

Graphics and Visualization



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(almost) Alain Plantec
Guillaume Larcheveque

What are Athens?



Morphic

BitBlt

Balloon

Morphic

BitBlt

Balloon

Athens

OpenGL

Cairo



```
aCanvas createPath: [:builder |
  builder
    absolute;
    moveTo: 70@100;
    lineTo: 330@100;
    cwArcTo: 350@120
    angle: 90 degreesToRadians;
    lineTo: 350@280;
    cwArcTo: 330@300
    angle: 90 degreesToRadians;
    lineTo: 70@300;
    cwArcTo: 50@280
    angle: 90 degreesToRadians;
    lineTo: 50@120;
    cwArcTo: 70@100
    angle: 90 degreesToRadians
```

```

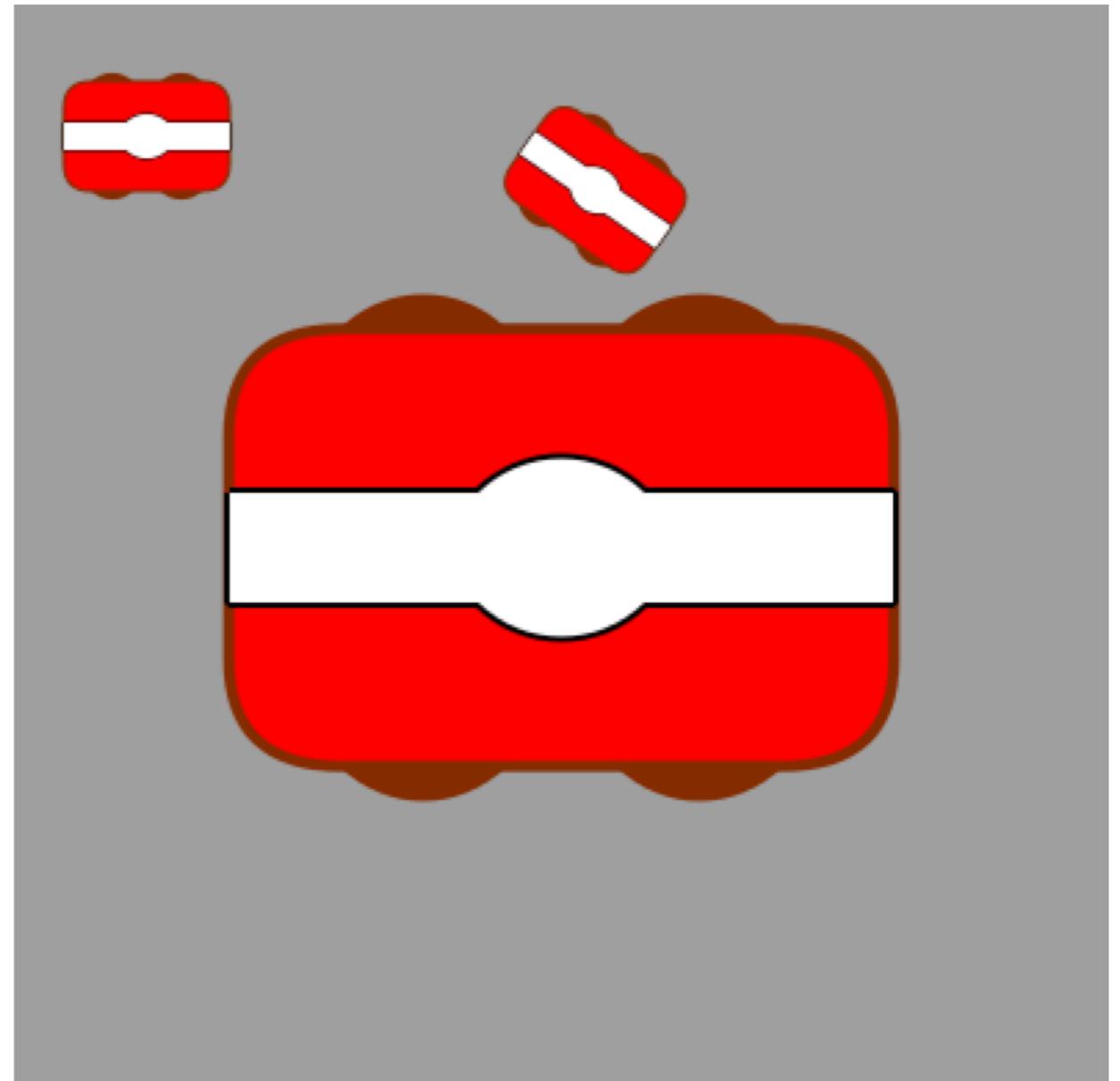
p := aCanvas createPath:[ :b | b
  moveTo: 0.3@0.3 ;
 .lineTo: 0.4@0;
  curveVia: 0.1@0 to: 0.1@0.1;
 .lineTo: 0@0.2;
  curveVia: 0@0.1 to: -0.1@0.1;
 .lineTo: -0.4@0;
  curveVia: -0.1@0 to: (0.1@0.1) negated;
 .lineTo: 0@0.2 negated ;
  curveVia: 0@0.1 negated to: 0.1@0.1 negated ].
aCanvas
  setPaint: self coloredCarColor;
  drawShape: p.
stroke := aCanvas setStrokePaint: self wheelColor.
stroke width: 0.01.
aCanvas draw.

wheel := aCanvas createPath:[ :b | b
  moveTo: 0.3@0.3;
  cwArcTo: 0.15@0 angle: Float halfPi;
  moveTo: 0.1@0;
  cwArcTo: 0.15@0 angle: Float halfPi;
  moveTo: 0.0@0.4;
  cwArcTo: 0.15 negated@0 angle: Float halfPi;
  moveTo: -0.1@0;
  cwArcTo: 0.15 negated@0 angle: Float halfPi ].
aCanvas
  setPaint: self wheelColor;
  drawShape: wheel.

decorator := aCanvas createPath:[ :b | b
  moveTo: 0.2@0.45;
 .lineTo: 0.225@0 ;
  cwArcTo: 0.15@0 angle: Float halfPi;
 .lineTo: 0.225@0;
 .lineTo: 0@0.1 ;
 .lineTo: -0.225@ 0;
  cwArcTo: -0.15@0 angle: Float halfPi;
 .lineTo: -0.225@ 0 ;
 .lineTo: 0@0.1 negated].

stroke := aCanvas setStrokePaint: self chasisDecoratorColor.
stroke width: 0.01.
aCanvas drawShape: decorator.
aCanvas setPaint: self chasisLineColor.
aCanvas draw.

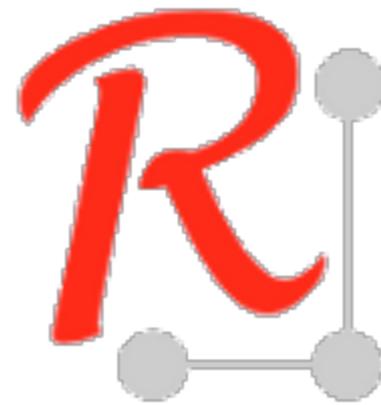
```





