

# Moose

how to solve real problems  
without reading code

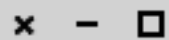
@girba

@moosetechnology

Moose?

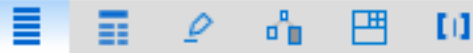
# Moose

platform for software  
and data analysis



# Moose Finder on ArgoUML-0-34

All model classes (2387) (FAMIXClassGroup)



- org::argouml::core::propertypanels::ui::OldScrollList
- org::argouml::cognitive::ui::ActionAutoCritique
- org::argouml::uml::reveng::Import::ConfigPanelExtension
- org::argouml::cognitive::DesignGoalsCM
- org::argouml::ui::SystemInfoDialog.SystemInfoDialog(boolean)
- org::argouml::uml::ui::behavior::state\_machines::ActionNew**
- org::argouml::uml::cognitive::critics::CrInterfaceAllPublic
- org::argouml::uml::diagram::deployment::ui::UMLDeploymer
- org::argouml::uml::cognitive::critics::CrSeqInstanceWithoutC
- org::argouml::uml::ui::SaveGraphicsManager::FileFilterChange
- org::argouml::core::propertypanels::ui::UMLDependencyClient
- org::argouml::core::propertypanels::model::GetterSetterManager
- org::argouml::kernel::NonUndoableCommand
- org::argouml::uml::diagram::state::ui::SelectionMode
- org::argouml::language::php::PHPDocumentor::StaticTag

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each annotationInstances notEmpty

Group (50) (FAMIXClassGroup)

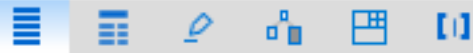


- org::argouml::uml::ui::behavior::state\_machines::ActionNew
- org::argouml::model::euml::ScopeKindEUMLImpl
- org::argouml::uml::ui::AbstractActionRemoveElement
- org::argouml::uml::ui::UMLComboBox2
- org::argouml::ui::AbstractArgoJPanel
- org::argouml::uml::ui::foundation::core::ActionAddAttribute
- org::argouml::uml::ui::ActionDeleteModelElements
- org::argouml::uml::ui::behavior::state\_machines::ActionNew
- org::argouml::uml::ui::foundation::core::ActionSetStructuralAll
- org::argouml::uml::diagram::ui::ActionAddNote
- org::argouml::model::mdr::UndoCoreHelperDecorator
- org::argouml::uml::diagram::ui::ActionVisibilityProtected
- org::argouml::ui::LoadSwingWorker
- org::argouml::uml::diagram::ui::ActionModifierActive
- org::argouml::uml::ActionAddStereotype
- org::argouml::ui::SaveSwingWorker

enter search query



All model classes (2387) (FAMIXClassGroup)

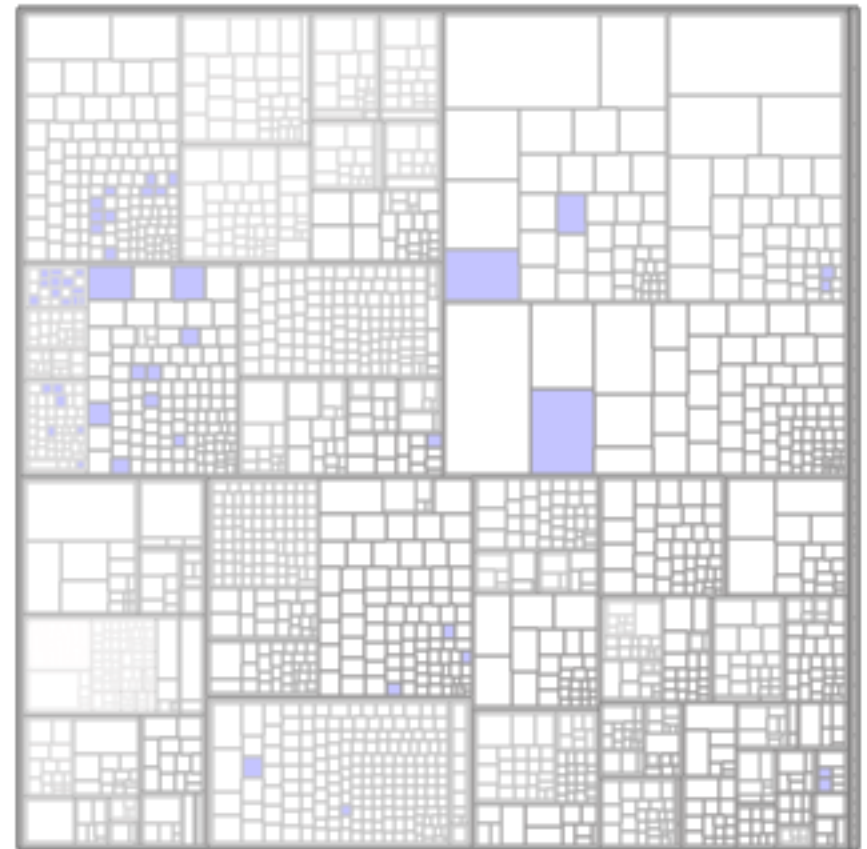


- org::argouml::core::propertypanels::ui::OldScrollList
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200 / 2387

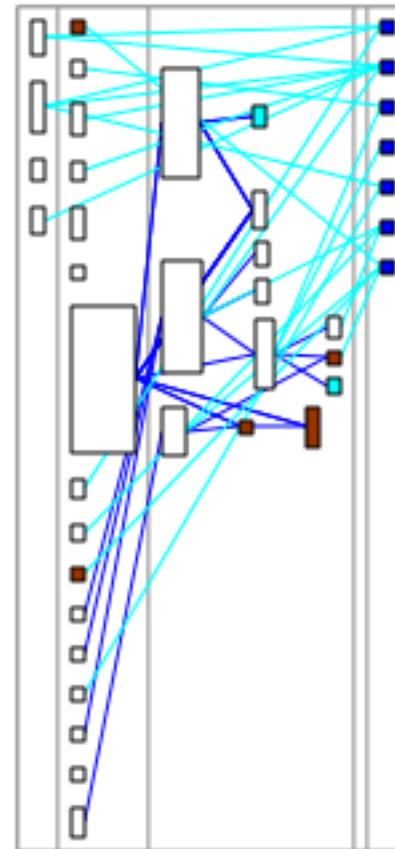
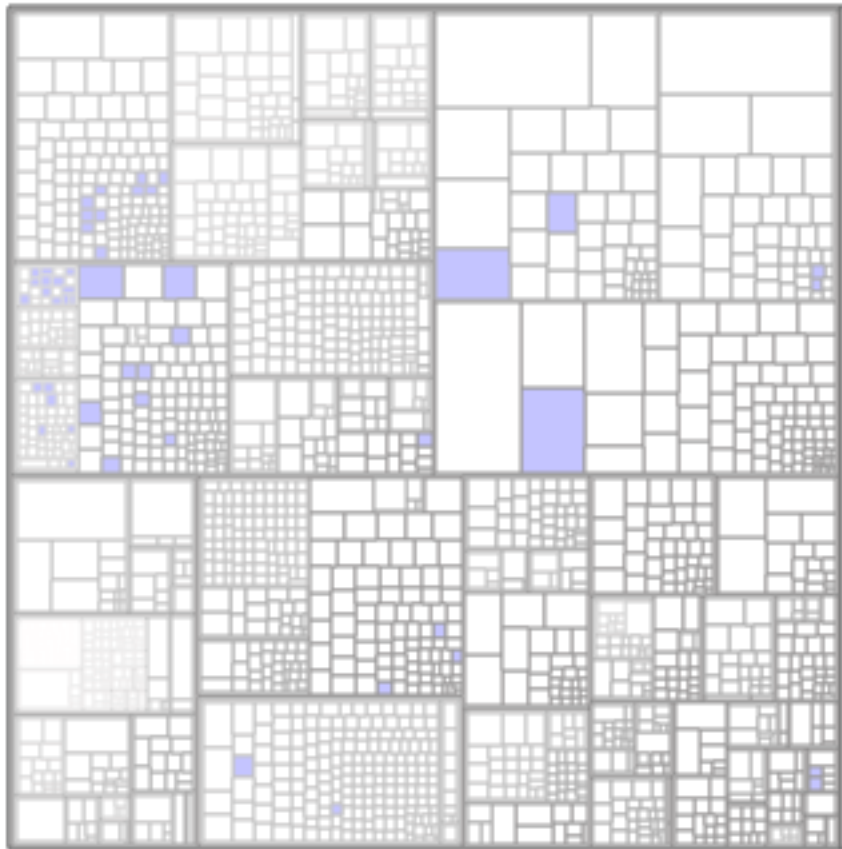
each annotationInstances notEmpty

Group (50) (FAMIXClassGroup)



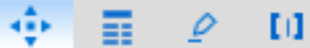
Group (50) (FAMIXClassGroup)

org::argouml::...entListModel2 (FAMIXClass)



