

glamorous toolkit

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Consider how different objects looks quite similar in the inspector

Yet, when we change the view the difference is obvious

The grid displays 12 different software interfaces and data visualizations:

- Top Left:** A small screenshot showing a table with two rows: 21 and 2.
- Top Middle:** A table showing key-value pairs grouped by thousands, such as 'hex' (100000), 'octal' (400000), and 'binary' (1000000000000000000000).
- Top Right:** A table showing color values in various formats: RGB (red: 0.789059051104, green: 0.833897039793, blue: 0.544775038471), HSL (hue: 100, saturation: 79.62%, lightness: 70.81%), and HSV (hue: 70.81%, saturation: 34.64%, value: 0.8138707673).
- Second Row, Left:** A file tree with icons and creation dates, including a file named 'GlamourImage.png' created on 2020-07-01 21:37:56.
- Second Row, Middle:** A complex network graph visualization with many nodes and connections.
- Second Row, Right:** A timeline or sequence of events with labels like 'self', 'send', 'push', and 'jump'.
- Third Row, Left:** A file browser showing icons for various file types like PDF, image, and executable files.
- Third Row, Middle:** A diagram illustrating a 'Make directory' action with a red curved arrow between two nodes labeled 'A' and 'B'.
- Third Row, Right:** A diagram showing three overlapping circles labeled 'A', 'B', and 'C'.
- Fourth Row, Left:** A house icon with dashed lines indicating a summer river crossing.
- Fourth Row, Middle:** A screenshot of a game interface showing a keyboard and a set of actions.
- Fourth Row, Right:** A screenshot of a game interface showing a keyboard and a set of actions.
- Fifth Row, Left:** A poem about a summer river crossing.
- Fifth Row, Middle:** A 10x10 grid puzzle with numbers and letters.
- Fifth Row, Right:** A game board with colored dots and player markers.
- Sixth Row, Left:** A screenshot of a game interface showing a keyboard and a set of actions.
- Sixth Row, Middle:** A screenshot of a game interface showing a keyboard and a set of actions.
- Sixth Row, Right:** A screenshot of a game interface showing a keyboard and a set of actions.
- Bottom Row, Left:** A table of numbers from 1 to 31.
- Bottom Row, Middle:** A bar chart with three bars in orange, blue, and green.
- Bottom Row, Right:** A screenshot of a game interface showing a keyboard and a set of actions.

Class
GtGraphTreemapSquarify

Superclass: GtGraphTreemap Package: GToolkit-BlocGraph-Layouts Tag: Data Structures - Treemaps

Methods Comment References References in snippets Advice definitions

Playground Pharo
...[GtGraphTreeMapSquarify](#) -> ([GtGraphTreemapLayoutExamples](#) >> #squarify)

Tools as composable snippets Text
I link to the class {{gtClass:GtGraphTreeMapSquarify}}.

Explaining the squarified treemap algorithm Text
...inspect an instance of {{gtClass:GtGraphTreeMapSquarify}}, we see the picture showing the structure of the tree map.

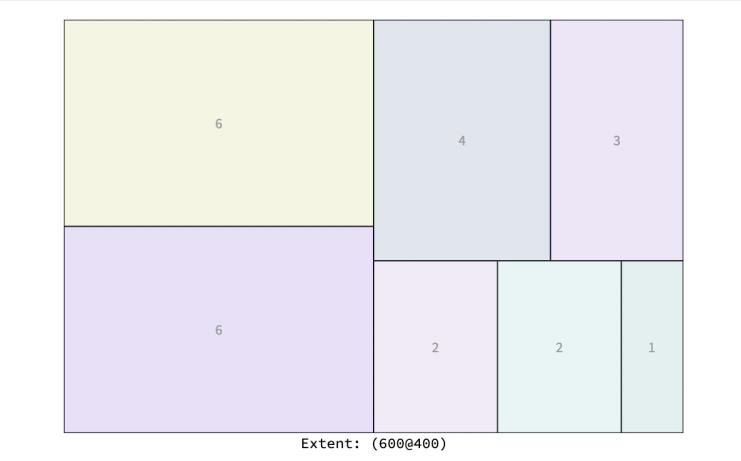
Explaining the squarified treemap algorithm Text
...implementation is captured in {{gtClass:GtGraphTreeMapSquarify}} and a few adjacent helper classes.

Documentation searches - Refactorings Pharo
[GtGraphTreeMapSquarify](#) new

Documentation searches - Refactorings Text
{{gtClass:GtGraphTreeMapSquarify}} implements a squarified tree map. {{gtClass:GtGraphTreeMapSquarify}} is part of the visualization support.

Explaining the squarified treemap algorithm

As part of the visualization support, [Glamorous Toolkit](#) offers an implementation of a squarified treemap. The algorithm is responsible for creating visualizations such as this one:



The implementation is captured in [GtGraphTreeMapSquarify](#) and a few adjacent helper classes. But how does it work?