I

```
class>>#runDemo
--- all ---
as yet unclassified
huge data
checkD
comma
runDen
tigerCo
tigerCo
tigerMa
VGTigerDemo class -> runDemo
```



<http://agilevisualization.com>

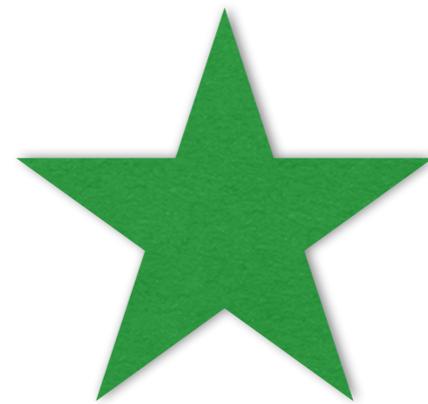
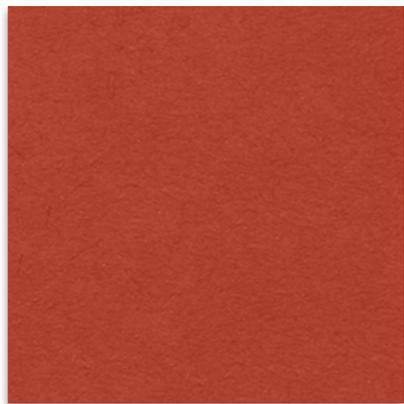
Roassal

Trachel

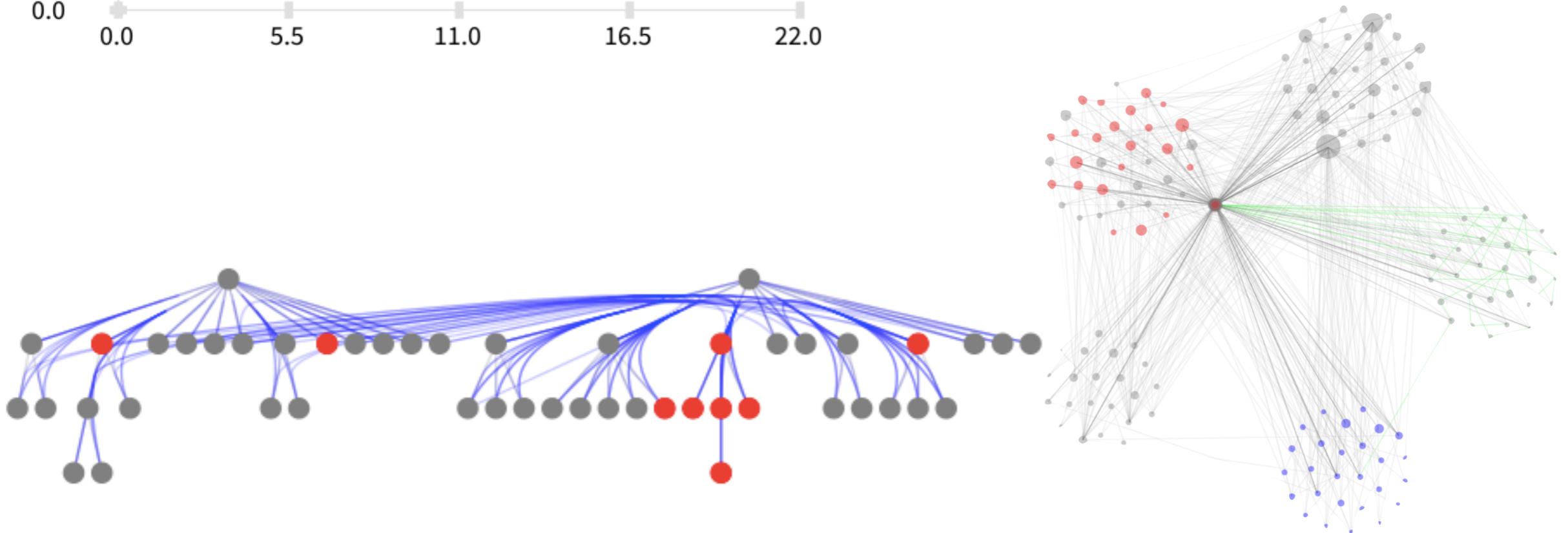
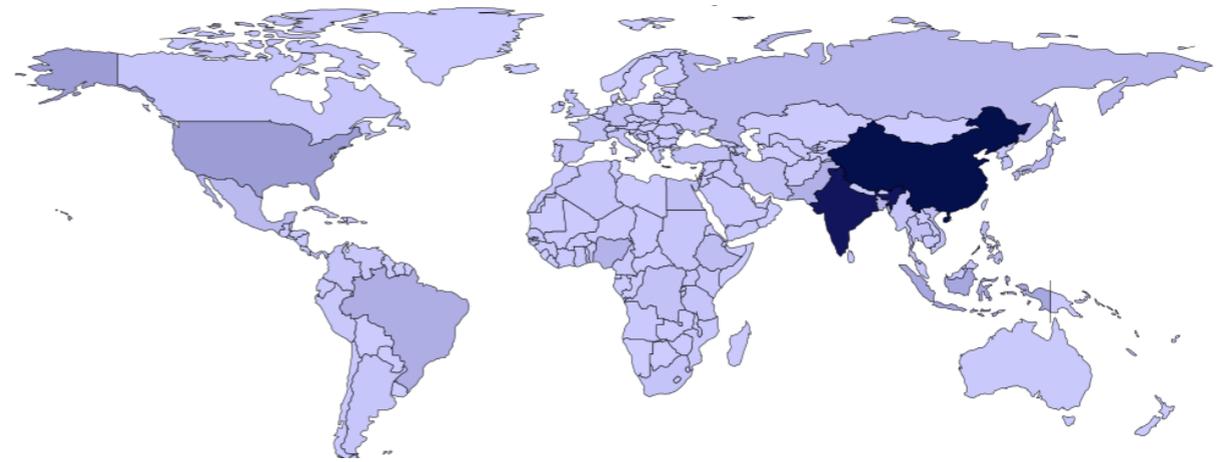
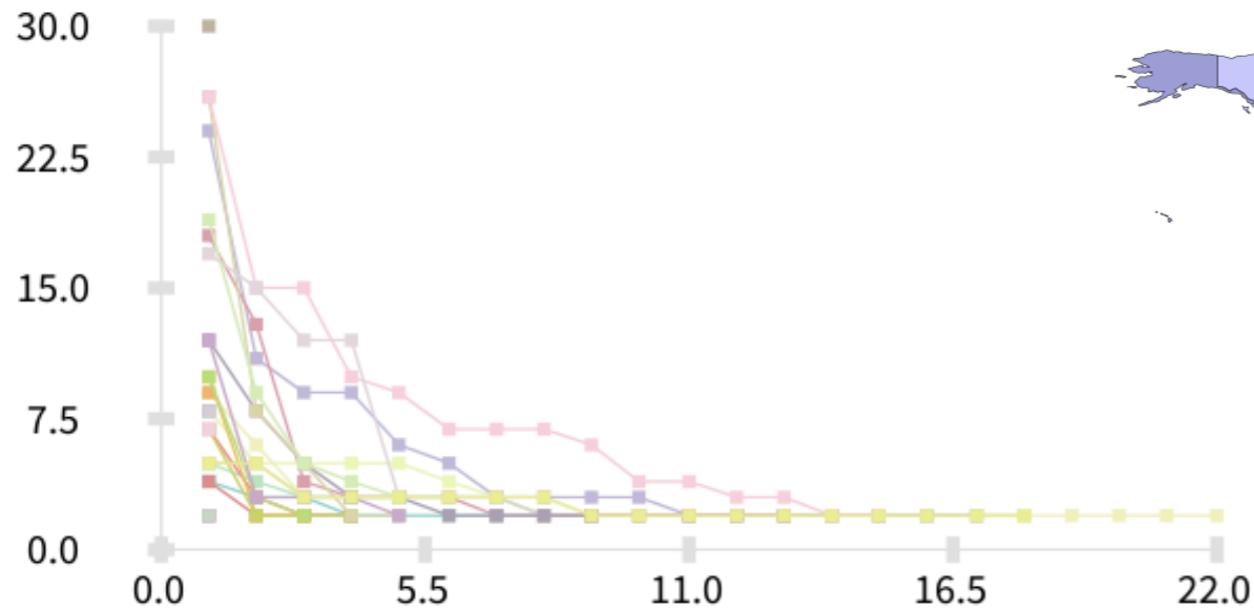
Athens