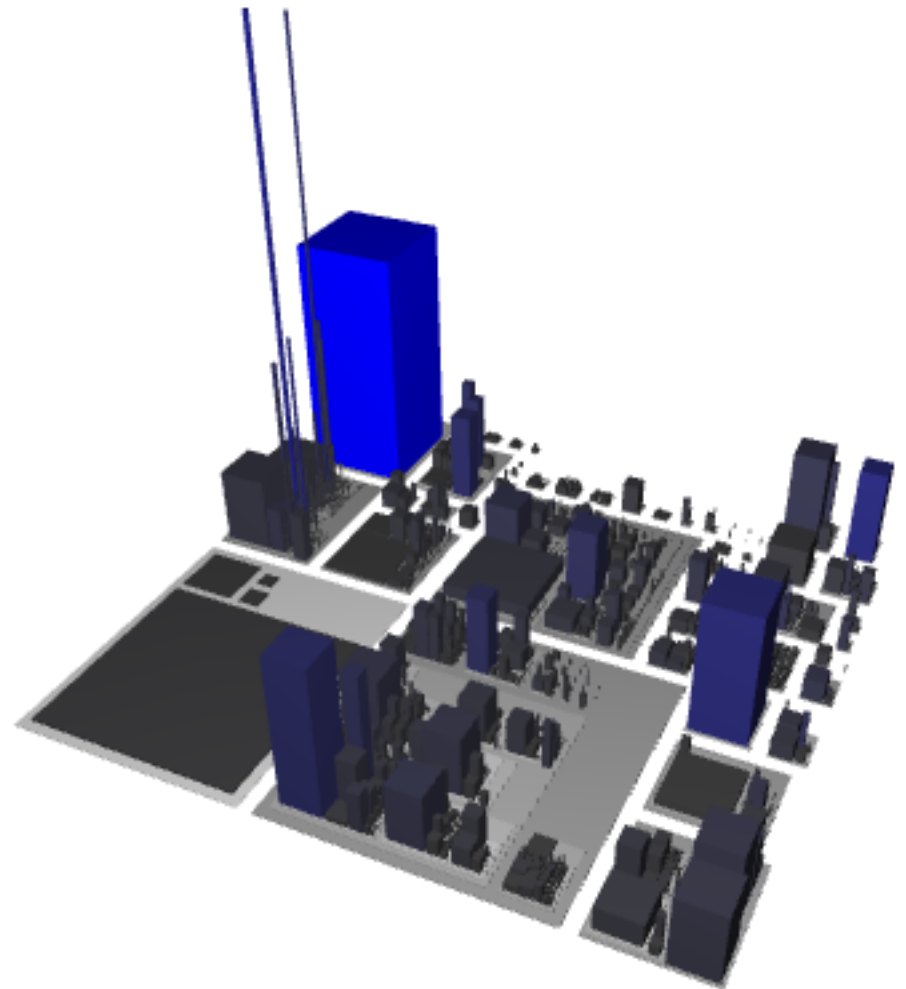
# Moose Finder on ArgoUML-0-34

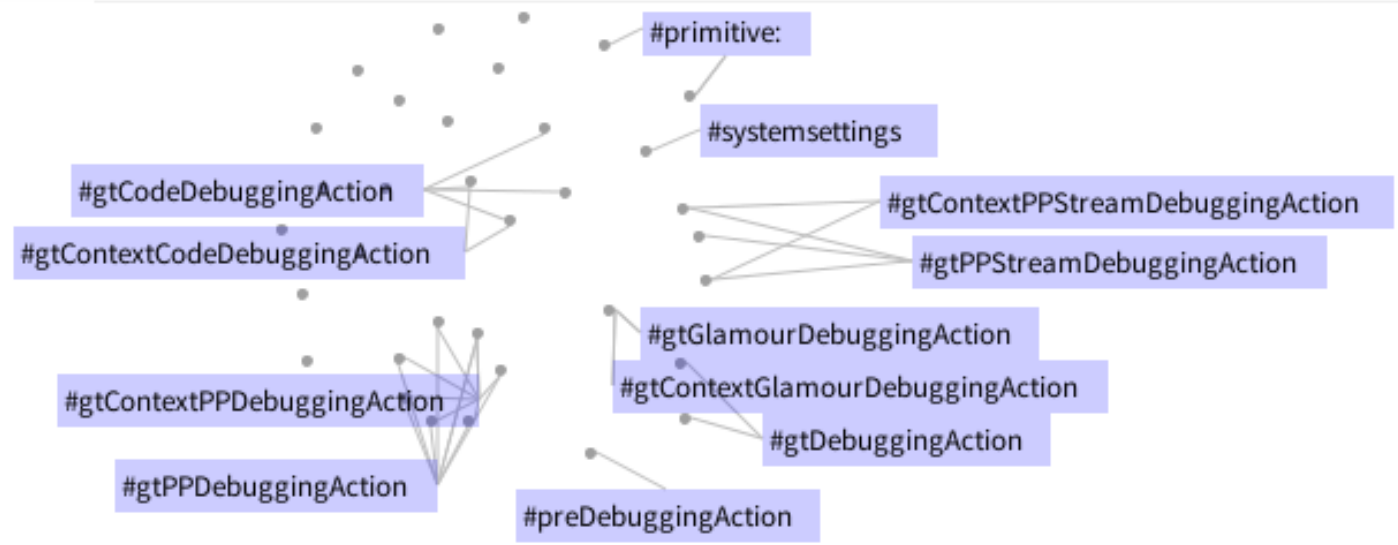
ArgoUML-0-34 (MooseModel)



- All classes - All famixclasses (4071)
- All comments - All famixcomments (15284)
- All declared exceptions - All famixdeclaredexceptions (988)
- All enum values - All famixenumvalues (169)
- All enums - All famixenums (17)
- All implicit variables - All famiximplicitvariables (2696)
- All inheritances - All famixinheritances (5246)
- All invocations - All famixinvocations (87362)
- All local variables - All famixlocalvariables (12855)
- All methods - All famixmethods (23533)
- All model classes - All model classes (2387)
- All model namespaces - All model namespaces (127)
- All model types - All model types (2600)
- All namespaces - All famixnamespaces (298)
- All parameter types - All famixparametertypes (31)
- All parameterizable classes - All famixparameterizableclasses
- All parameterized types - All famixparameterizedtypes (893)

All model classes (2387) (FAMIXClassGroup)

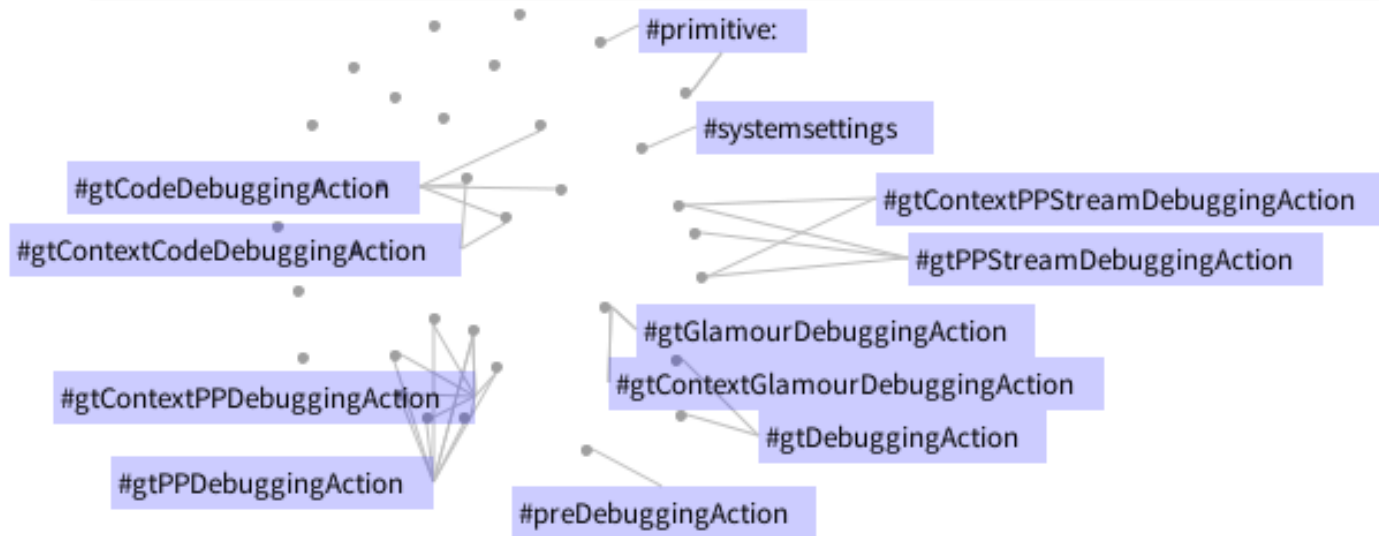






# Roassal Easel

View



Script

eg ▶

```
view shape ellipse withoutBorder; fillColor: Color lightGray.  
view nodes: classGroup.  
view shape  
  rectangle withoutBorder; fillColor: (Color blue alpha: 0.2);  
  withText: #name.  
view nodes: (classGroup flatCollectAsSet: [:each |  
  each methods flatCollect: #annotationTypes]).  
view edges: (classGroup flatCollect: #methods)  
  fromAll: #annotationTypes  
  to: #parentType.  
view forceBasedLayout
```

Variable	Value
classGroup	Group (34...Classes)

Preview

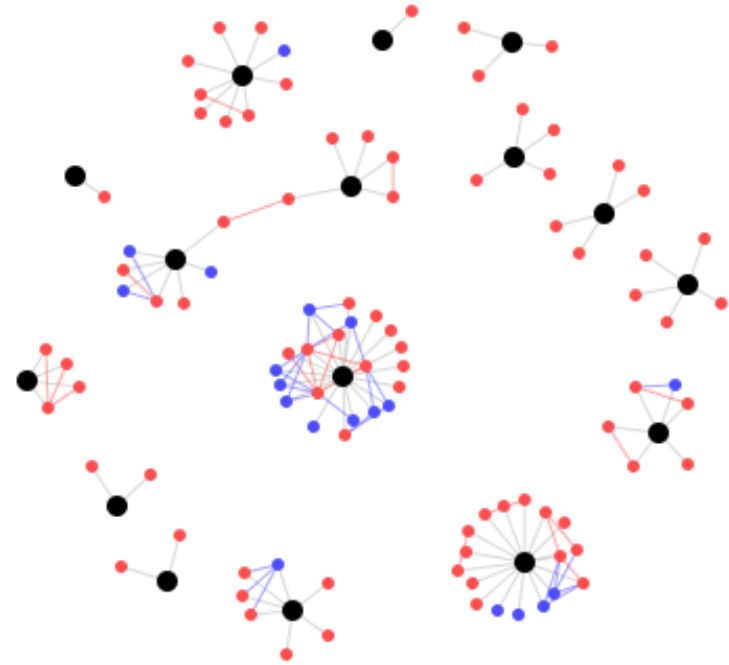
i ↻ ▼

```
org::argouml::uml::cognitive::critics::CrUnconventionalPackName
org::argouml::core::propertypanels::ui::UMLExtendExtensionListModel
org::argouml::uml::diagram::state::ui::InitStateDiagram
org::argouml::ui::explorer::rules::GoSummaryToInheritance
org::argouml::core::propertypanels::ui::LabelledComponent
org::argouml::core::propertypanels::ui::UMLTemplateParameterDefaultElement
org::argouml::uml::diagram::ui::ActionAddNote
org::argouml::ui::ZoomSliderButton.createPopupComponent():anonymous(/
org::argouml::uml::ui::foundation::core::ActionAddOperation.getTargetFollow
org::argouml::core::propertypanels::ui::UMLValueSpecificationValueFieldOpera
org::argouml::core::propertypanels::ui::UMLStimulusSenderListModel
org::argouml::ui::explorer::rules::GoOperationToCollaborationDiagram
org::argouml::uml::diagram::static_structure::ui::FigStereotypeDeclaration
org::argouml::language::csharp::importer::CSharpImport
```