One way to answer the question is to read the code. However, this particular algorithm was already published previously in [Squarified Treemaps, Bruls et al, 2000](#), a paper that starts with the following abstract:

Glamorous Toolkit Book

Documentation searches - Method Searches

The method `BlockClosure>>#asAsyncFuture` creates a future that can be executed asynchronously.

```
#asAsyncFuture gtReferences▶
```

```
#asAsyncFuture lepiterReferences▶
```

```
GtSearchCodeUnitReferencesFilter▶ literal:▶ #asAsyncFuture▶
```

Composing searches

```
#asAsyncFuture lepiterReferences▶ & (LeSearchDatabaseSnippetFilter▶ forDatabase:▶ LeDatabase▶ gtBook▶)
```

```
#asAsyncFuture gtReferences▶ & AsyncSequenceStream▶ gtReferences▶ & 'GraphQL' gtPackageMatches▶
```

▶ 1 explicit reference

Filter: #asAsyncFuture method/snippet references

Results By Package By Class By Database By Page

Searching for code `#asAsyncFuture gtReferences` Pharo

```
#asAsyncFuture lepiterReferences▶ & (LeSearchDatabaseSnippetFilter▶ forDatabase:▶ (LeDatabasesRegistry▶ defaultLogicalDatabase▶ databaseNamed: 'Glamorous Toolkit Book'))
```

Futures-Extra > AsyncBehaviorClassMethodsStream **initializeStream**◀ stream := AsyncSequenceStream▶ forCollection:▶ [behavior classSide localSelectors] asAsyncFuture▶

Futures-Extra > AsyncBehaviorClassSortedMethodsStream **initializeStream**◀

Futures-Extra > AsyncBehaviorClassTraitMethodsStream **initializeStream**▲

Futures-Extra > AsyncBehaviorClassTraitSortedMethodsStream **initializeStream**▲

Futures-Extra > AsyncBehaviorInstanceLocalMethodsStream **initializeStream**▲

Futures-Extra > AsyncBehaviorInstanceLocalSortedMethodsStream **initializeStream**▲

Futures-Extra > AsyncBehaviorInstanceSortedInheritedMethodsStream **initializeStream**▲

Documentation searches - Refactorings

Squarefied tree map

- GtGraphTreemapSquarify > implements GtGraphTreemapLayoutExamples
- GtGraphTreemapSquarify

Executing async computation

The method BlockClosure>>#asAsyncFuture executes the computation asynchronously.

- #asAsyncFuture gtReferenc...
- #asAsyncFuture lepiterRe...
- GtSearchCodeUnitReference

▶ 1 explicit reference

GtGraphTreeMapSquarify

Class

Rename class GtGraphTreemapSquarify to GtGraphTreeMapSquarify (21 changes)

RBRenameClassChange (21 changes)

- GtGraphTreemap class>>squarefy
- GtGraphTreemapLayoutExamples>>squarefyZeroWidth
- GtGraphTreemapLayoutExamples>>squarefyWithThreeNodes
- GtGraphTreemapLayoutExamples>>squarefyWithFourNodes
- GtGraphTreemapLayoutExamples>>squarefyWithSixNodes
- GtGraphTreemapLayoutExamples>>squarefyWithOneNode
- GtGraphTreemapLayoutExamples>>squarefyZeroWidthWithOneNode
- GtGraphTreemapLayoutExamples>>basicSquarefy
- GtGraphTreemapLayoutExamples>>squarefy
- GtGraphTreemapLayoutExamples>>squarefyWithFiveNodes
- GtGraphTreemapLayoutExamples>>squarefyZeroHeightWithOneNode
- GtGraphTreemapLayoutExamples>>squarefyZeroHeight
- GtGraphTreemapLayoutExamples>>squarefyWithTwoNodes
- GtGraphTreemapLayoutExamples>>squarefyWithSevenNodes
- FkEsug2025GlamorousToolkit>>slide021ClassReferencesInDocumentation:
- Snippet change in Unnamed page: Playground
- Snippet change in Named Page: 'Tools as composable snippets'
- Snippet change in Named Page: 'Explaining the squarefied treemap algorithm'
- Snippet change in Named Page: 'Explaining the squarefied treemap algorithm'
- Snippet change in Named Page: 'Documentation searches - Refactorings'

GtGraphTreemapSquarify new GtGraphTreeMapSquarify new

Snippet change in Named Page: 'Documentation searches - Refactorings'

```
 {{gtClass:GtGraphTreemapSquarify}} implements
 a squarefied tree map.
 {{gtClass:GtGraphTreemapLayoutExamples}}
 shows an example.
```

{{gtClass:GtGraphTreeMapSquarify}} implements
 a squarefied tree map.
 {{gtClass:GtGraphTreemapLayoutExamples}}
 shows an example.

width:height:

kit-BlocGraph-Layouts Tag: Data Structures - Treem...

ferences in snippets Add

category All methods ▾

enumerating instance

enumerating instance

converting instance

accessing instance

accessing instance

gt-extension instance

gt-extension instance

gt-extension instance

accessing instance

accessing instance

gt-extension instance

gt-extension instance

accessing instance

initialization instance

seas optimizations instance

accessing instance

accessing instance

Profiling the styling of a method using the virtual machine telemetry

Start by browse: `BlElement>>addChild:at:`

Start profiling for 10 seconds. Only perform the below without inspecting:

```
t := VirtualMachineAllProcessesSwitchTelemetry > spyFor: > 10 seconds
```

Modify `BlElement>>addChild:at:` by adding a single character within that 10 seconds.

