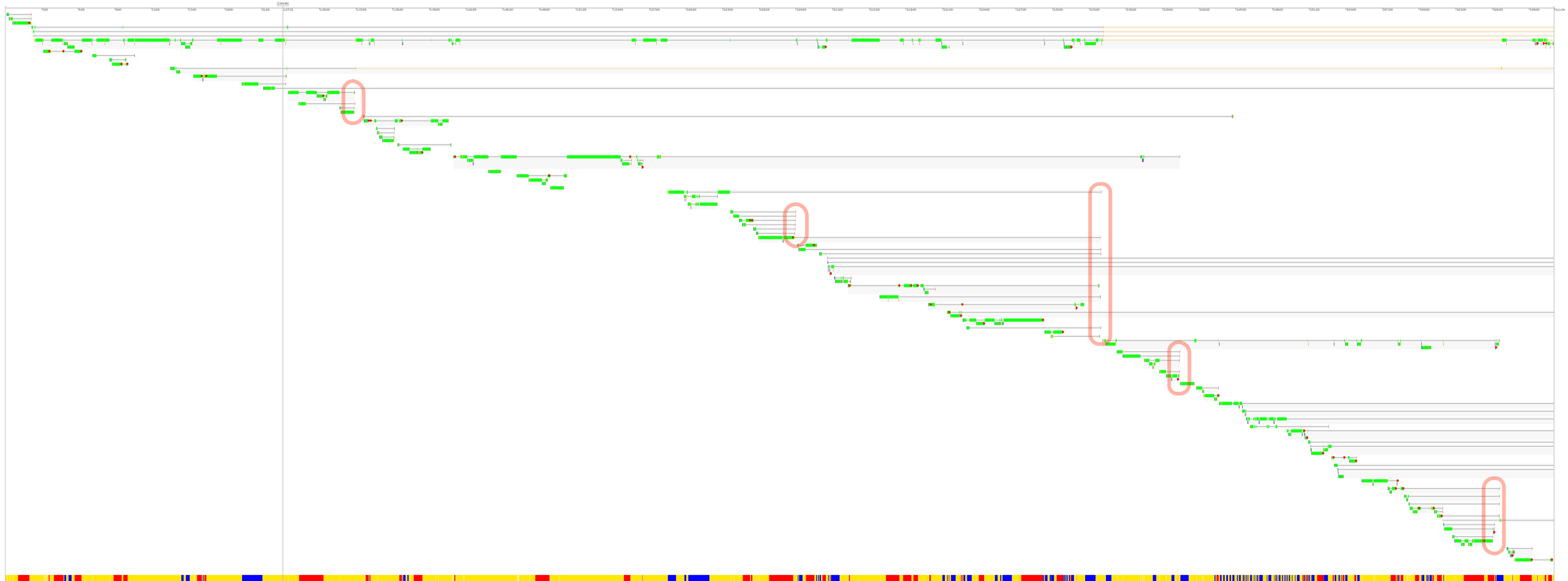
Categories

Classes

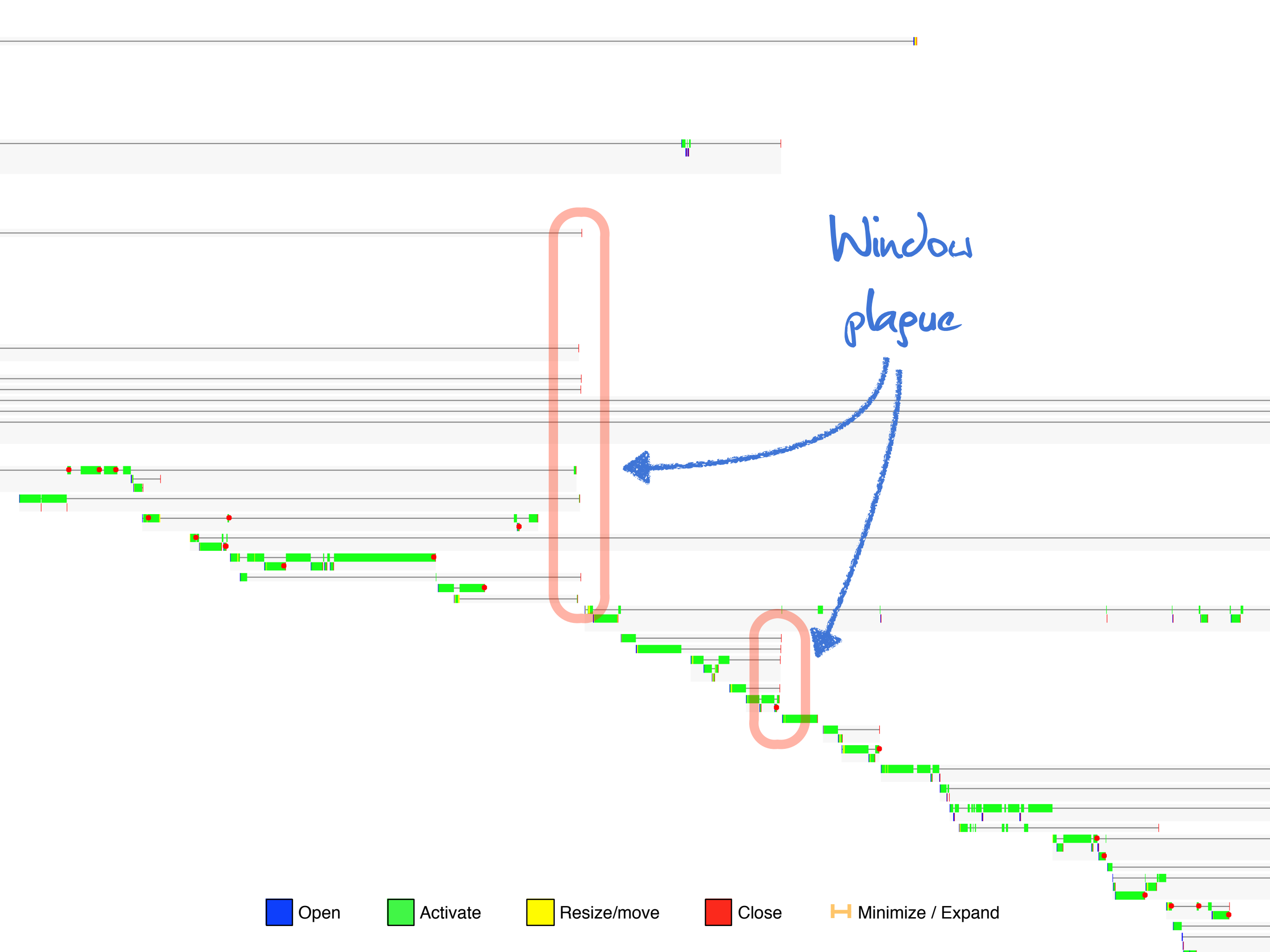
Methods



Killing bugs and windows (a.k.a. Window Plague)



■ Open ■ Activate ■ Resize/move ■ Close ■ Minimize / Expand



Window
plaque

Open

Activate

Resize/move

Close

Minimize / Expand





We need you!

<http://dflow.inf.usi.ch>

at most

50%



at least

50%



at least

50%

up to

85%



How to install



```
Gofer new
  smalltalkhubUser: 'RobertoMinelli'
  project: 'DevFlow';
  package: 'ConfigurationOfDevFlow';
  load.
```

```
ConfigurationOfDevFlow loadAsUser.
```