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enter search query

- + ▼



Preview



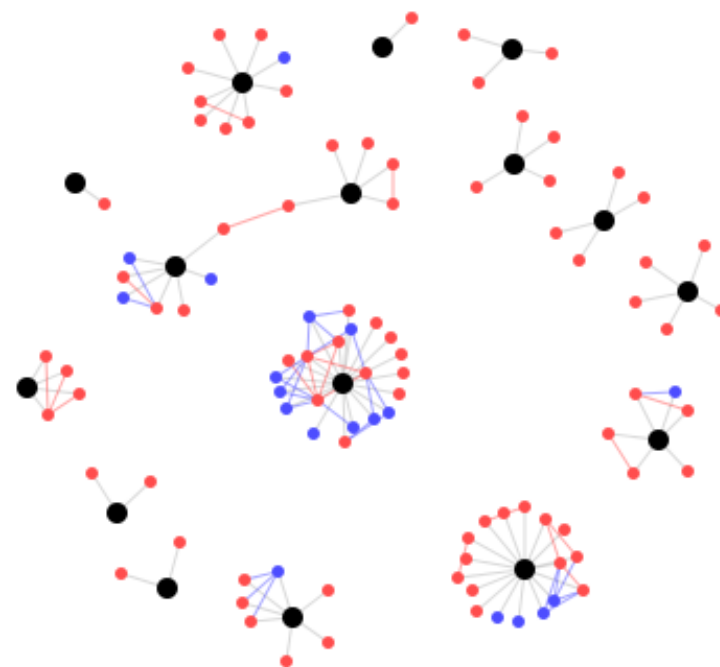
```

org::argouml::uml::cognitive::critics::CrUnconventionalPackName
org::argouml::core::propertypanels::ui::UMLExtendExtensionListModel
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org::argouml::uml::diagram::ui::ActionAddNote
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org::argouml::uml::ui::foundation::core::ActionAddOperation.getTargetFollow
org::argouml::core::propertypanels::ui::UMLValueSpecificationValueFieldOpera
org::argouml::core::propertypanels::ui::UMLStimulusSenderListModel
org::argouml::ui::explorer::rules::GoOperationToCollaborationDiagram
org::argouml::uml::diagram::static_structure::ui::FigStereotypeDeclaration
org::argouml::language::csharp::importer::CSharpImport

```

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enter search query



Script

eg ▶

```

composer tabulator with: [ :t |
  t column: #list; column: #map.
  t transmit to: #list; andShow: [ :a |
    a list
      beMultiple;
      showOnly: 100;
      format: #mooseDisplayString;
      withSmalltalkSearch ].
  t transmit from: #list; to: #map; andShow: [:a :selected |
    a roassal
      painting: [:view |
        FAMIXSystemAttraction new view: selected on: view ] ] ].
composer startOn: classGroup

```

Variable

Value

classGroup

All model...Classes)

# PetitParser Browser

- Parsers +
- PPArithmeticParser
- ▶ PPJavaLexicon
- PPLambdaParser
- ▶ PPMSEGrammar
- ▶ PPSmalltalkGrammar
- ▶ PetitSQLiteGrammar

- PetitSQLiteGrammar
- select
- selectCore
- selectStatement
- set
- signedNumber
- singleSource
- singleSourceIdentifierPart
- singleSourceJoinSourceInRBPpart
- singleSourceSelectStmntInRBPpart

Source Graph Map Example First Follow

```
selectCore  
"http://www.sqlite.org/syntaxdiagrams.html#select-core"  
^ select ,  
  (distinct / all) optional ,  
  (resultColumn separatedBy: $, asParser trim) ,  
  (from , joinSource) optional ,  
  (where , expression ) optional ,  
  (groupBy , (orderingTerm separatedBy: $, asParser trim),  
  ('HAVING' asParser caseInsensitive trim , expression)  
  optional ) optional
```

Sample

select \* from TABLE

Result Debugger Tally Profile Progress

- ▼ selectCore - #'select' nil #'(\$\*) #'('from' #'(nil 'TABLE') nil  
 select - 'select'  
 distinct - 'DISTINCT' expected at 7  
 all - 'ALL' expected at 7  
 resultColumn - \$\*  
 from - 'from'
- ▼ joinSource - #'(nil 'TABLE') nil nil #()  
 ▶ singleSource - #'(nil 'TABLE') nil nil

# PetitParser Browser

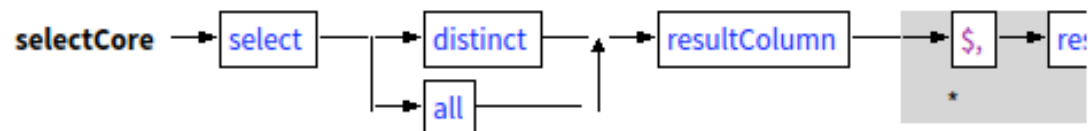
## Parsers +

- PPArithmeticParser
- ▶ PPJavaLexicon
- PPLambdaParser
- ▶ PPMSEGrammar
- ▶ PPSmalltalkGrammar
- ▶ PetitSQLiteGrammar

## PetitSQLiteGrammar

- re:select
- select
- selectCore
- selectStatement
- set
- signedNumber
- singleSource
- singleSourceIdentifierPart
- singleSourceJoinSourceInRBP
- singleSourceSelectStmtInRBP
- sqlStatement
- sqlStatementList

## Source Graph Map Example First Follow



## Sample ▶

# Moose Meta Browser

## Entities

- ▼ FAMIX.SourceEntity FAMIX
  - ▶ FAMIX.Association FAMIX
  - FAMIX.Comment FAMIX
- ▼ FAMIX.NamedEntity FAMIX
  - ▼ FAMIX.ContainerEntity FAMIX
    - ▶ FAMIX.BehaviouralEntity FAMIX
    - ▶ FAMIX.ScopingEntity FAMIX
    - ▶ FAMIX.Type FAMIX
    - ▶ FAMIX.LeafEntity FAMIX
  - ▶ FILE.AbstractFile FILE
  - ▶ Hismo.AbstractHistory Hismo

## 22 Relations

## 20 Properties

name	type
accesses	Access * /
activations	Activation * /
annotationInstances	AnnotationInstance
belongsTo	ContainerEntity /
clientBehaviours	BehaviouralEntity
comments	Comment * /
declaredSourceLanguage	SourceLanguage
declaredType	Type
definedAnnotationTypes	AnnotationType *
functions	Function * /
implicitVariables	ImplicitVariable *

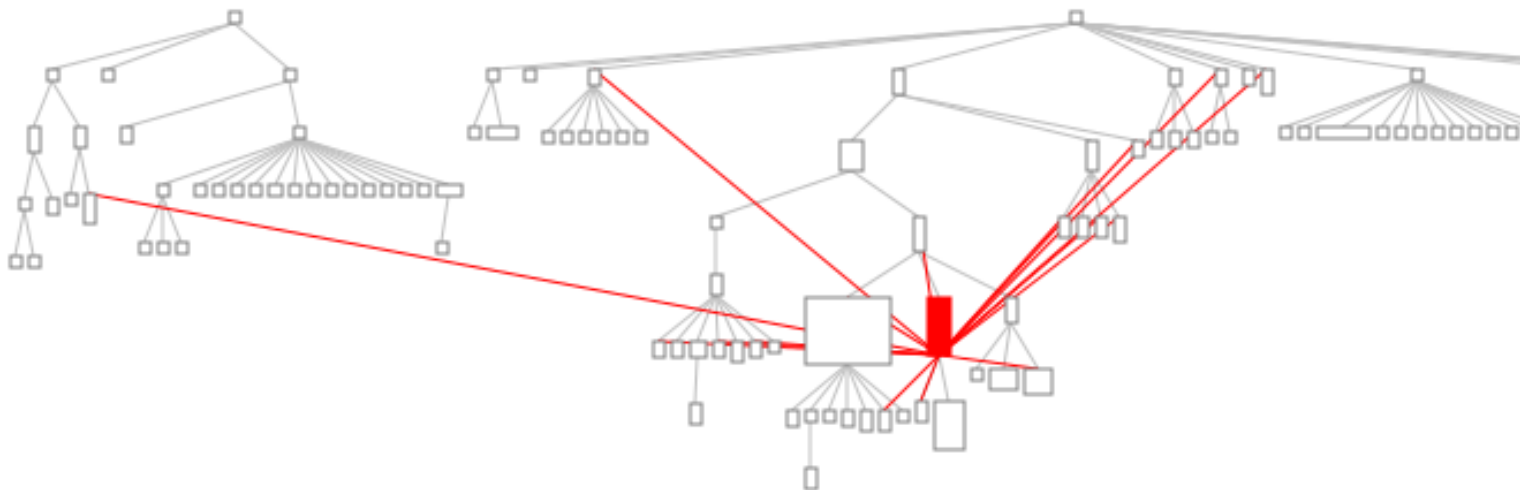
## Comment

FAMIXBehaviouralEntity is an abstract superclass for any kind of behavior. For example, functions and methods. It has a name because it is a named entity but it also has a signature in the format: `methodName(paramType1, paramType2)`. The signature property is necessary for a behavioral entity. An external parser should provide a few metrics that cannot be derived from the model such as cyclomatic complexity, `numberOfStatements` and `numberOfConditionals`. Other metrics can be computed from the model if enough information is provided such as `numberOfLinesOfCode` (from source anchor) and `numberOfComments` (from FAMIXComment).

It provides properties to manage:

- (i) parameters
- (ii) local variables
- (iii) accesses to variables and

## Map



# Moose

crafting analyses  
made easy

# Moose

how to solve real problems  
without reading code





```
@Remote(...)  
@Stateless(...)  
public class A  
implements IA {  
    @EJB  
    private IB b;  
    ...  
}
```

```
@Remote(...)  
@Stateless(...)  
public class B  
implements IB {  
    @EJB  
    private IA a;  
    ...  
}
```

```
@Remote(...)  
@Stateless(...)  
public class A  
implements IA {  
    @EJB  
    private IB b;  
    ...  
}
```

```
@Remote(...)  
@Stateless(...)  
public class B  
implements IB {  
    @EJB  
    private IA a;  
    ...  
}
```

```
(model allClasses select: #isRemote)  
cyclesToAll: [ :class |  
    class attributes flatCollectAsSet: [ :attr |  
        attr declaredType withSubclassHierarchy ]]
```

x - □

## Report

Index

### Server

- No @Interceptors in remote implementations
- Wrong @Interceptors in non remote implement
- Services annotation by Remote but not with Rol
- Not allowed usages of EntityManager
- Direct EntityManager.persist() calls
- Entities that are not Serializable
- Embeddeable not Serializable
- Not allowed calls to getCallerPrincipal()
- Non-serializable classes which have a serializab
- Serializable inner classes
- EJB annotations without defined mappedName.
- Stateless session beans with instance variables
- Session Beans that are not clustered**
- Entities with final methods
- EJB without public no arg constructor
- Usages of Locale.getDefault() on server side

- ▶ Server API
- ▶ Server packaging
- ▶ UI
- ▶ General
- ▶ Tests
- ▶ Dependencies

Remote Session Beans must be annotated with @Clustered to make them clustereable when multiple servers are available.