After the 10 seconds expired you get a notification. Inspect the profiling result:

`t eventsByProcess > mergedByParentProcess`

3 explicit references
2 implicit references

a VirtualMachineTelemetryEventsByProcess [37 items]

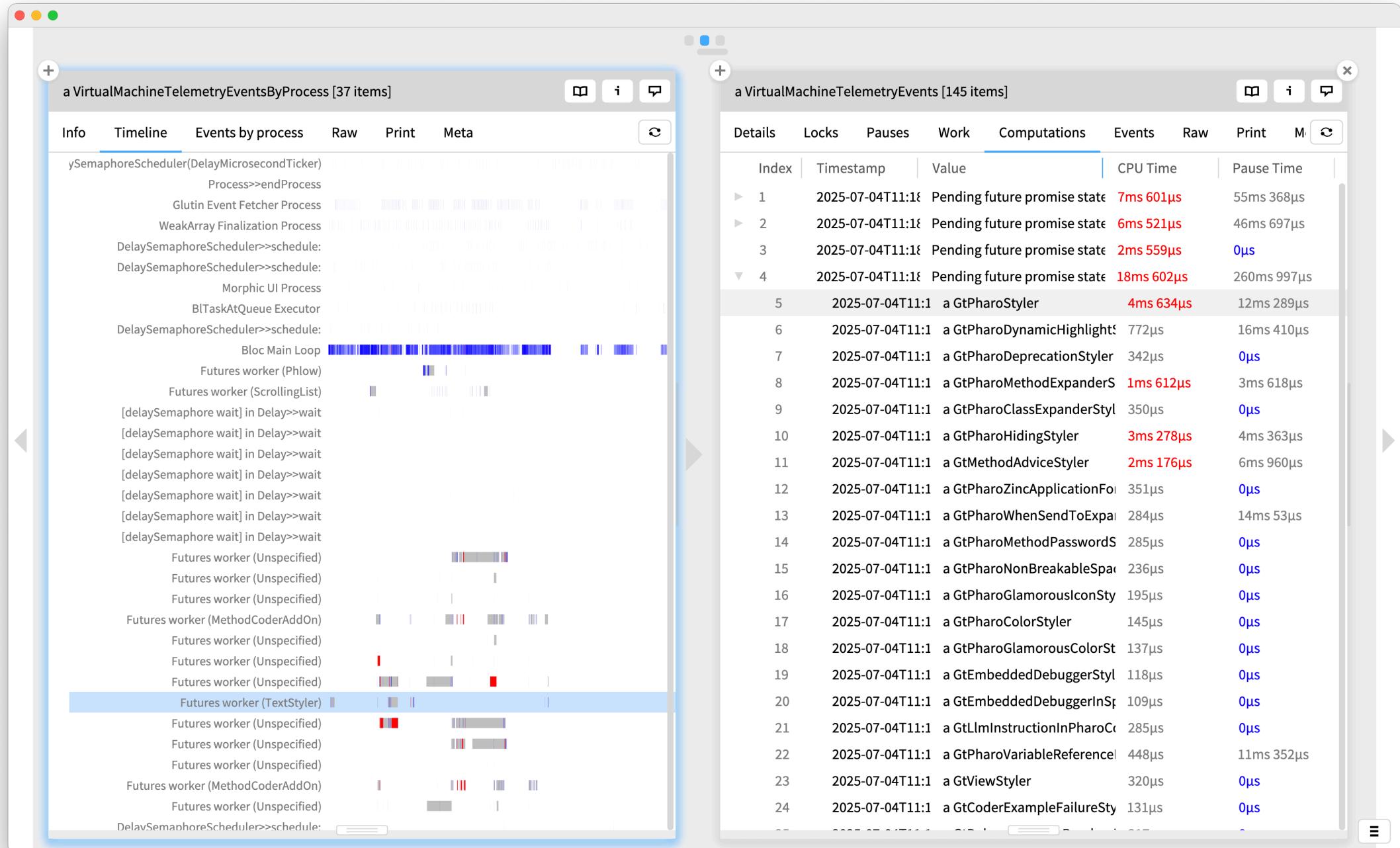
Info	Timeline	Events by process	Raw	Print	Meta
ySemaphoreScheduler(DelayMicrosecondTicker)					
Process>>endProcess					
Glutin Event Fetcher Process					
WeakArray Finalization Process					
DelaySemaphoreScheduler>>schedule:					
DelaySemaphoreScheduler>>schedule:					
Morphic UI Process					
BlTaskAtQueue Executor					
DelaySemaphoreScheduler>>schedule:					
Bloc Main Loop					
Futures worker (Phlow)					
Futures worker (ScrollingList)					
[delaySemaphore wait] in Delay>>wait					
[delaySemaphore wait] in Delay>>wait					
[delaySemaphore wait] in Delay>>wait					
[delaySemaphore wait] in Delay>>wait					
[delaySemaphore wait] in Delay>>wait					
[delaySemaphore wait] in Delay>>wait					
Futures worker (Unspecified)					
Futures worker (Unspecified)					
Futures worker (Unspecified)					
Futures worker (MethodCoderAddOn)					
Futures worker (Unspecified)					
Futures worker (Unspecified)					
Futures worker (TextStyler)					
Futures worker (Unspecified)					
Futures worker (Unspecified)					
Futures worker (MethodCoderAddOn)					
Futures worker (Unspecified)					
DelaySemaphoreScheduler>>schedule:					

a VirtualMachineTelemetryEventsByProcess [37 items]