Amber
stuff?

Trachel



Roassal





Playground

2015-01-15T15-03-21-025126-03-00

[▶] [👤] [⋮] a RTMondrian ✕

```
D :- RTMONDRIAN new.
```

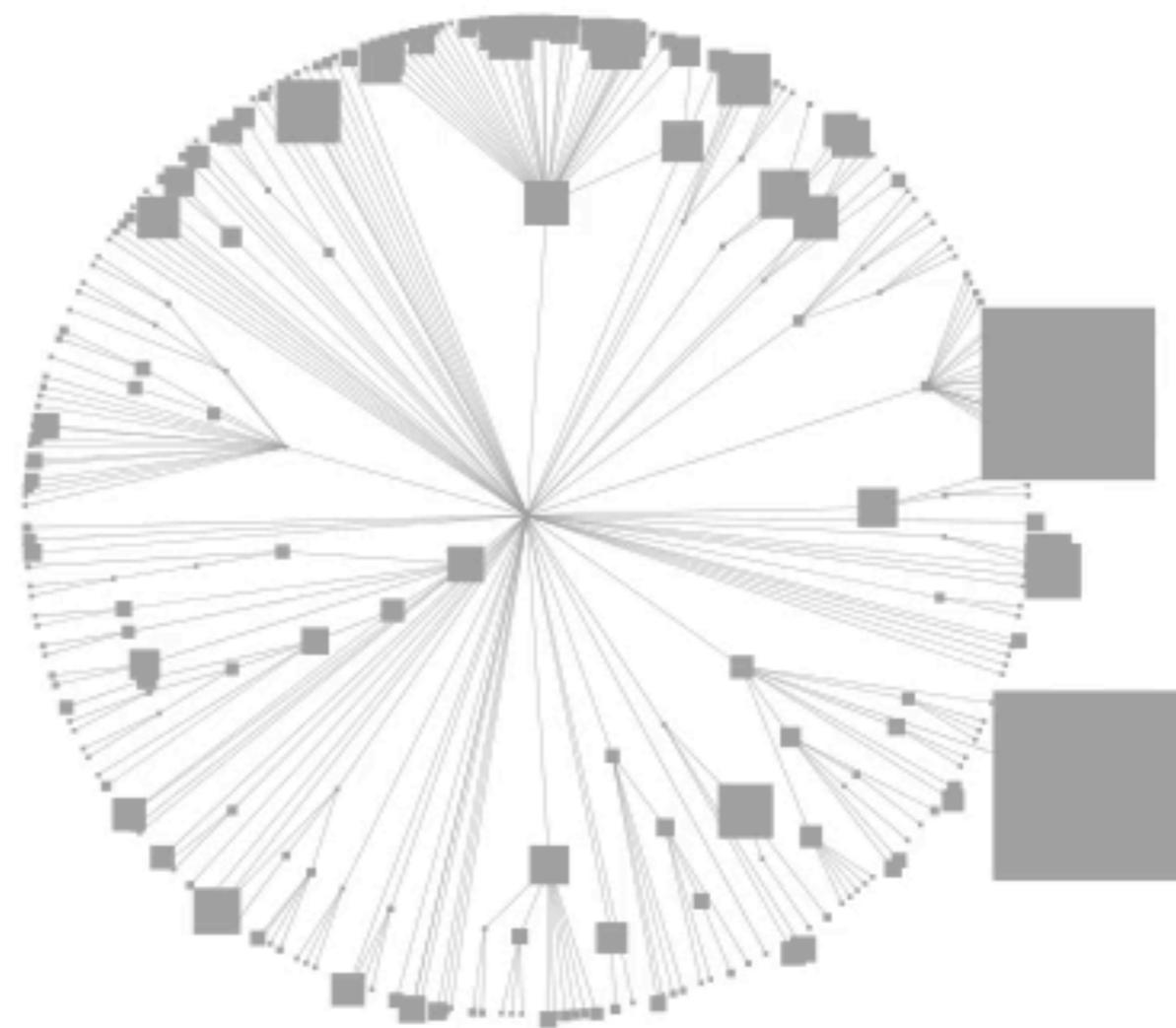
```
b shape rectangle  
  size: #numberOfMethods.  
b nodes: RTObject withAllSubclasses.  
b edges  
  connectFrom: #superclass.  
b layout cluster.  
b
```