Session Beans that are not clustered

Group (27) (FAMIXClassGroup)

- ⊞ [redacted]
- ⊞ [redacted]tService
- ⊞ [redacted]mmentService
- ⊞ [redacted]nstraintsService
- ⊞ [redacted]kageService
- ⊞ [redacted]vice
- ⊞ [redacted]Service
- ⊞ [redacted]upService
- ⊞ [redacted]
- ⊞ [redacted]ReportCallService
- ⊞ [redacted]ReportCallService
- ⊞ [redacted]allServiceHandler
- ⊞ [redacted]terventionAcknowledgeCallService
- ⊞ [redacted]terventionsByIndicatorGetterCallService
- ⊞ [redacted]criptCallService
- ⊞ [redacted]erviceEntryEngine
- ⊞ [redacted]intmentService
- ⊞ [redacted]iceEntryService
- ⊞ [redacted]mSearchFieldService
- ⊞ [redacted]tCaseService
- ⊞ [redacted]ice
- ⊞ [redacted]vice
- ⊞ [redacted]RecordNodeService
- ⊞ [redacted]
- ⊞ [redacted]Impl

[Back to Project](#)

[Status](#)

[Changes](#)

[Console Output \[raw\]](#)

[History](#)

[Test Result](#)

[Previous Build](#)

## Test Result

17 failures (+16)



46 tests (±0)

Took 4.5 sec.

[add description](#)

### All Failed Tests

Test Name	Duration	Age
>>> <a href="#">Concern.(No @Interceptors in remote implementations)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Remote methods called without error handling)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Usages of EntityManager)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Direct EntityManager.persist() calls)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Entities that are Serializable)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Embeddeable not Serializable)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(TOs with only static attributes)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(TOs not used)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Remote interfaces incorrectly packaged)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Entity Beans incorrectly packaged)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(TOs incorrectly named)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Jobs scheduled without progressbar)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Usages of StringBuffer)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Usages of java.util.Vector)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Usages of setTimeInMillis)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Attributes not following naming convention)</a>	0.1	<a href="#">1</a>
>>> <a href="#">Concern.(Serializable without default constructor)</a>	0.1	<a href="#">15</a>





2012-03-13 16:10:56,876 TRACE CachingDelegate: Cache hit /service/Region QueryT0 [depth=-1, parentDepth=1, namespace=Region, regioncode=IACA, itemcodes=[APA4725090], codesystem=, elementkind=ITEM, descriptionIncluded=false, validityTestMode=false] hash=-742458864

2012-03-13 16:10:58,470 TRACE CachingDelegate: Cache MISS /service/Region QueryT0 [depth=1, parentDepth=2, namespace=Region, regioncode=Structure, itemcodes=[], codesystem=, elementkind=ITEM, descriptionIncluded=false, validityTestMode=false] hash=2003270021

2012-03-13 16:10:58,563 INFO LegacyScriptCalls: LegacyScriptCall called with Parameter: namespace[nnn;Core]

From=abc

To=xyz

[DataFilter]

Id=1234

[OutputFormat]

Format=xml

[XsltConfig]

XSLT=WithItemId

] payload[]

2012-03-13 16:10:58,798 INFO ActionService: getActionsByDate: patId=8909580, caseId=3807672, from=Wed Dec 21 00:00:00 CET 2011, to=Wed Mar 14 00:00:00 CET 2012

2012-03-13 16:10:58,923 TRACE CachingDelegate: Cache hit /service/Region AnotherQueryT0 [regioncode=null, itemCodes=[], namespace=Region, codeSystem=domain.entry, elementKind=Region, validityDate=Tue Mar 13 00:00:00 CET 2012, descriptionIncluded=false, locale=de\_CH, validityTestMode=false] hash=570633577

2012-03-13 16:10:59,266 TRACE CachingDelegate: Cache MISS /service/AnotherRegion QueryT0 [depth=1, parentDepth=-1, namespace=AnotherRegion, regioncode=630, itemcodes=[I\_23451], codesystem=, elementkind=ITEM, descriptionIncluded=false, validityTestMode=false] hash=-1116635756

2012-03-13 16:10:56,876 TRACE CachingDelegate: **Cache hit** ce/Region QueryT0 [depth=-1, parentDepth=1, namespace=Region, regioncode=IACA, itemcodes=LARA4725090], codesystem=, elementkind=ITEM, descriptionIncluded=false, validityTestMode=false] hash=-742458864

2012-03-13 16:10:58,470 TRACE CachingDelegate: **Cache MISS** ce/Region QueryT0 [depth=1, parentDepth=2, namespace=Region, regioncode=Structure, itemcodes=[]], codesystem=, elementkind=ITEM, descriptionIncluded=false, validityTestMode=false] hash=2003270021

2012-03-13 16:10:58,563 INFO LegacyScriptCalls: LegacyScriptCall called with Parameter: namespace[nnn;Core]

From=abc

To=xyz

[DataFilter]

Id=1234

[OutputFormat]

Format=xml

[XsltConfig]

XSLT=WithItemId

] payload[]

2012-03-13 16:10:58,798 INFO ActionService: getActionsByDate: patId=8909580, caseId=3807672, from=Wed Dec 21 00:00:00 CET 2011, to=Wed Mar 14 00:00:00 CET 2012

2012-03-13 16:10:58,923 TRACE CachingDelegate: **Cache hit** ce/Region AnotherQueryT0 [regioncode=null, itemcodes=[]], namespace=Region, codesystem=domain.entry, elementKind=Region, validityDate=Tue Mar 13 00:00:00 CET 2012, descriptionIncluded=false, locale=de\_CH, validityTestMode=false] hash=570633577

2012-03-13 16:10:59,266 TRACE CachingDelegate: **Cache MISS** ce/AnotherRegion QueryT0 [depth=1, parentDepth=-1, namespace=AnotherRegion, regioncode=SSO, itemcodes=[I\_23451], codesystem=, elementkind=ITEM, descriptionIncluded=false, validityTestMode=false] hash=-1116635756



2012-03-13 16:10:56,876 TRACE CachingDelegate: **Cache hit** ce/Reg **QueryT0** [depth=-1, parentDepth=1, namespace=Region, regioncode=IACA, itemcodes=[AFA472509], codesystem=, elementkind=ITEM, descriptionIncluded=false, validityTestMode=false] hash=-712158864

2012-03-13 16:10:58,470 TRACE CachingDelegate: **Cache MISS** ce/Reg **QueryT0** [depth=1, parentDepth=2, namespace=Region, regioncode=Structure, itemcodes=[], codesystem=, elementkind=ITEM, descriptionIncluded=false, validityTestMode=false] hash=2003270021

2012-03-13 16:10:58,563 INFO LegacyScriptCalls: LegacyScriptCall called with Parameter: namespace[nnn;Core]

From=abc

To=xyz

[DataFilter]

Id=1234

[OutputFormat]

Format=xml

[XsltConfig]