Info	Timeline	Events by process	Raw	Print	Meta
ySemaphoreScheduler(DelayMicrosecondTicker)					
Process>>endProcess					
Glutin Event Fetcher Process					
WeakArray Finalization Process					
DelaySemaphoreScheduler>>schedule:					
DelaySemaphoreScheduler>>schedule:					
Morphic UI Process					
B1TaskAtQueue Executor					
DelaySemaphoreScheduler>>schedule:					
Bloc Main Loop					
Futures worker (Phlow)					
Futures worker (ScrollingList)					
[delaySemaphore wait] in Delay>>wait					
[delaySemaphore wait] in Delay>>wait					
[delaySemaphore wait] in Delay>>wait					
[delaySemaphore wait] in Delay>>wait					
[delaySemaphore wait] in Delay>>wait					
[delaySemaphore wait] in Delay>>wait					
[delaySemaphore wait] in Delay>>wait					
Futures worker (Unspecified)					
Futures worker (Unspecified)					
Futures worker (Unspecified)					
Futures worker (MethodCoderAddOn)					
Futures worker (Unspecified)					
Futures worker (Unspecified)					
Futures worker (Unspecified)					
Futures worker (TextStyler)					
Futures worker (Unspecified)					
Futures worker (Unspecified)					
Futures worker (Unspecified)					
Futures worker (MethodCoderAddOn)					
Futures worker (Unspecified)					
DelaySemaphoreScheduler>>schedule:					

a VirtualMachineTelemetryEvents [439 items]

Details	Locks	Pauses	Work	Computations	Events	Raw	Print	Meta
Index	Timestamp	Reason	Duration					
1	2025-07-04T11:18:13.463512-	Waiting on a locked semaphore	13ms 997μs					
2	2025-07-04T11:18:13.477555-	Waiting on a locked semaphore	11ms 347μs					
3	2025-07-04T11:18:13.488933-	Waiting on a locked semaphore	85μs					
4	2025-07-04T11:18:13.489041-	Waiting on a locked semaphore	105μs					
5	2025-07-04T11:18:13.489158-	Waiting on a locked semaphore	39μs					
6	2025-07-04T11:18:13.489205-	Waiting on a locked semaphore	16μs					
7	2025-07-04T11:18:13.489229-	Waiting on a locked semaphore	14μs					
8	2025-07-04T11:18:13.489251-	Waiting on a locked semaphore	14μs					
9	2025-07-04T11:18:13.489275-	Waiting on a locked semaphore	14μs					
10	2025-07-04T11:18:13.489298-	Waiting on a locked semaphore	14μs					
11	2025-07-04T11:18:13.489321-	Waiting on a locked semaphore	15μs					
12	2025-07-04T11:18:13.489344-	Waiting on a locked semaphore	15μs					
13	2025-07-04T11:18:13.489367-	Waiting on a locked semaphore	15μs					
14	2025-07-04T11:18:13.48939+	Waiting on a locked semaphore	14μs					
15	2025-07-04T11:18:13.489413-	Waiting on a locked semaphore	14μs					
16	2025-07-04T11:18:13.489436-	Waiting on a locked semaphore	42μs					
17	2025-07-04T11:18:13.489488-	Waiting on a locked semaphore	34μs					
18	2025-07-04T11:18:13.489531-	Waiting on a locked semaphore	22μs					
19	2025-07-04T11:18:13.489562-	Waiting on a locked semaphore	14μs					
20	2025-07-04T11:18:13.489585-	Waiting on a locked semaphore	14μs					
21	2025-07-04T11:18:13.489607-	Waiting on a locked semaphore	15μs					
22	2025-07-04T11:18:13.489631-	Waiting on a locked semaphore	14μs					
23	2025-07-04T11:18:13.489654-	Waiting on a locked semaphore	19μs					
24	2025-07-04T11:18:13.489682-	Waiting on a locked semaphore	14μs					



The screenshot shows two windows of the Reference Finder tool.

Left Window (Reference Finder):

- Count instances:** Shows a search path: `GtInstanceCounter > countInstancesSummary`. The `countInstancesSummary` node is selected.
- Find references:** Shows two search paths:
 - `GtReferenceFinder > findPathTo: > BrTabGroup > allInstances > first`
 - `GtReferencePaths > to: > BrTabGroup > allInstances > first`
- A message at the bottom indicates `1 explicit reference`.

Right Window (a GtInstancesCountSummary):

a GtInstancesCountSummary(32977 classes; 61197272 instances)

Items	Raw	Print	Meta
Class			Number of Instances
Array			8191976
FullBlockClosure			5636627
Association			4057714
Point			3277663
Context			3173801
OrderedCollection			3069595
BlEventHandler			1488344
BlHandlerAnnouncementSubscription			1484504
AsyncSemaphoreForMutualExclusion			1065027
IdentityDictionary			929767
Set			847620
Dictionary			781630
BlLazyStyle			713789
ByteString			701067
IdentitySet			699650
BlElementLocalBounds			569718
BlLayoutCommonConstraintsAxis			569718
Rectangle			542895
BlElementStatesSet			469152
BlSingleKeyCombination			463641
BlSteppedLayoutArea			452794
BlSteppedLayoutAreaBuilder			452794
BlDirectEventDispatcher			442261
BlEventForwarder			436087
...			