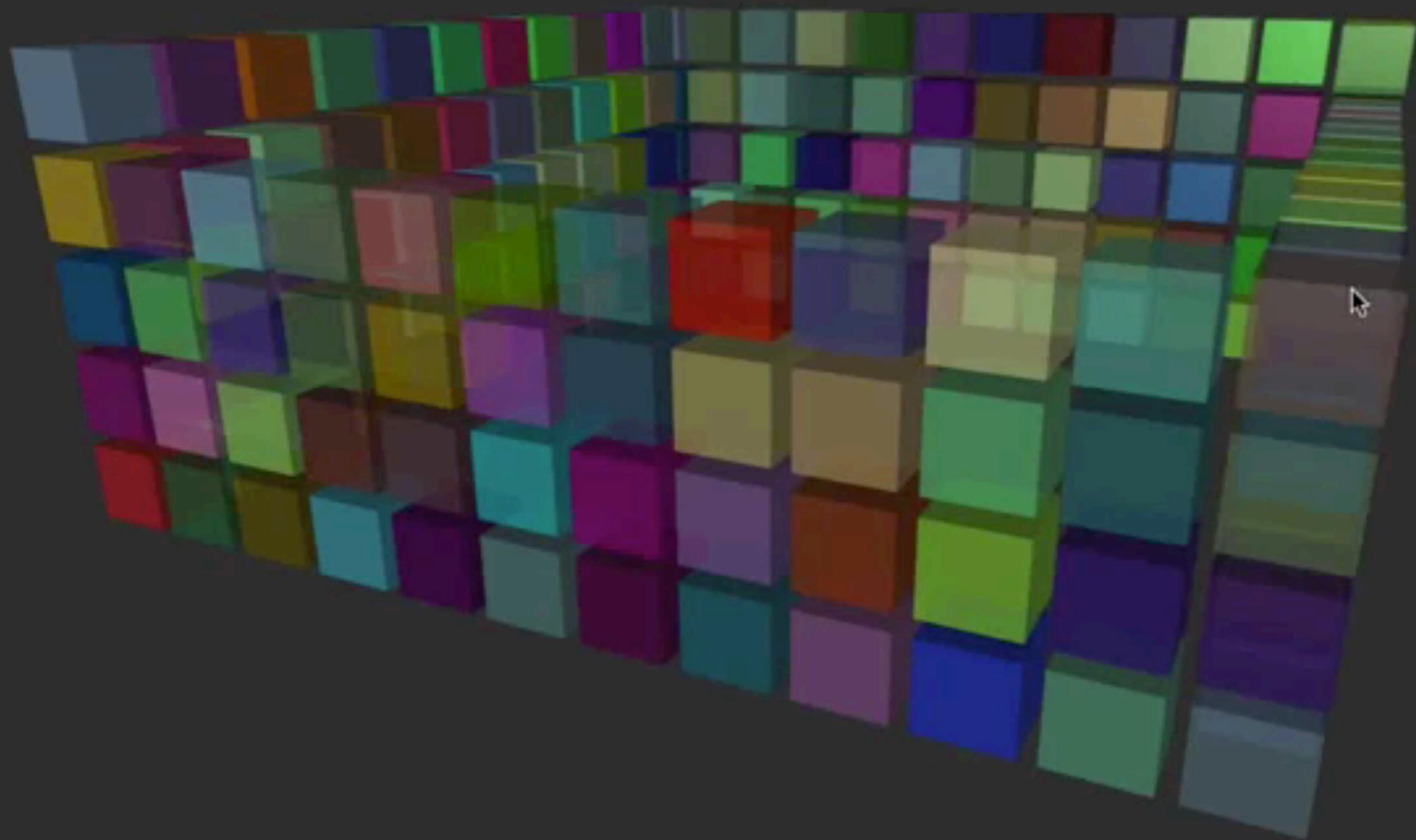
"We first visualize some numbers. Nothing exciting for now.
The Roassal application is then visualized in Roassal itself.

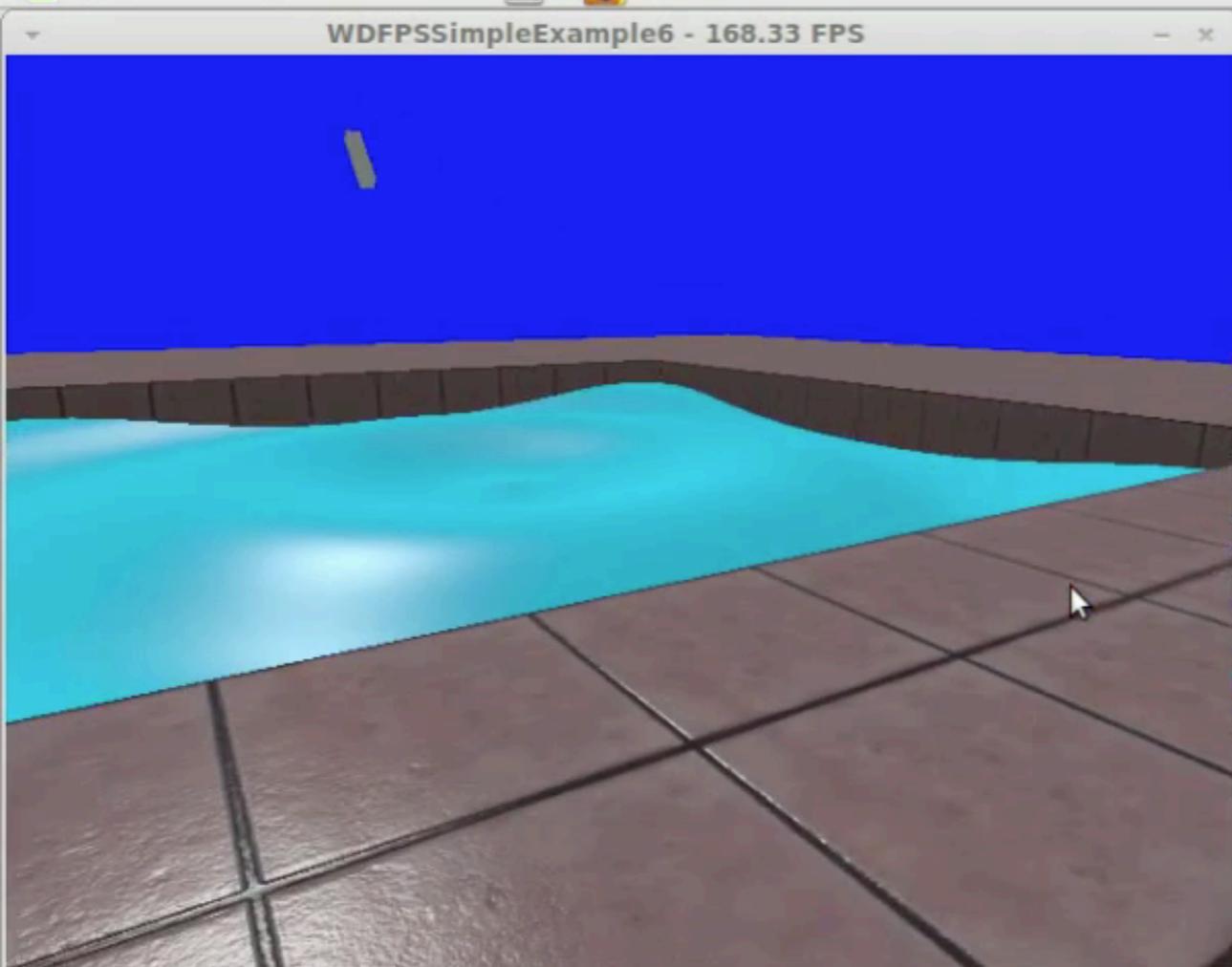
More infor on:
<http://ObjectProfile.com>
<http://AgileVisualization.com>
<http://facebook.com/ObjectProfile>
<http://MooseTechnology.org>