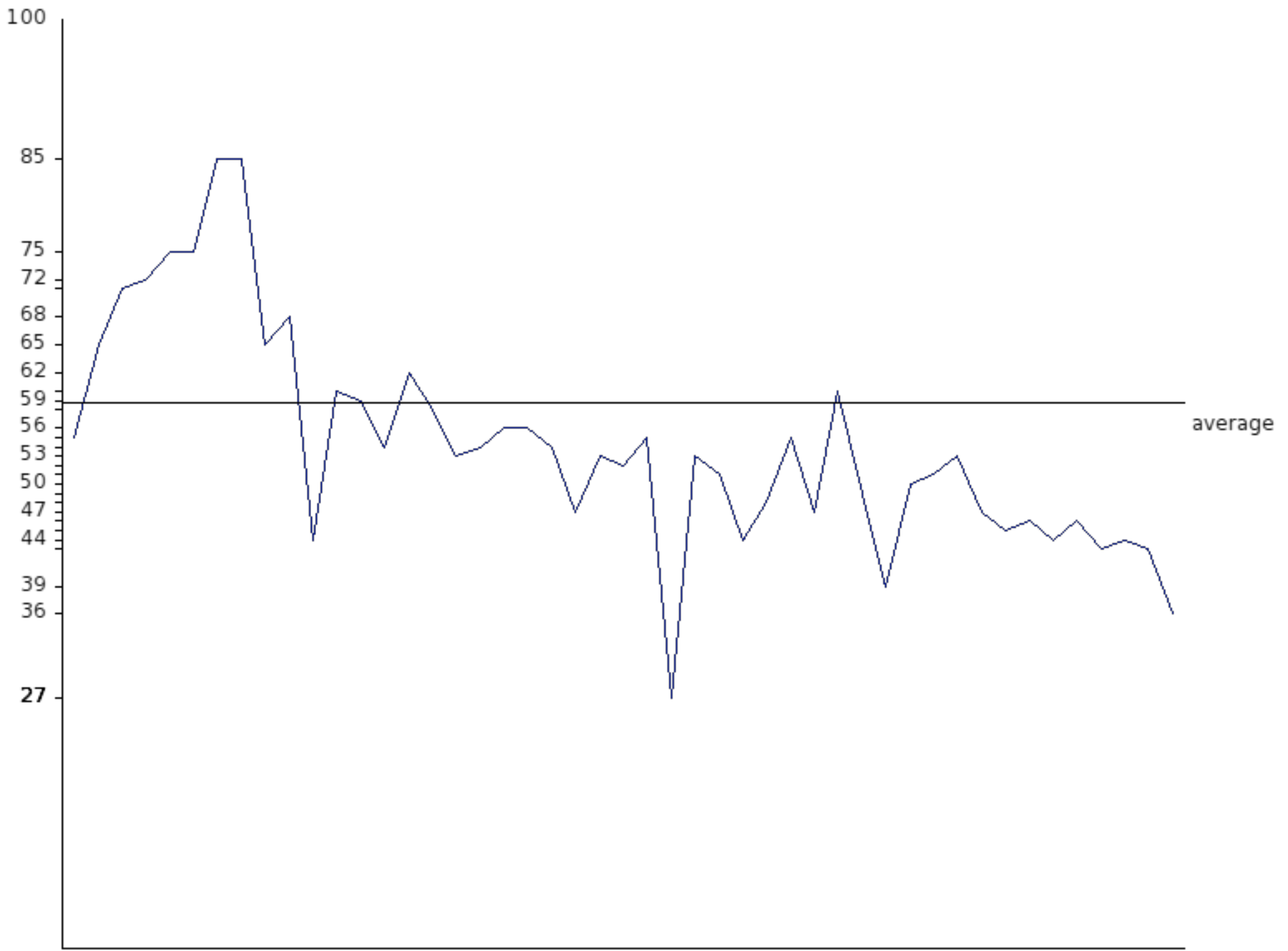
XSLT=WithItemId

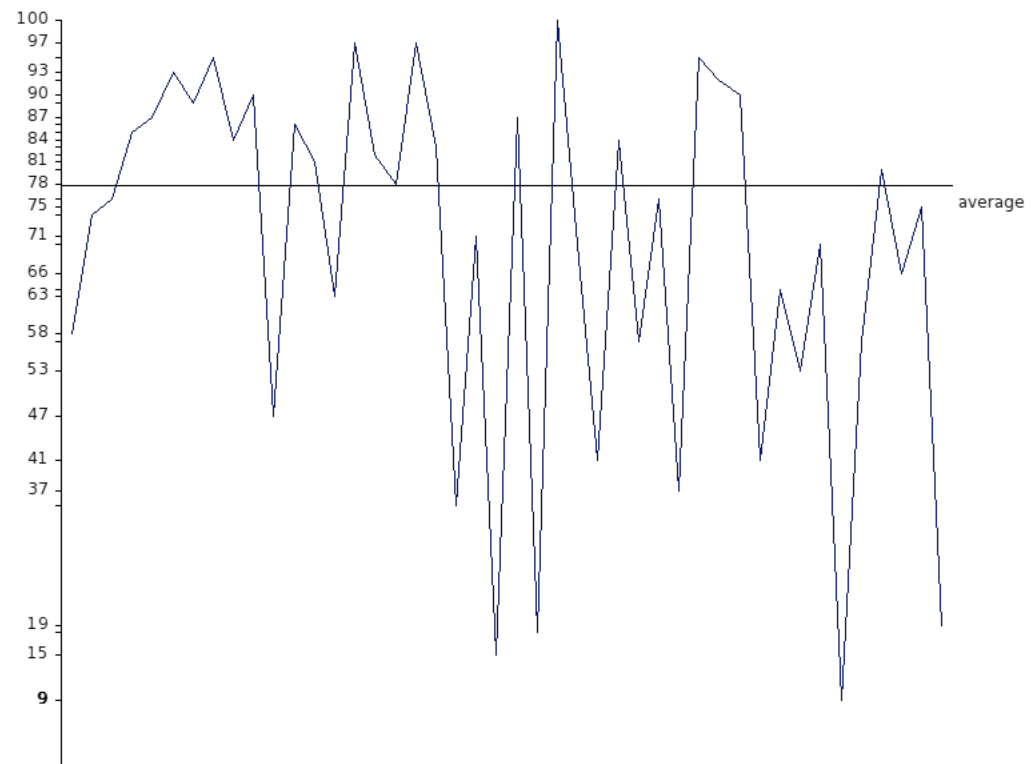
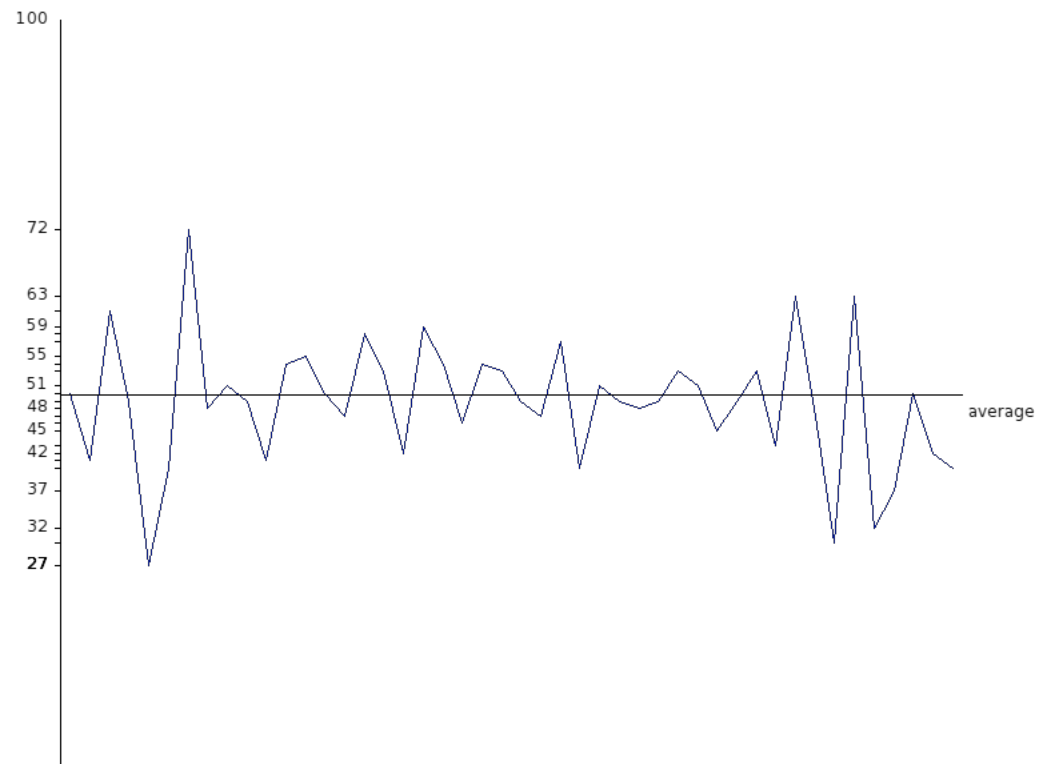
] payload[]

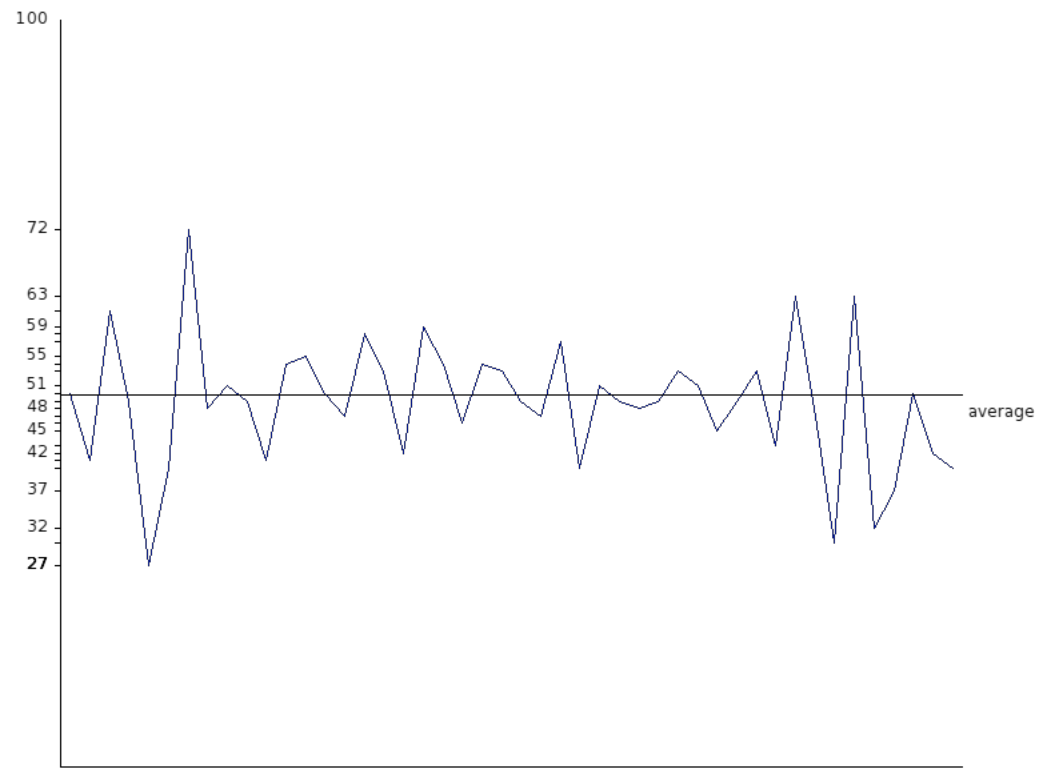
2012-03-13 16:10:58,798 INFO ActionService: getActionsByDate: patId=8909580, caseId=3807672, from=Wed Dec 21 00:00:00 CET 2011, to=Wed Mar 14 00:00:00 CET 2012