Reference Finder

Count instances

```
GtInstanceCounter > countInstancesSummary
```

Find references

```
GtReferenceFinder > findPathTo: > BrTabGroup > allInstances > first
```

```
GtReferencePaths > to: > BrTabGroup > allInstances > first
```

1 explicit reference

a GtReferencePaths [158 items]

Path	Size
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrTabGroup	3
Universe's a GtWorld('Glamorous Toolkit') > BlMouseProcessor > Array > BrTabGro	4
Universe's a GtWorld('Glamorous Toolkit') > BlMouseProcessor > Array > BlEleme	5
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrTabGroup @ 53:	3
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrButton > BrTool	7
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	13
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	13
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	14
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrButton > BrTool	13
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	17
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrButton > BrTool	13
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrButton > BrTool	13
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	15
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	15
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	15
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	15
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	15
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrButton > BrTool	14
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	19
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	16
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	16
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	16
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	16
Universe's a BlSpace("") > BlMouseProcessor > Array > GtPager > Subscription in Bl	16
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrButton > BrTool	13

ESUG 2025

Two side-by-side windows showing reference paths and objects.

Left Window: a GtReferencePaths [158 items]

Paths	Raw	Print	Meta
Path			Size
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrTabGroup	3		
Universe's a GtWorld('Glamorous Toolkit') > BlMouseProcessor > Array > BrTabGr...	4		
Universe's a GtWorld('Glamorous Toolkit') > BlMouseProcessor > Array > BlEleme...	5		
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrTabGroup @ 533...	3		
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrButton > BrTool...	7		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	13		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	13		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	14		
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrButton > BrTool...	13		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	17		
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrButton > BrTool...	13		
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrButton > BrTool...	13		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	15		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	15		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	15		
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrButton > BrTool...	14		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	19		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	16		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	16		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	16		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	16		
Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager > Subscription in Bl...	16		
Universe's a GtWorld('Glamorous Toolkit') > GtWorldElement > BrButton > BrTool...	13		

Right Window: a GtReferencePath (Universe's a BlSpace('') > BlMouseProcessor > Array > GtPager)

Objects	Whole path	Raw	Print	Meta
Type	Value	Class	Package	
▶ Array item	Universe's a BlSpace('')	BlSpace	Bloc	
mouseProcessor	a BlMouseProcessor	BlMouseProcessor	Bloc	
lastEnteredTargets	an Array [26 items] (BrButton @ 645847)	Array	Collections-Sequen...	
Array item	GtPager @ 217153024 (nil)	GtPager	GToolkit-Pager	
▶ eventDispatcher	Subscription in Bubbling event dispatch...	BlElementEventDisp...	Bloc	
subscriber	Scripter event handler of BlEvent	BlDevScripterEvent...	Bloc-Scripter	
scripter	a BlScripter	BlScripter	Bloc-Scripter	
events	a BlDevScripterEvents	BlDevScripterEvent...	Bloc-Scripter	
▶ collection	an OrderedCollection(a BlSpaceTasksE...	OrderedCollection	Collections-Sequen...	
Array item	a GtPhlowObjectToSelect	GtPhlowObjectToSe...	GToolkit-Phlow	
tool	a GtInspectorTool	GtInspectorTool	GToolkit-Inspector	
objectHolder	Holder of BrTabGroup @ 533593600 (#...)	GtInspectorObject	GToolkit-Inspector	
object	BrTabGroup @ 533593600 (#'gt-world--...	BrTabGroup	Brick	

Creating Views

```
githubIssues := GtDemoGithubIssuesList new  
    initializeWithOrganization: 'feenkcom' repository:  
    'gtoolkit'.  
githubIssues fetchOpenIssues .  
githubIssues
```

▶ 1 explicit reference

```
FeenkGlamorousToolkitESUG2025 > GtDemoGithubIssuesList  
gtOpenedIssuesFor: aView  
    <gtView>  
    openedIssues ifNil: [ ^ aView empty ].  
    ^ aView columnedList  
        title: 'OpenedIssues';  
        items: [ openedIssues ];  
        column: 'Value' text: [ :each | each  
gtDisplayString ]
```

a GtDemoGithubIssuesList

Raw Print Meta

Variable

self

{ } openedIssues

Value

a GtDemoGithubIssuesList

an Array [321 items] (a GtDemoGithubIssue(Re)

Create <gtView> for openedIssues

Create <gtView> forward to Items

Create <gtView> forward to Magritte

Create <gtView> forward to Tree

The screenshot shows the Lepiter IDE interface with two open views.