"

View Raw Meta







harmonics
propagationSpeed

```
ADD THE FLOOR  
floor := WDSSceneNode new.  
floorShape := WDCComplexGeometryBuilder new  
currentMaterial: floorMaterial;  
  
"Bottom"  
translationX: 0.0 y: -2.05 z: 0.0;  
addCubeWithWidth: 5.0 height: 0.1 depth: 5.0;
```

WDFPSSimpleExample6 >> #initializeSceneContent

- all --
- as yet unclassified
- initializeSceneContent

WDFPSSimpleExample6 >> #initializeSceneContent

```
0 y: -0.3 z: 0.0).  
ew|  
aterMaterial;  
: 5.0 height: 5.0 subdivisions: 64;
```

Pha

```
SDL2 initSubSystem:
SDL2 joystickOpen: C
```

```
self
programAssembl
programs
diffuseColor
specularColor
emissionColor
shininess
harmonics
propagationSpee
```

Type: Pkg1|^Pkg2|Pk.*Cor

- Woden-Example
- Woden-OpenCL
- Woden-Roassal
- Zinc-Character-Encod
- Zinc-Character-Encod
- Zinc-FileSystem
- Zinc-HTTP
- Zinc-Resource-Meta-
- Zinc-Resource-Meta-f
- Zinc-Resource-Meta-
- Zinc-System-Support
- Zinc-Tests
- Zinc-Zodiac

Groups Hierar

"Add the water."

```
water := WDSceneNoc
water position: (WDVe
waterShape := WDGe
```

water attach: waterSh
scene addChild: water

"Add the floor"

```
floor := WDSceneNode
floorShape := WDCom
```

Woden-CLJ.image

RWExample>>#fallingLineLayout

RWViewWindow - 68.49 FPS

falli

```
floor := RWCube new width: 20.0; depth: 5.0; height: 0.2; element.
floor wall;
  translateByY: -10.0.
v add: floor.
```

1556

- Classes
- eLayout
- AddAbove
- Green
- Leds
- eLayout
- ingCubeLayout
- ingLineLayout
- Layout
- vingCubes
- yCubeLayout
- iumCubeLayout
- Cone
- Cube
- Cylinder