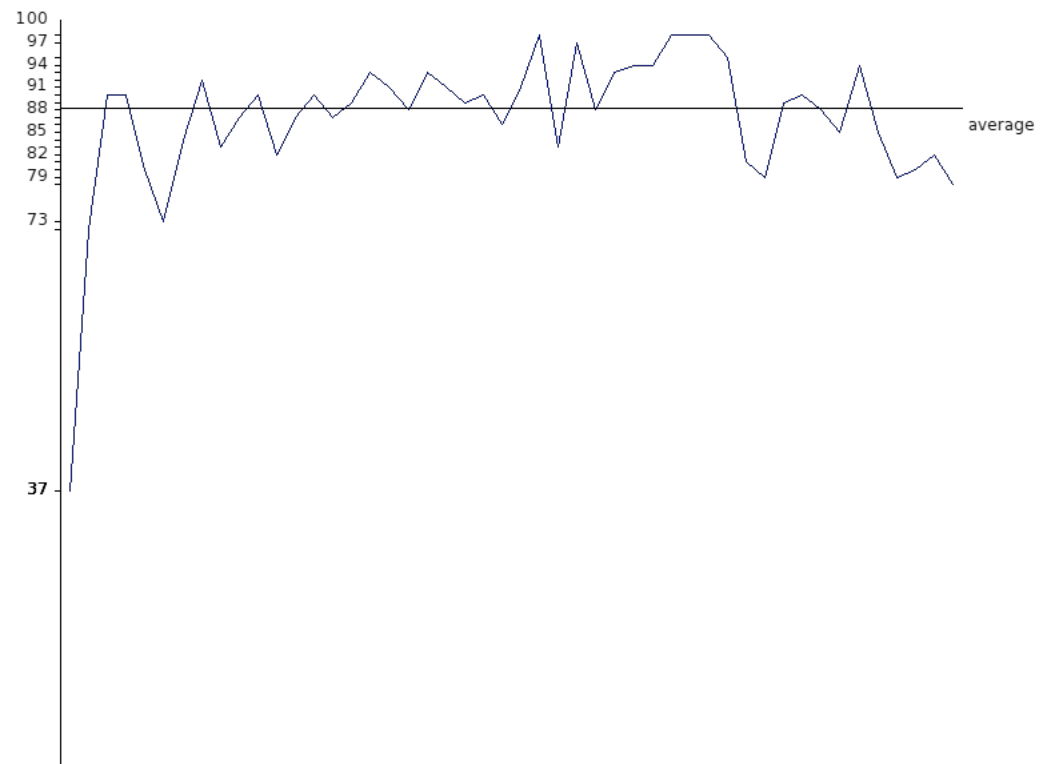
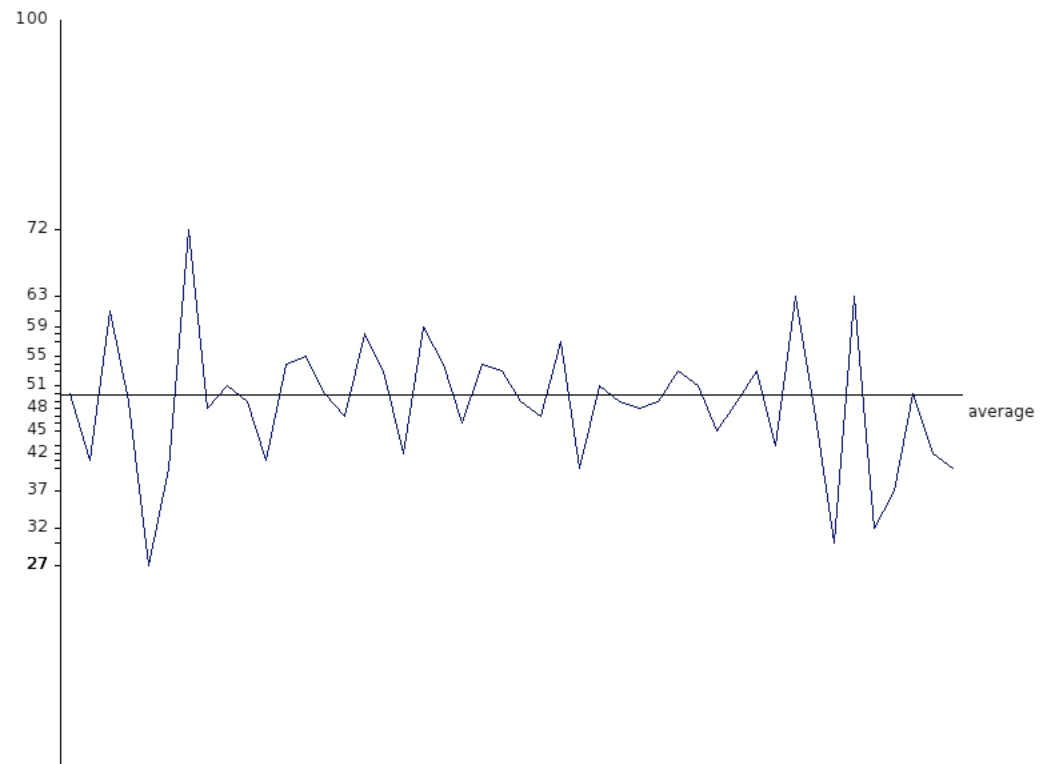
2012-03-13 16:10:58,923 TRACE CachingDelegate: **Cache hit** ce/Reg **AnotherQueryT0** [regioncode=null, itemcodes=[], namespace=Region, codesystem=domain.entry, elementkind=region, validityDate=Tue Mar 13 00:00:00 CET 2012, descriptionIncluded=false, locale=de\_CH, validityTestMode=false] hash=570633577

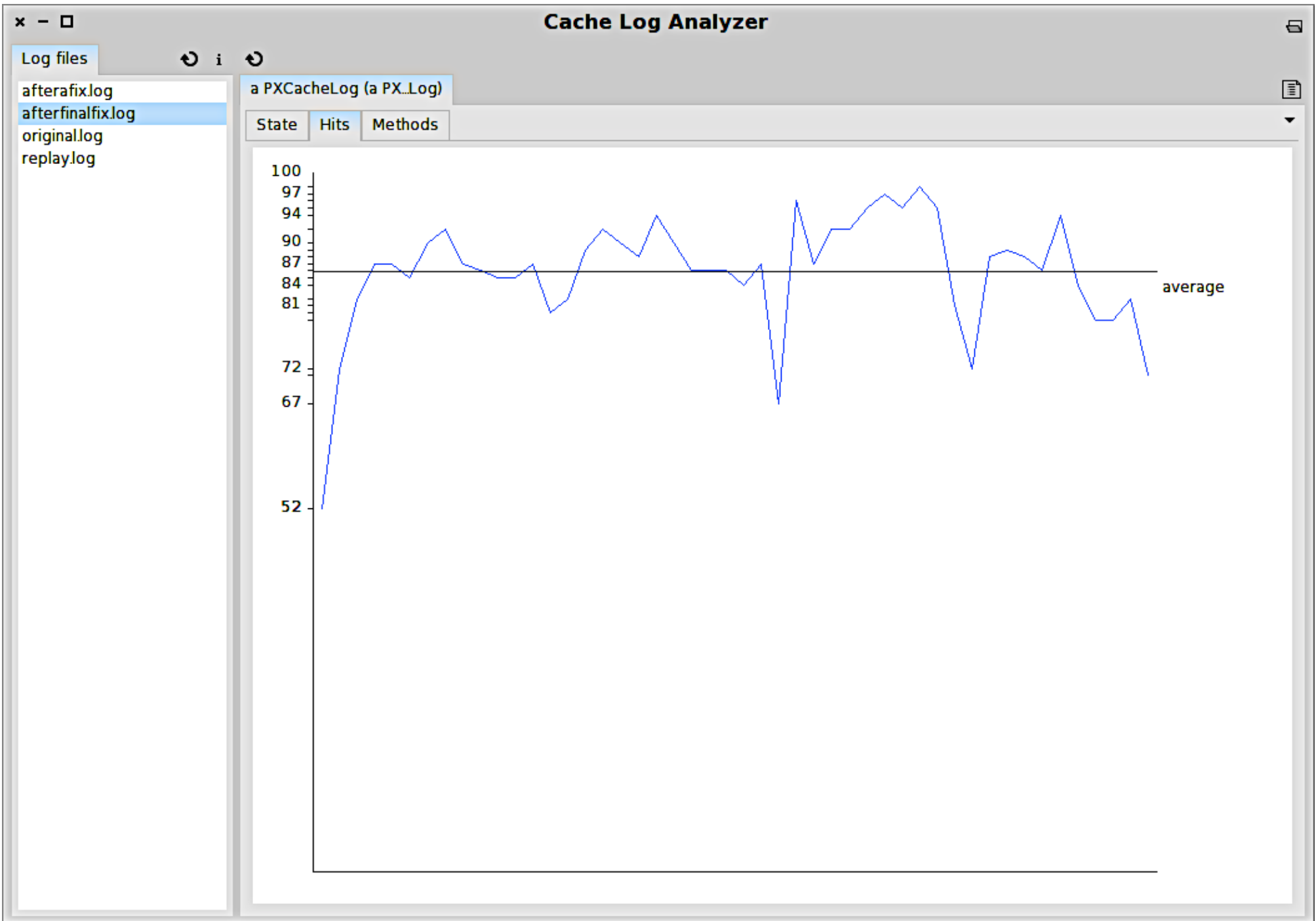
2012-03-13 16:10:59,266 TRACE CachingDelegate: **Cache MISS** ce/AnotherReg **QueryT0** [depth=1, parentDepth=-1, namespace=AnotherRegion, regioncode=550, itemcodes=[123456], codesystem=, elementkind=ITEM, descriptionIncluded=false, validityTestMode=false] hash=-1116635756