Creating Views View:

- Code snippet:

```
githubIssues := GtDemoGithubIssuesList new
    initializeWithOrganization: 'feenkcom' repository: 'gtoolkit'.
githubIssues fetchOpenIssues.
githubIssues
```
- Message: ▶ 1 explicit reference

a GtDemoGithubIssuesList View:

- Toolbar: +, i, i, i, -, , Print, Meta
- Section: Value
- Content: A list of GitHub issues from the GtDemoGithubIssuesList class, such as:
 - a GtDemoGithubIssue(Remote forward and empty views do not play well together)
 - a GtDemoGithubIssue(Make it easy to setup an LLM assistant with Lepiter pages)
 - a GtDemoGithubIssue(Installer fails with "linux is unsupported...")
 - a GtDemoGithubIssue(Wrong path to git in IceGitCliPlatform)
 - a GtDemoGithubIssue(Add support for Python import package console output)
 - a GtDemoGithubIssue(GT crashes on loading a package with Metacello)
 - a GtDemoGithubIssue(Add Coder option for generating `=` and `hash`)
 - a GtDemoGithubIssue(Adding a new lepiter database fails with an assertion fail: Resource reference |)
 - a GtDemoGithubIssue(thisSnippet should be inspectable)
 - a GtDemoGithubIssue([Lepiter]: Picture Snippet: By URL - Can't Move & Not Connected to File Choos
 - a GtDemoGithubIssue(Rename package tag refactoring breaks when there already existed a tag that
 - a GtDemoGithubIssue(new snippet placement when snippet is collapsed (children hidden) is surprisi
 - a GtDemoGithubIssue(Image corrupts on save on Linux)
 - a GtDemoGithubIssue(Make the wrench icon in the editor smaller)
 - a GtDemoGithubIssue(Pager with collapsible panes)
 - a GtDemoGithubIssue(Completion popup choices window clipped)
 - a GtDemoGithubIssue(BIPromiseTask may remain in space pending task queue indefinitely, consequ
 - a GtDemoGithubIssue(Build: Unable to build from source no wgpu found)
 - a GtDemoGithubIssue(editor Home key shortcut behavior (first press, second press))
 - a GtDemoGithubIssue([Lepiter]: Moved snippets can wander off screen, lose keyboard focus)
 - a GtDemoGithubIssue(YouTube snippet shows address bar)
 - a GtDemoGithubIssue(Add shortcut to close the debugger window)
 - a GtDemoGithubIssue(Populate the selected text from the editor in the text search)
 - a GtDemoGithubIssue(Enhance previewer)

Two Squeak Inspector windows are open, showing the state of variables `a GtDemoGithubIssuesList` and `an OrderedDictionary [55 items]`.

The left window, titled `a GtDemoGithubIssuesList`, has tabs `OpenedIssues`, `Raw`, `Print`, and `Meta`. The `OpenedIssues` tab is selected, showing a table with columns `Variable` and `Value`. The variable `openedIssues` is grouped by `userName`, with 321 items.

The right window, titled `an OrderedDictionary [55 items]`, has tabs `Items`, `Keys`, `Tree`, `Raw`, `Print`, and `Meta`. The `Items` tab is selected, showing a table with columns `Key` and `Value`. The key `gtViewFor: aView` has a value that is a columned list with a title of `'Grouping'` and items grouped by `userName`.

A context menu is open over the expression `openedIssues groupedBy: [:each | each userName]` in the left window. The menu includes:

- Navigation
 - Browse implementors groupedBy: `Cmd+M`
 - Browse references groupedBy: `Cmd+N`
- Refactoring
 - Create `<gtView>`
 - Create `<gtView> Grouping (bar chart)`
 - Create `<gtView> Grouping`**
 - Create `<gtView> forward to Items`
 - Create `<gtView> forward to Keys`
 - Create `<gtView> forward to Magritte`
 - Create `<gtView> forward to Tree`
- Rename message groupedBy: `Cmd+R`
- Extract method
- Extract example
- Extract variable `openedIssues` groupedBy: `[:each | each userName]`
- Inline message groupedBy: `Cmd+Shift+F`
- Format
- Evaluation
- Do it `Cmd+D`
- Do it and inspect `Cmd+G`
- Print `Cmd+P`
- Debug `Cmd+Shift+D`
- Default
- Cut `Cmd+X`
- Copy `Cmd+C`
- Paste `Cmd+V`

Transforming Delphi code into C# (at syntax level)

Let's take an example, first:

```
sourceDirectory := './MasteringDelphi6' asFileReference
```

```
sourceDirectory ensureDeleteAll.
repository := IceRepositoryCreator
  fromUrl: 'https://github.com/MarcoDelphiBooks/
MasteringDelphi6.git'
  to: sourceDirectory.
sourceDirectory
```

In addition to sources, we need rewrite rules. We have a few such rules we can use for demonstrating the transformation of Delphi syntax into C# syntax:

```
rewritesFile := GtResourcesUtility resourceAtPath:
  Path > * > 'feenckom' / 'gt4smacc' / 'resources' /
'Delphi syntax.rw'.
```

With these in hand, we can now inspect the transformation model:

```
outputDirectory := './demo'.
SmaCCTransformationToolkitModel new
  loadRewriteFile: rewritesFile;
  inputParserClass: DelphiParser;
  validationParserClass: CSharpParser;
  outputDirectory: outputDirectory;
  createSubdirectories: true;
  files: (DelphiParser sourceFilesIn:
  sourceDirectory);
  yourself
```