Open

Package

e/package-

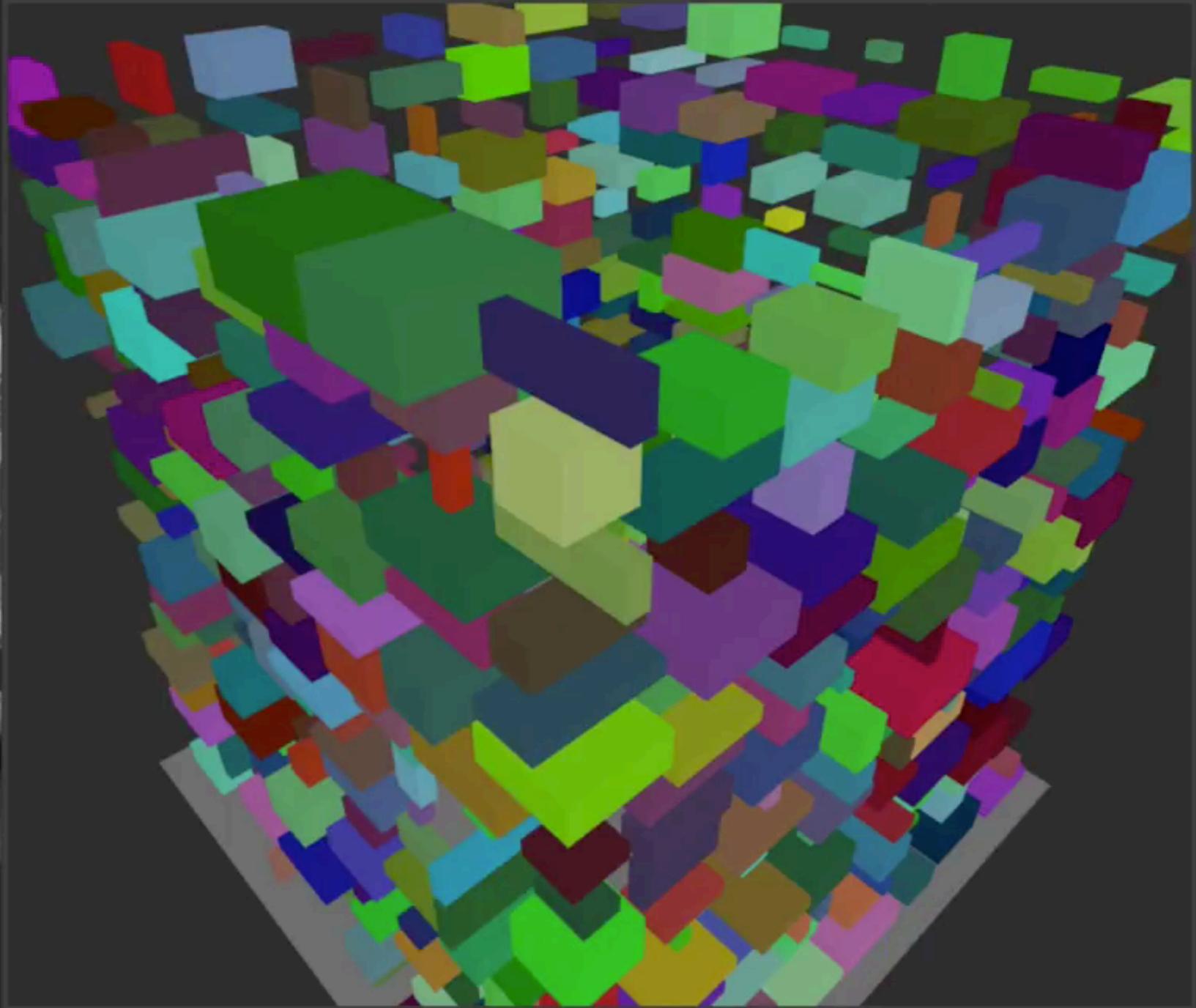
Woden/mair

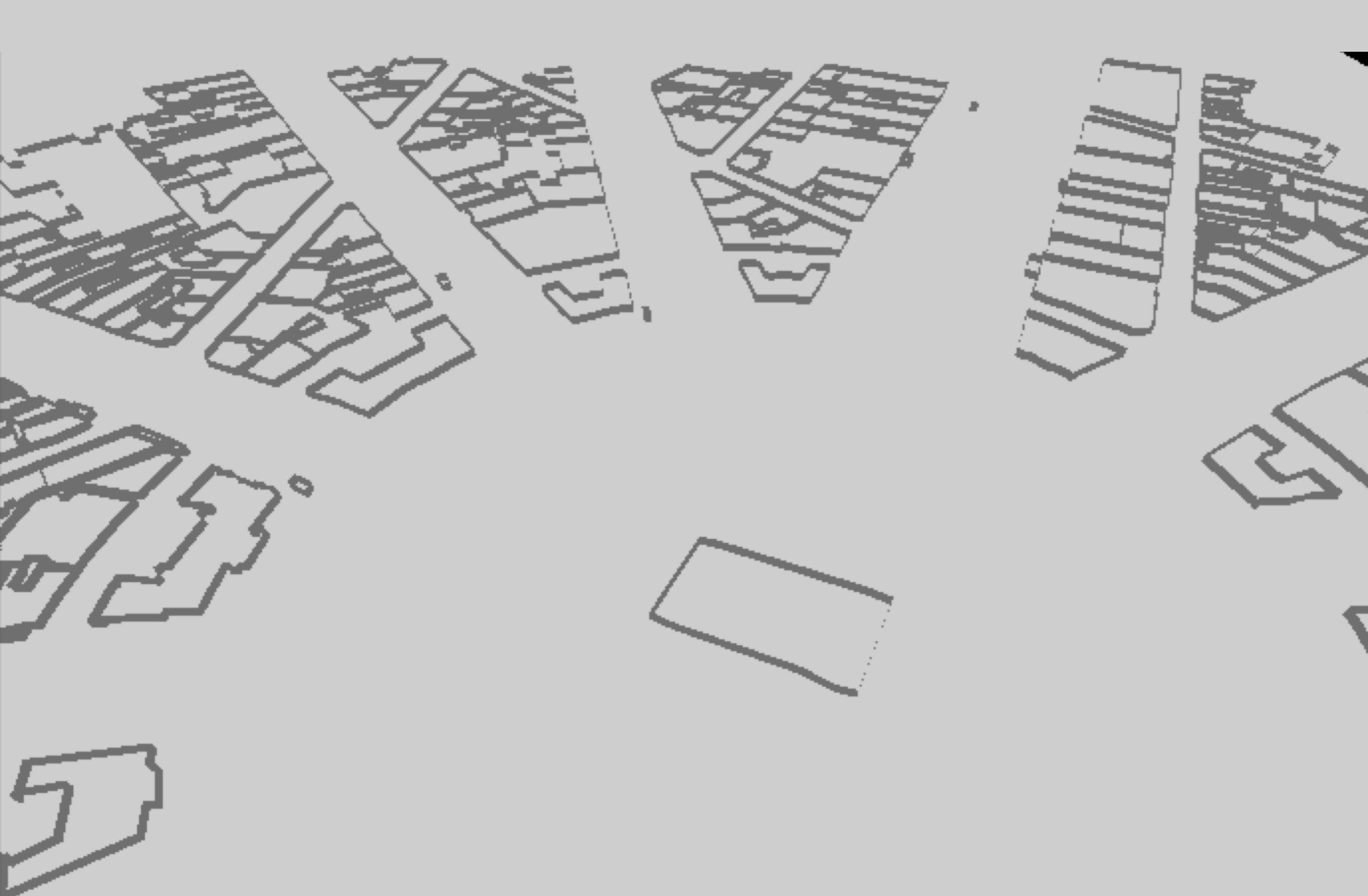
259

Workspace

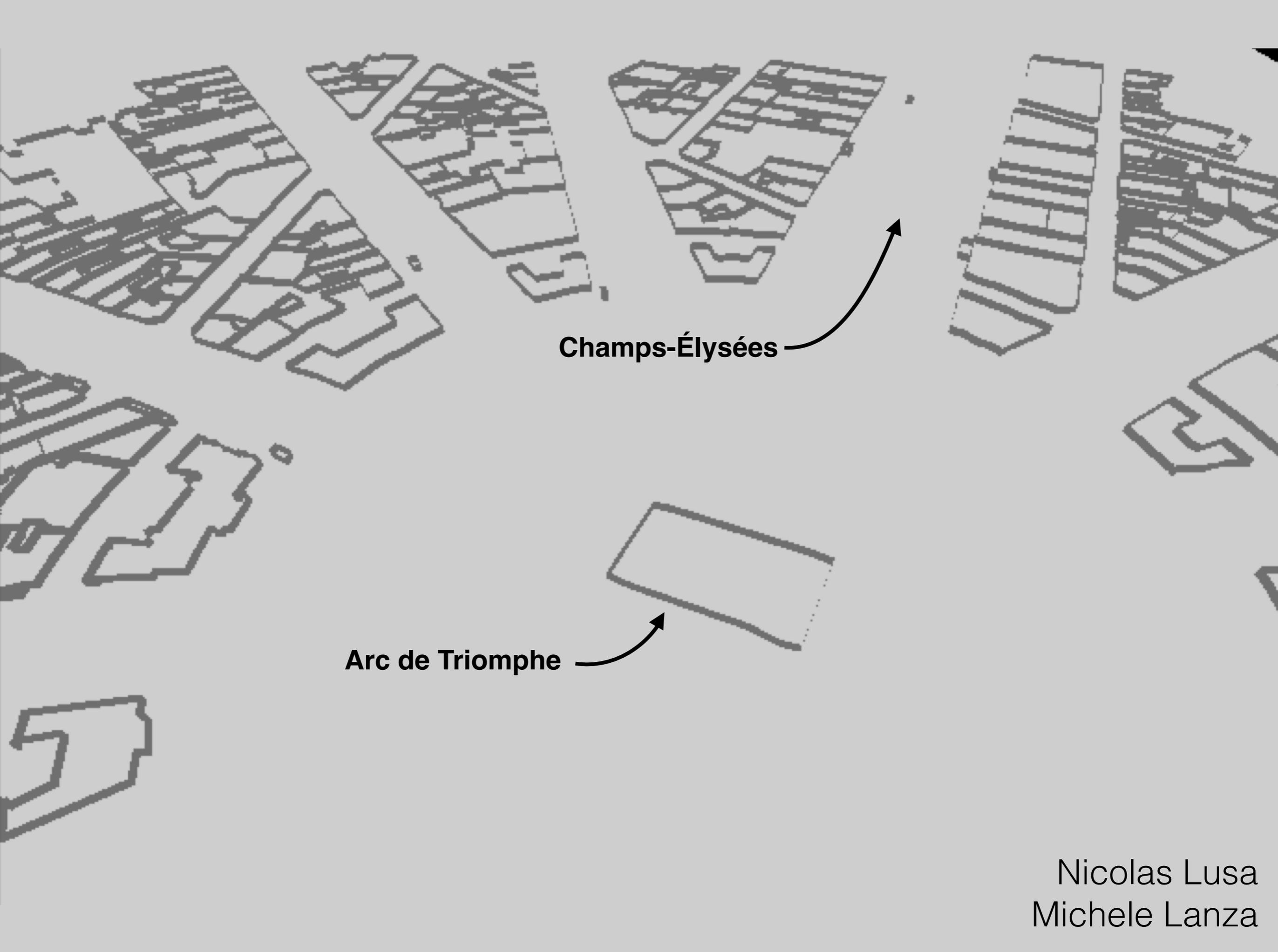
```
| elements lay |  
elements := (1 to: 500) collect: [ :ob |  
  (R3CubeShape new  
    width: 6 atRandom;  
    height: 3 atRandom;  
    depth: 6 atRandom;  
    color: (Color random);  
    yourself) elementOn: ob ].  
  
lay := R3WallLayout new.  
lay on: elements.  
  
UberPresenter present: elements
```

Uber Presenter





Nicolas Lusa
Michele Lanza



Champs-Élysées

Arc de Triomphe

Nicolas Lusa
Michele Lanza

VIDI

City

DFSessionsBrowserWindow>>#openTopRightWithSpec

Violated rules:

- Rewrite super messages to self messages when both refer
- Sends different super message

Source code:

```
openTopRightWithSpec  
  
| w topRight |  
  
"If it is open, do not open"  
self class isOpen ifTrue: [ ^ nil ].  
  
topRight := (World fullBounds width - 15 - self  
initialExtent x) @ 15.  
  
w := super openAtWithSpec: topRight.  
  
w whenClosedDo: [  
    DFSessionsManager uniqueInstance announcer  
unsubscribe: self.  
    self class reset.  
].
```

Total classes: 36 methods: 299
Violated classes: 12 methods: 137; with a total number of violations: 182

Rule	Critics
Style	63
Design Flaws	77
Class not referenced	5
Excessive inheritance depth	0
Excessive number of arguments	0
Excessive number of methods	2
Excessive number of variables	3
Future deprecation warning	2
Inconsistent method classificatio	58
Instance variables defined in all s	0
Long methods	4
Method defined in all subclasses,	0
Methods equivalently defined in :	0
Refers to class name instead of "	0
Rewrite super messages to self n	1
Sends a deprecated message to a	0
Sends different super message	2
Variable is only assigned a single	0
Variable referenced in only one n	0
Variables not referenced	0
Unclassified rules	0
Coding Idiom Violation	23
Bugs	6
Potential Bugs	6
Optimization	7