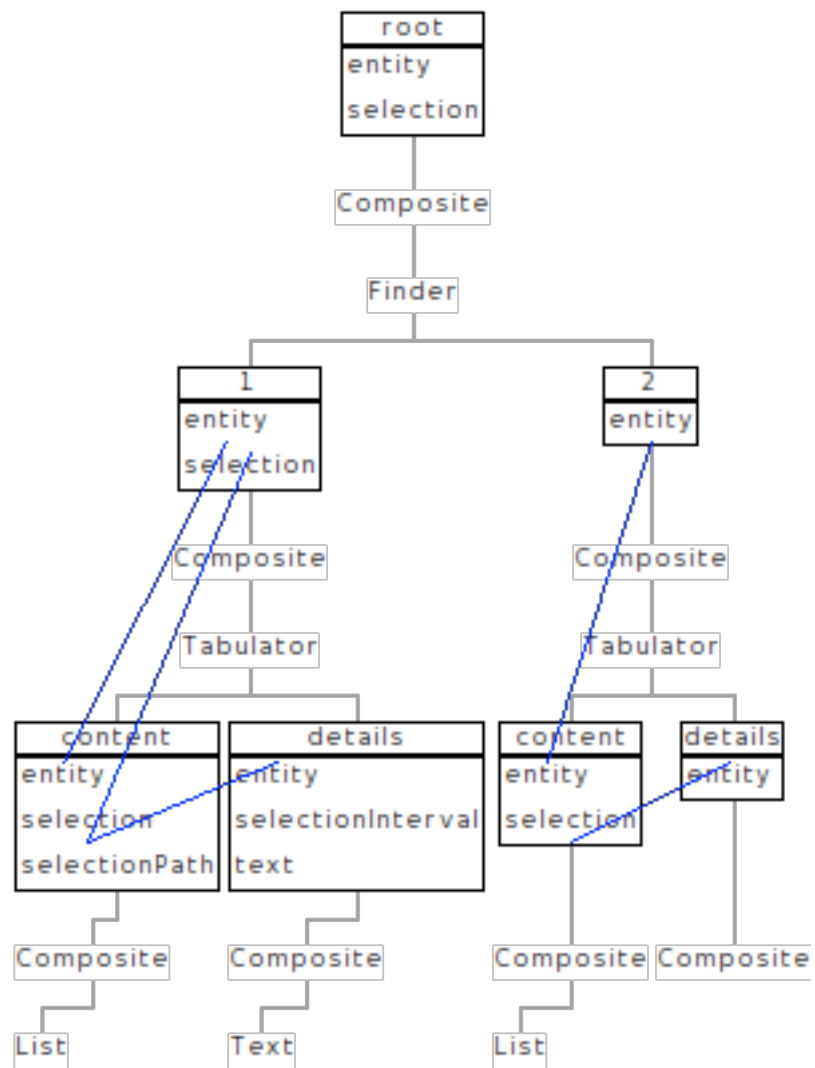




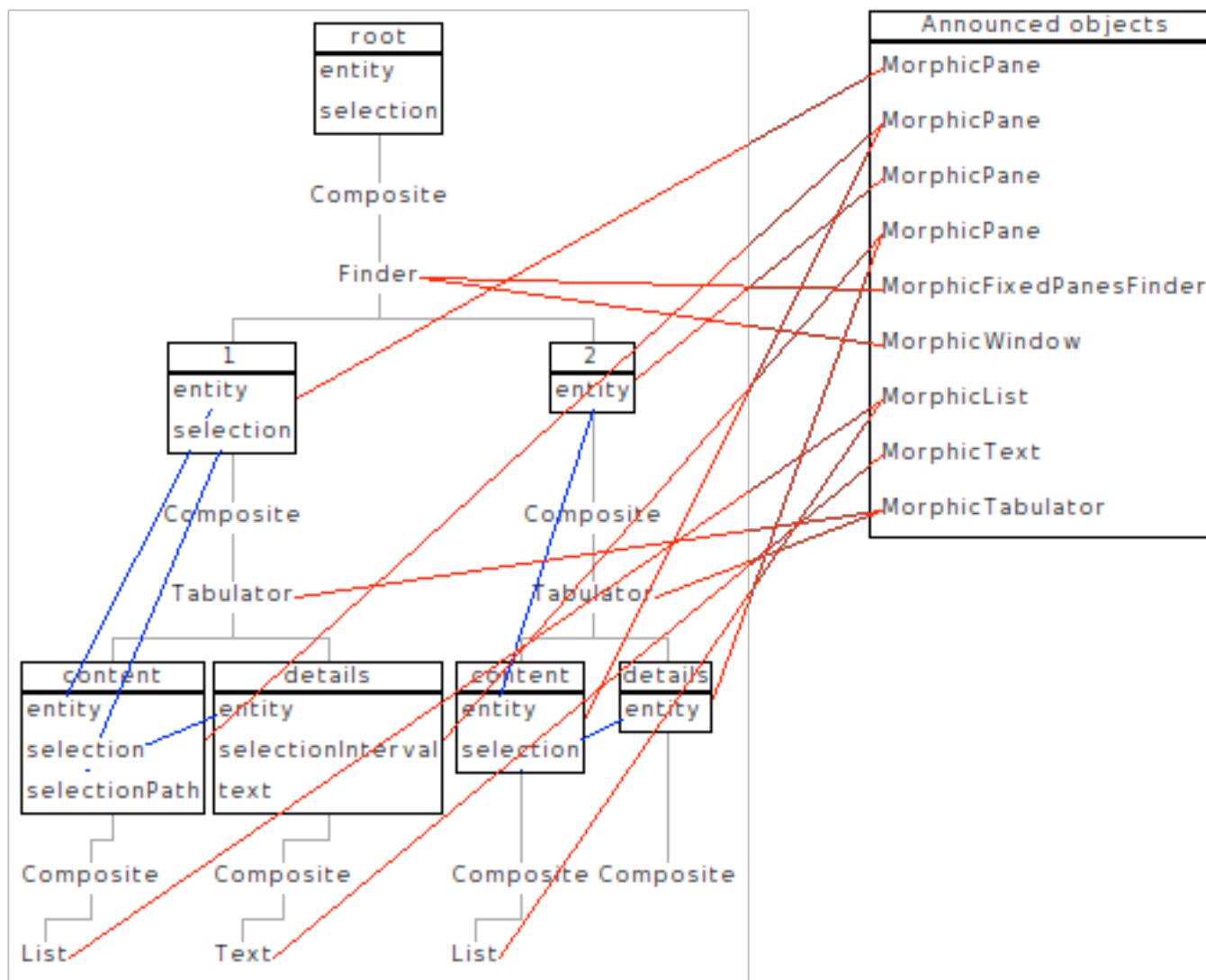


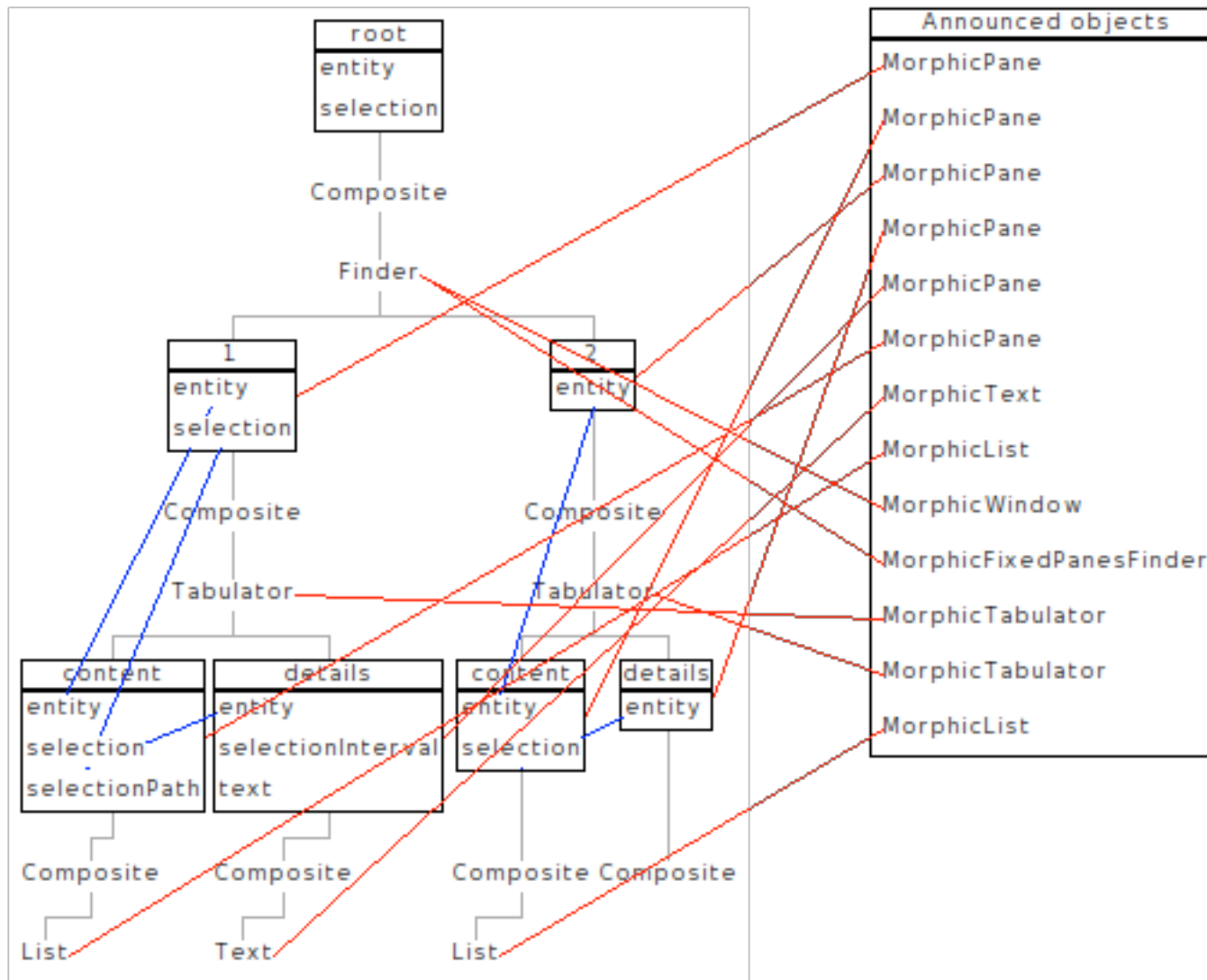




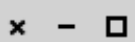












# Inspector on a RubScrolledTextMorph (a RubScrolledTextMorph(255066112))



a RubScrolledTextMorph (a RubScrolledTextMorph(255066112))



State   Extension   Submorphs   Morph   Keys   Meta   CodeWidget



```
"How is this text editor being organized internally?"
```

## Inspector on a RubScrolledTextMorph (a RubScrolledTextMorph(620232704))

a RubScrolledTextMorph (a RubScrolledTextMorph(620232704))

State Extension Submorphs Morph Keys Meta CodeWidget

Variable	Value
self	a RubScrolledTextMorph(620232704)
alwaysAccept	nil
autoAccept	false
bounds	(6.0@30.0) corner: (682.0@450.0)
color	Color white
extension	a MorphExtension (661389...her -> a KMDispatcher)

```
"a RubScrolledTextMorph(620232704)"
```

```
| view |
```

```
view := RTMondrianViewBuilder new.
```

```
self
```

```
  withDeep: [ :each |
```

```
    (each class withAllSuperclasses) flatCollect: [ :cls |
```

```
      (cls instVarNames collect: [ :iv | each instVarNamed: iv ])
```

```
        select: [ :obj | obj class name beginsWith: 'Rub' ] ] ]
```

```
  do: [ :each |
```

```
    view shape label.
```

```
    view node: each ]
```

```
  relationDo: [ :from :to | view edges: {from->to} from: from to: to ].
```

```
view layout: RTHorizontalTreeLayout new.
```

```
view
```

# Inspector on a RubScrolledTextMorph (a RubScrolledTextMorph(255066112))

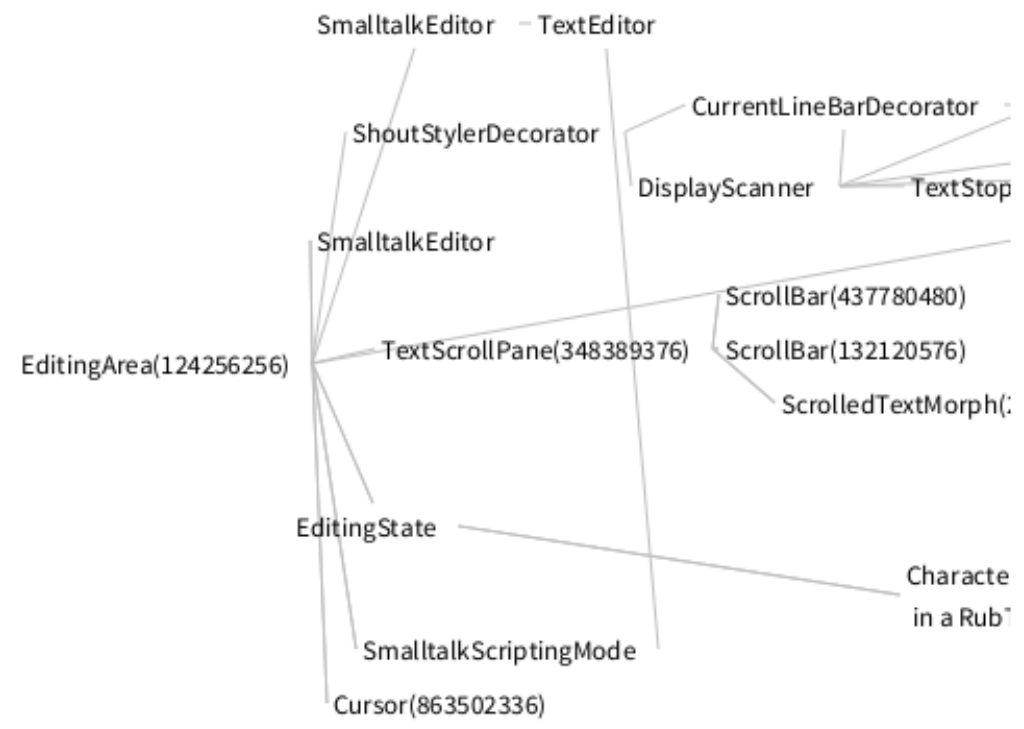
a RubScrolledTextMorph (a RubScrolledTextMorph(255066112))