Glamorous Toolkit Book

SmaCC Transformation Toolkit

New file

Input parser: DelphiParser
Rewrite file: Delphi syntax.rw

Files Transformations Transformations by class

File	Ran	Error	Transformation
01/DiagramDemo/DiagramF			
01/Frames1/Form.pas			
01/Frames1/Frame.pas			
01/OiFontPk/MdDropDownF			
01/ToDoTest/ToDoForm.pas			
02/CreateC/CreateCF.pas			
02/DateCopy/DateF.pas			
02/DateCopy/Dates.pas			
02/DateProp/DateF.pas			
02/DateProp/Dates.pas			
02/Dates1/Dates1Form.pas			
02/FormProp/FormFProp.pas			
02/IfDirective/IfDirectiveFor			
02/ViewDate/DateF.pas			
02/ViewDate/Dates.pas			
03/Animals1/Anim.pas			
03/Animals1/AnimF.pas			
03/Animals2/Anim.pas			
03/Animals2/AnimF.pas			

SmaCC Transformation Toolkit

SmaCC i

New file

Input parser: DelphiParser
Rewrite file: Delphi syntax.rw

Files Transformations Transformations by cla ▶i ▶ ▶a ▶a □ + -

Basename +

File Ran Error Transformation

01/DiagramDemo/DiagramF
01/Frames1/Form.pas
01/Frames1/Frame.pas
01/OiFontPk/MdDropDownF
01/ToDoTest/ToDoForm.pas
02/CreateC/CreateCF.pas
02/DateCopy/DateF.pas
02/DateCopy/Dates.pas
02/DateProp/DateF.pas
02/DateProp/Dates.pas
02/Dates1/Dates1Form.pas
02/FormProp/FormFProp.pas
02/IfDirective/IfDirectiveFor
02/ViewDate/DateF.pas
02/ViewDate/Dates.pas
03/Animals1/Anim.pas
03/Animals1/AnimF.pas
03/Animals2/Anim.pas
03/Animals2/AnimF.pas

Preview
Transform
Transform all
Transform all using remote runner

DateF.pas DateF.cs

```
unit DateF;
interface
uses
  SysUtils, Windows, Messages,
  Classes, Graphics, Controls,
  Forms, Dialogs, Dates,
  StdCtrls;
type
  TDateForm = class(TForm)
    LabelDate: TLabel;
    BtnIncrease: TButton;
    BtnDecrease: TButton;
    BtnAdd10: TButton;
    BtnSubtract10: TButton;
    BtnLeap: TButton;
    BtnToday: TButton;
    procedure
      BtnIncreaseClick(Sender: TObject);
    procedure FormCreate(Sender: TObject);
    procedure
      FormCreate(Sender: TObject);
    procedure
      FormCreate(Sender: TObject);
  end;
var
  TheDay: TDate;
begin
  TheDay := TDate.Create(2001, 12, 25);
  LabelDate.Caption := TheDay.GetText;
end;
procedure TDateForm.BtnIncreaseClick(Sender: TObject);
begin
  TheDay.Increase();
  LabelDate.Caption := TheDay.GetText;
end;
procedure TDateForm.FormCreate(Sender: TObject);
begin
  TheDay := TDate.Create(2001, 12, 25);
  LabelDate.Caption := TheDay.GetText;
end;
```

Find: Line 10 /93 Find: Line 1 /82

Rewrite	Node	Location
DelphiNewClassTypeNode	DelphiNewClassTypeNode	145-772

I am an Oups NULL debugging exception

SmaCCTransformations GT

I am an Oups NULL debugging exception

DelphiNewClassTypeNode

```
self delete: match classToken.
self delete: match left.
self delete: match right.
self insert: ' {' after: (match right ifNil: [ match classToken ]).
match endToken
  ifNil: [ self insert: '}' after: match ]
  ifNotNil: [ self replace: match endToken with: '}' ].
```

self continue

add unit class if needed

Variables	Properties
self	an a subclass of Sm
continuation	[self performLir
match	a DelphiNewClassT
nodes	a Dictionary [11 iter
rewriteEngine	a SmaCCRewriteEn
strings	a Dictionary [11 iter
stack top	a DelphiNewClassT
stack top - 1	an a subclass of Sm

```
unit DateF;

interface

uses
  SysUtils, Windows, Messages, Classes, Graphics, Controls,
  Forms, Dialogs, Dates, StdCtrls;

type
  TDateForm = class(TForm)
    LabelDate: TLabel;
    BtnIncrease: TButton;
    BtnDecrease: TButton;
    BtnAdd10: TButton;
    BtnSubtract10: TButton;
    BtnLeap: TButton;
    BtnToday: TButton;
    procedure BtnIncreaseClick(Sender: TObject);
    procedure FormCreate(Sender: TObject);
    procedure BtnDecreaseClick(Sender: TObject);
```

```
public class TDateForm : (TForm)
  LabelDate: TLabel;
  BtnIncrease: TButton;
  BtnDecrease: TButton;
  BtnAdd10: TButton;
  BtnSubtract10: TButton;
  BtnLeap: TButton;
  BtnToday: TButton;
  procedure BtnIncreaseClick(Sender: TObject);
  procedure FormCreate(Sender: TObject);
  procedure BtnDecreaseClick(Sender: TObject);
  procedure BtnAdd10Click(Sender: TObject);
  procedure BtnSubtract10Click(Sender: TObject);
  procedure FormDestroy(Sender: TObject);
  procedure BtnLeapClick(Sender: TObject);
  procedure BtnTodayClick(Sender: TObject);
private
```

The screenshot shows a code editor interface with two main panes. The left pane displays a class definition for `GtCSSFileSamples`. The right pane shows a search results window for references to the `le-nav-link` selector.