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

Bloc

A new 2D graphics framework for Pharo

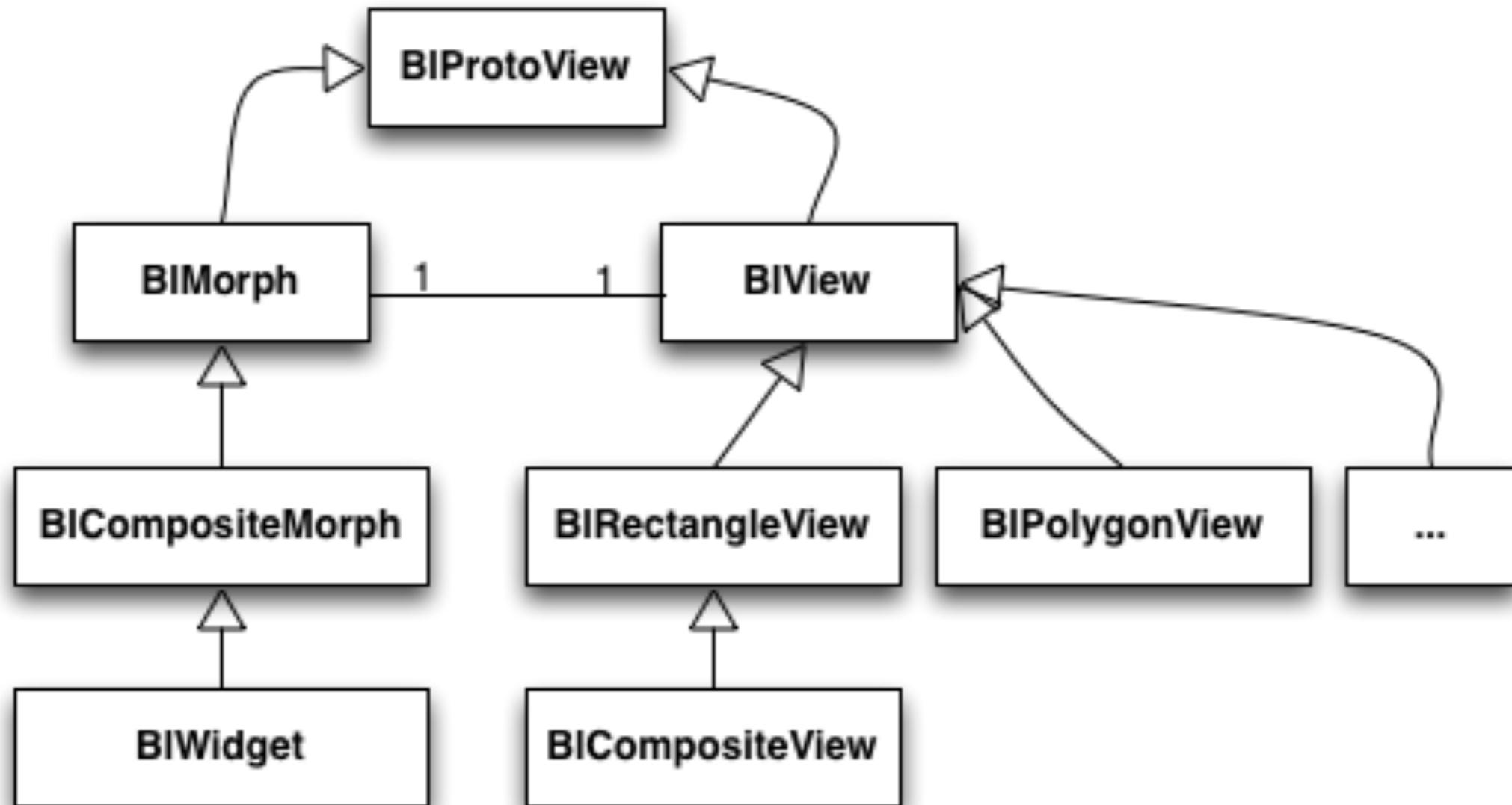
Bloc

Bloc = new Morphic implementation
+ OSWindows + Athens + TxtText

- a new Morph hierarchy
- a new event framework
- new layout strategies
- a new Halo framework
- new World management
- new widgets



+ Bloc



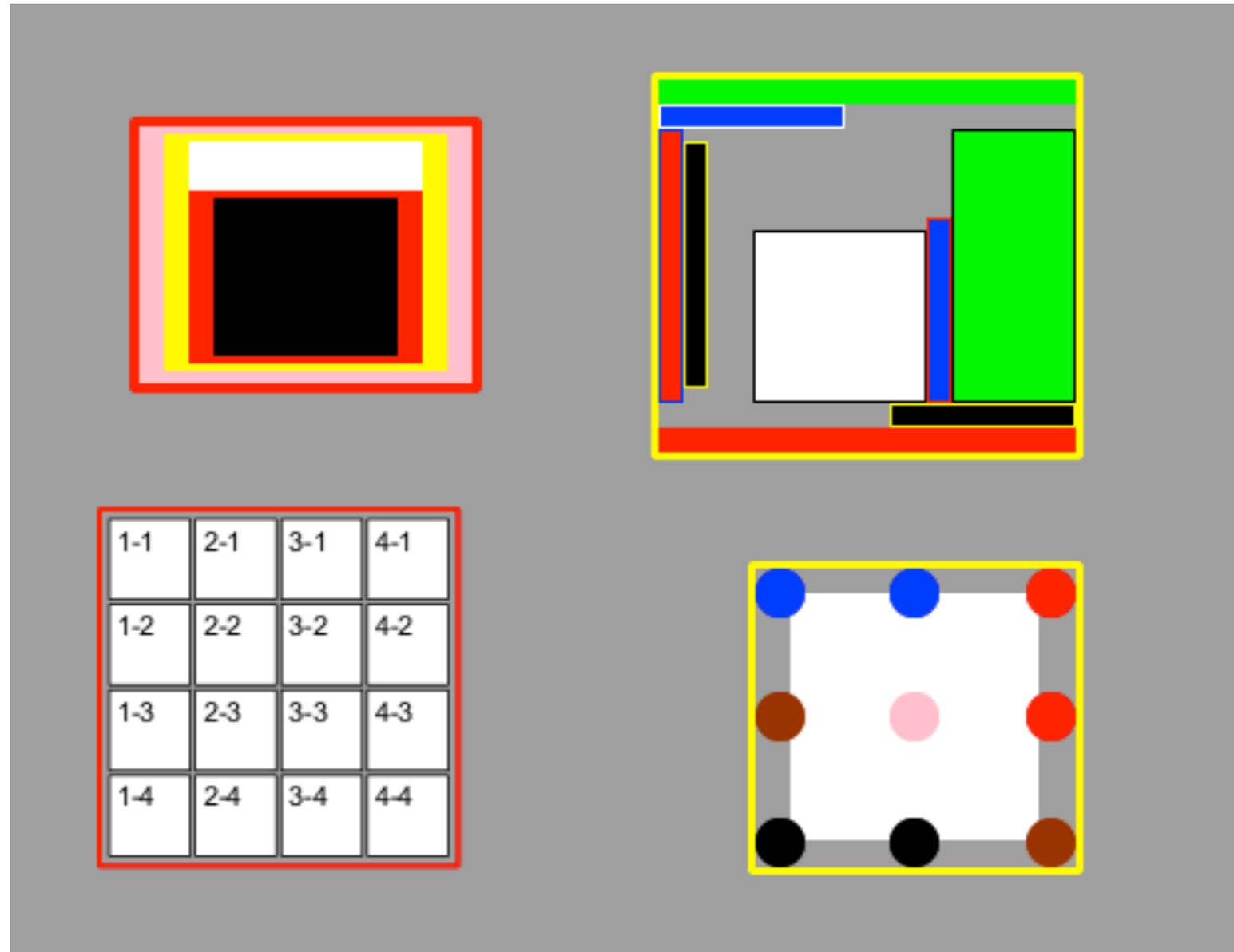
New Morph hierarchy

BIView for the rendering
BIMorph for events management



Less Morph subclasses

A Morph is associated with a View
A View can be a composite



New layout strategies

Anchors, Box, Border, Stack

An more to come:
We are ready to build new widgets

Stay tuned!

Telescope