Variable	Value
self	a RubScrolledTextMorph(255066112)
alwaysAccept	nil
autoAccept	false
bounds	(6.0@30.0) corner: (682.0@450.0)
color	Color white
extension	a MorphExtension(222298) for SaKMDispatch

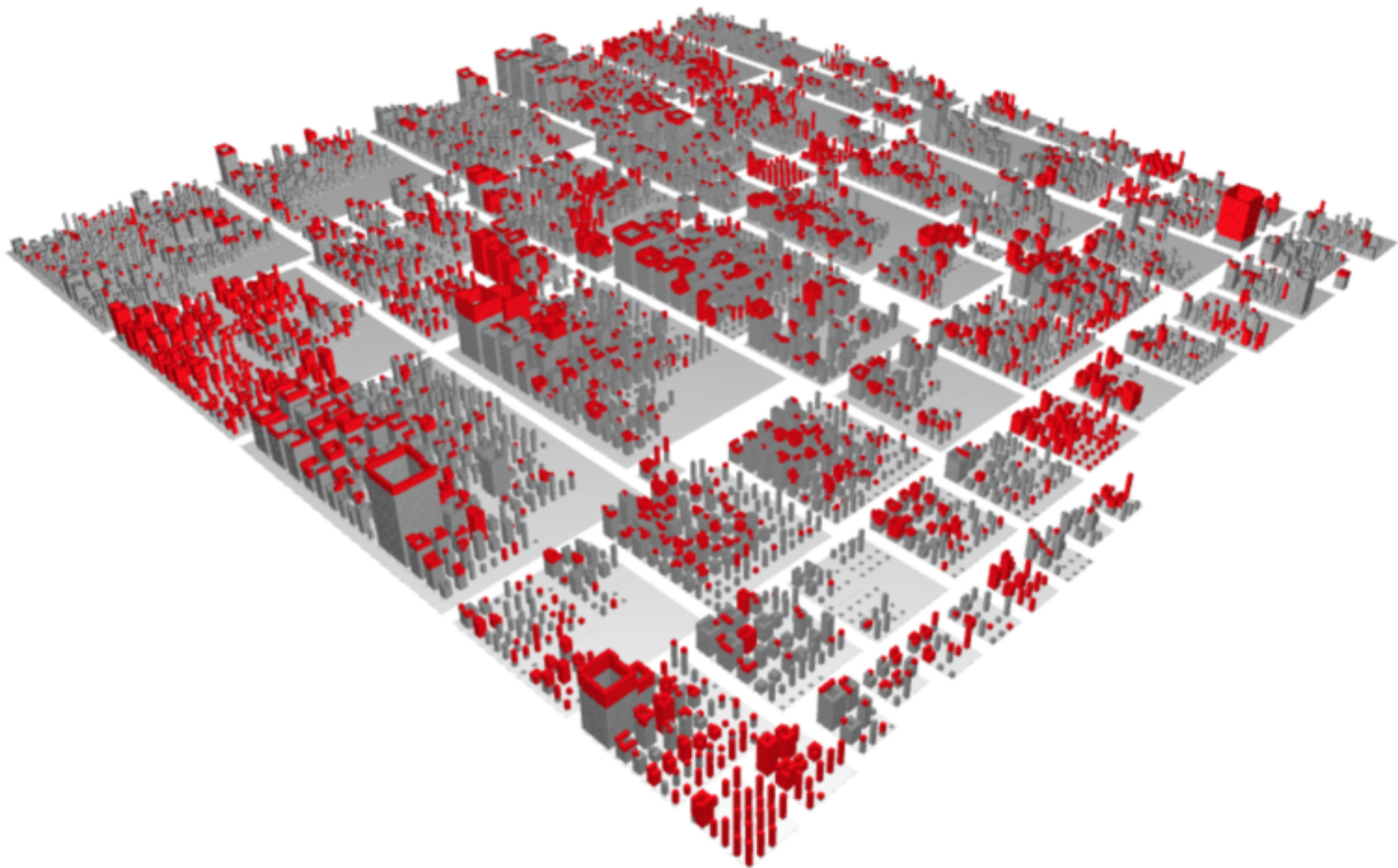
```
"a RubScrolledTextMorph(255066112)"
| view |
view := ROMondrianViewBuilder new.
self textArea
  withDeep: [ :each |
    (each class withAllSuperclasses) flatCollect: [
:cls |
    (cls instVarNames collect: [ :iv |
each instVarNamed: iv ])
    select: [ :obj | obj class name
beginsWith: 'Rub' ] ] ]
  do: [ :each |
    view shape label text: [:x | (x asString
removePrefix: 'a ') removePrefix: 'Rub'].
```

a ROMondrianViewBuilder (a ROMondrianViewBuilder)

State	View	Meta	CodeWidget
-------	------	------	------------













```
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package org.argouml.dev;

import java.util.Iterator;
import java.util.List;

import javax.swing.tree.DefaultMutableTreeNode;

import org.argouml.uml.diagram.sequence.MessageNode;

/**
 * TODO: Add Javadoc
 *
 * @author Rob Tarling
```

```
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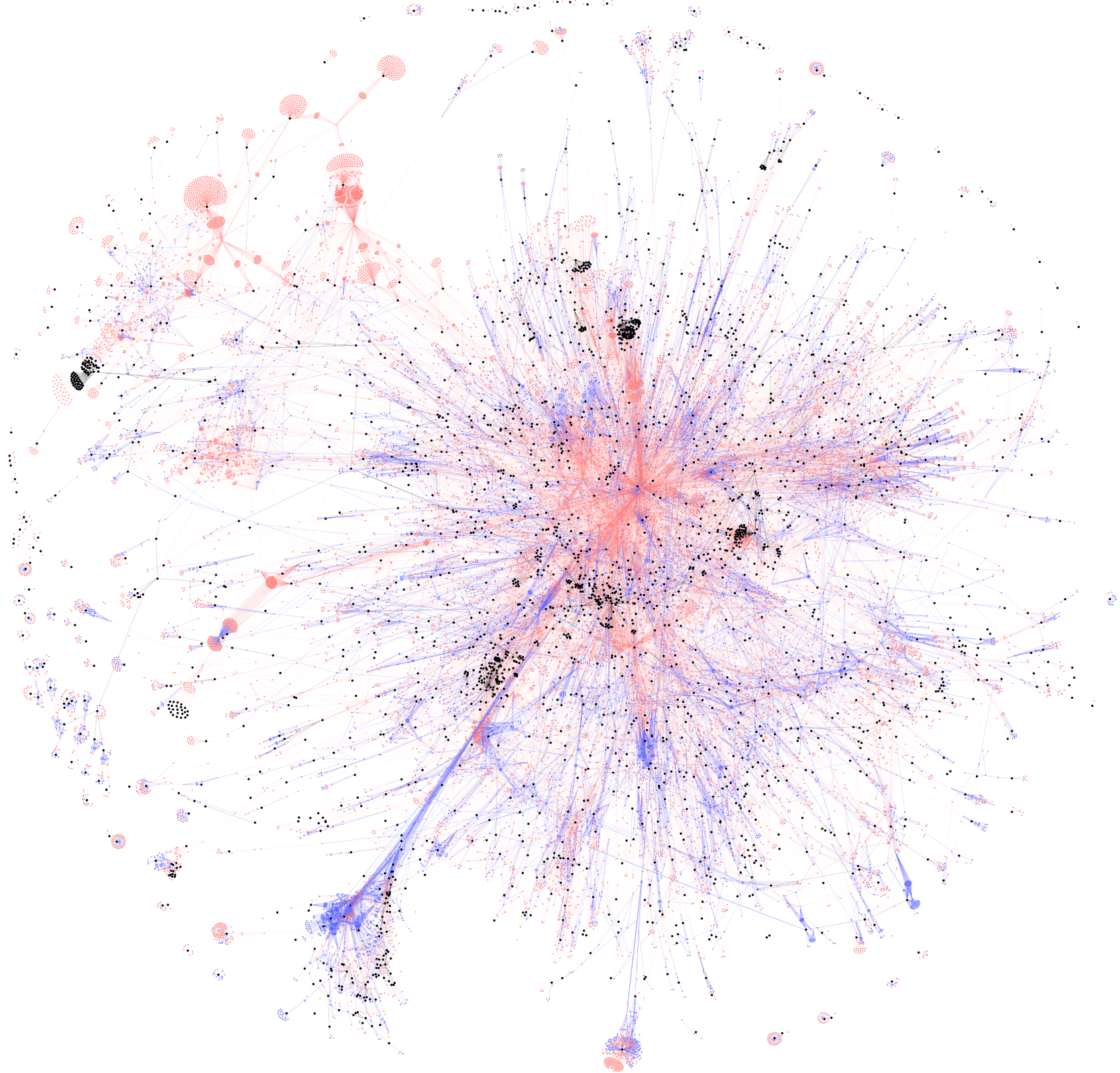
package org.argouml.dev;

import java.util.Iterator;
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/**
 * TODO: Add Javadoc
 *
 * @author Rob Tarling
```



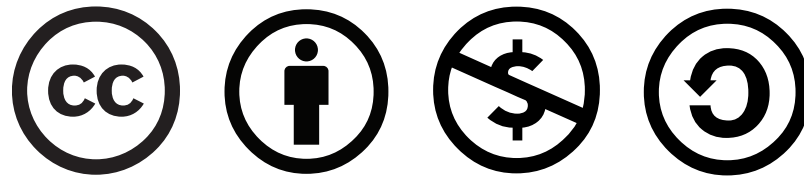
# Moose

how to solve real problems  
without reading code

@girba

@moosetechnology

Tudor Gîrba  
www.tudorgirba.com



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