<http://dflow.inf.usi.ch>

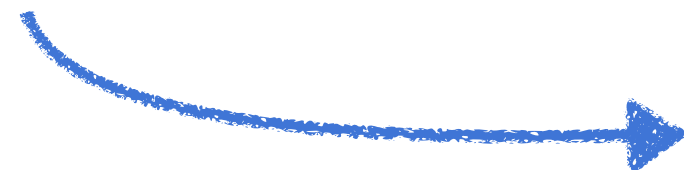
How to install



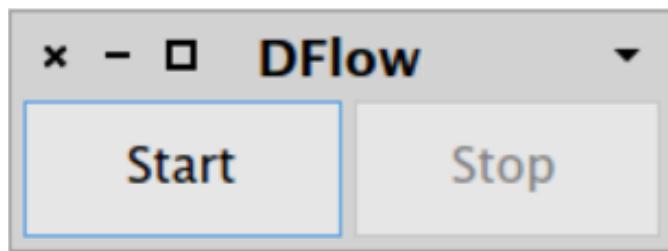
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*Startup script
available @*



<http://dflow.inf.usi.ch>



How to install



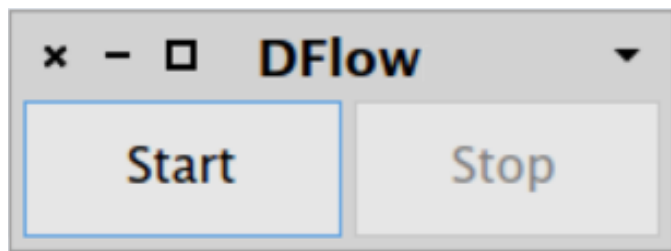
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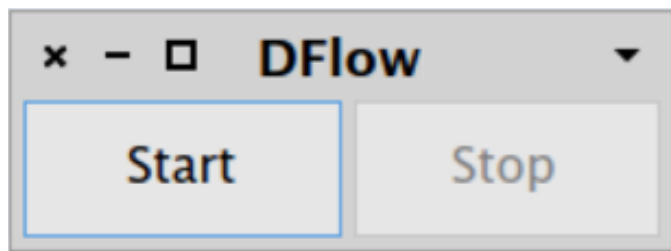
<http://dflow.inf.usi.ch>



How to use



<http://dflow.inf.usi.ch>

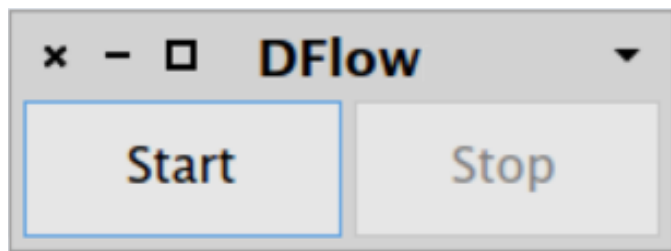


How to use



Start

<http://dflow.inf.usi.ch>



How to use

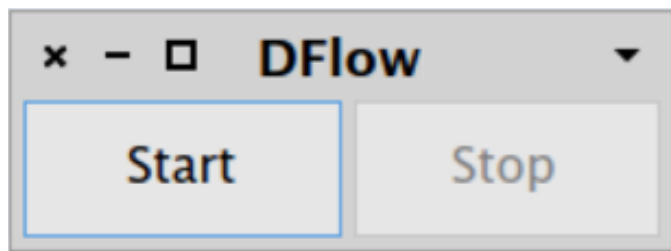


Start



Pause

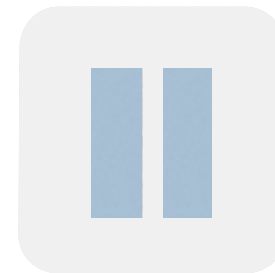
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How to use



Start

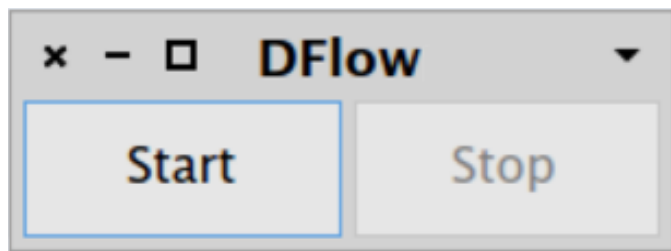


Pause



Resume

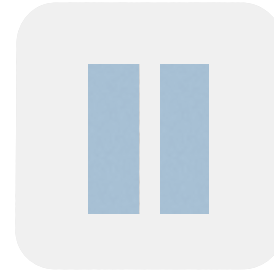
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How to use



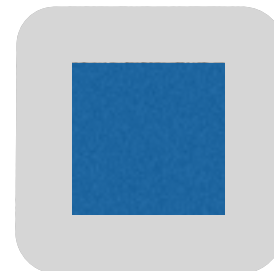
Start



Pause

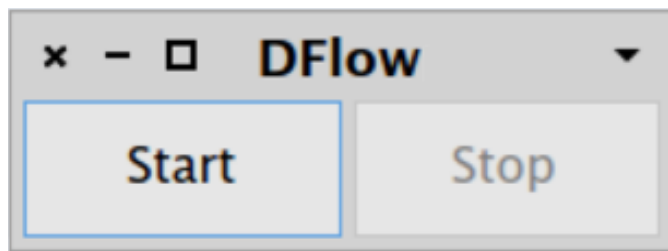


Resume



Stop

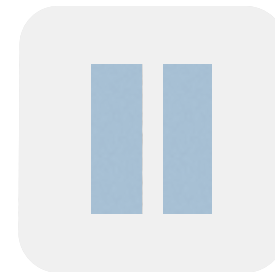
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How to use



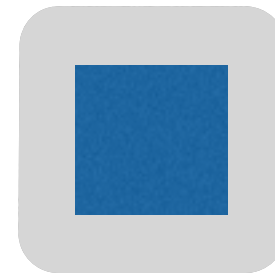
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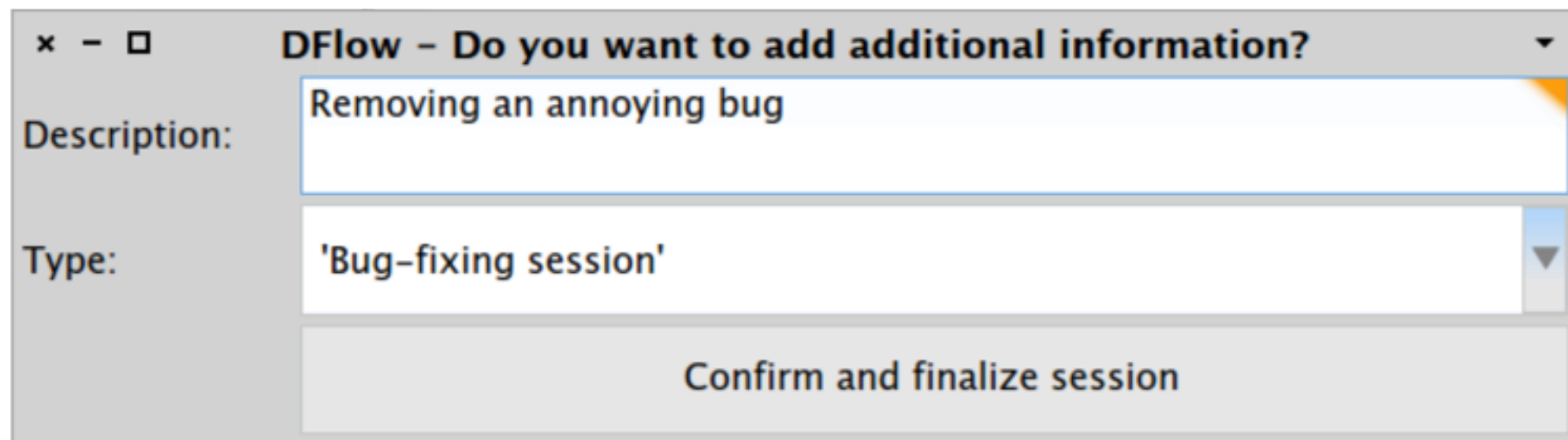
Pause



Resume



Stop



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