Left Pane: GtCSSFileSamples Class

Class: GtCSSFileSamples
Superclass: Object Package: Gt4CSS Tag: Examples

Methods Examples map CSS strings Examples Comment References

```
leptiter_common
    border-inline-end: solid var(--active-color) thin;
    /* same space between navigation list and footer
       as between main content and the footer */
    padding-block-end: 3rem;
}

/* navigation links */
.le-nav-link {
    color: #0070C0; // Refactoring
}
.le-nav-link:link {
    text-decoration: none; // References in methods le-nav-link
}
/* The root item has a different padding than the others */
.le-nav-item {
    padding: 0.5em 1em; // References in css le-nav-link
}
/* The root index items are bold */
.le-nav-link.le-nav-level-1 {
    font-weight: bold;
}
/*
   Meta data
*/
```

Right Pane: Search Results

Search Filter: Filter: le-nav-link references & RBPatternWrapperBlockNode('le-nav-link')

Results By Package By Class

UI filter

Gt4CSS > GtCSSFileSamples

`writeOn: aStream`
aStream
link: 'Glamorous Toolkit'
to: 'https://gtoolkit.com'
style: 'le-nav-link'.
aStream label: 'Some label' style: 'annotation-label'

sample methods instance

The screenshot shows a code editor interface with two panes. The left pane displays a class definition for 'GtCSSFileSamples'. The right pane shows a search results window for 'le-nav-link'.

Left Pane (Class Definition):

```
Class GtCSSFileSamples
Superclass: Object Package: Gt4CSS Tag: Examples
Methods Examples map CSS strings Examples Comment References References
```

Code:

```
leipiter_common
    border-inline-end: solid var(--active-color) thin;
    /* same space between navigation list and footer
       as between main content and the footer */
    padding-block-end: 3rem;
}

/* navigation links */
.le-nav-link {
    color: Refactoring
}
.le-nav-link {
    text-decoration: Default
}
/* The root index items are bold */
.le-nav-item {
    padding: Cut
}
Copy
Paste
```

A context menu is open over the word 'leipiter_common' in the first rule, with the following options:

- Refactoring
- Rename CSS class le-nav-link
- CSS
- References in methods le-nav-link
- References in css le-nav-link
- Default
- Cut Cmd+X
- Copy Cmd+C
- Paste Cmd+V

Right Pane (Search Results):

Search Filter: Filter: 'le-nav-link' gtCSSStringSelectorReferences

Results By Package By Class

Gt4CSS > GtCSSFileSamples

leipiter_common_navLink

```
/* Indent inner-navigation index links */
.le-nav-link.le-nav-level-2 {
    padding-left: calc(2 * var(--link-indent));
}

.le-nav-link.le-nav-level-3 {
    padding-left: calc(3 * var(--link-indent));
}

.le-nav-link.le-nav-level-4 {
    padding-left: calc(4 * var(--link-indent));
}

.le-nav-link.le-nav-level-5 {
    padding-left: calc(5 * var(--link-indent));
}

.le-nav-link.le-nav-level-6 {
    padding-left: calc(6 * var(--link-indent));
}

.le-nav-link.le-nav-level-7 {
    padding-left: calc(7 * var(--link-indent));
}

.le-nav-link.le-nav-level-8 {
    padding-left: calc(8 * var(--link-indent));
}

.le-nav-link.le-nav-level-9 {
    padding-left: calc(9 * var(--link-indent));
}
```

GtCSSFileSamples

Superclass: Object Package: Gt4CSS Tag: Examples

Methods Examples map CSS strings Examples Comment References References

```

.lepiter_common
    border-inline-end: solid var(--active-color) thin;
    /* same space between navigation list and footer
       as between main content and the footer */
    padding-block-end: 3rem;
}

/* navigation links */
.le-nav-link2 {
    color: var(--color);
}

.le-nav-contain {
    text-decoration: none;
}

/* The root in .le-nav-item.l */
.le-nav-item.l {
    padding-bottom: 1em;
}

/* The root in .le-nav-link.l */
.le-nav-link.l {
    font-weight: bold;
}

/*
   Meta data
*/

```

GtCSSStringRenameSelectorRefactoring (3 changes)

- GtCSSFileSamples->lepiter_common
- GtCSSFileSamples->lepiter_common_navLink
- GtCSSFileSamples->writeOn:

```

writeOn: aStream
    aStream
        link: 'Glamorous Toolkit'
        to: 'https://gtoolkit.com'
        style: 'le-nav-link'.
        aStream label: 'Some label' style:
        'annotation-label'

```

```

writeOn: aStream
    aStream
        link: 'Glamorous Toolkit'
        to: 'https://gtoolkit.com'
        style: 'le-nav-link2'.
        aStream label: 'Some label' style:
        'annotation-label'

```

Filter: 'le-nav-link' gtCSSStringSelectorReferences

Results By Package By Class

Gt4CSS > GtCSSFileSamples

lepiter_common_navLink

```

/* Indent inner-navigation index links */
.le-nav-link.le-nav-level-2 {
    padding-left: calc(2 * var(--link-indent));
}

.le-nav-link.le-nav-level-3 {
    padding-left: calc(3 * var(--link-indent));
}

.le-nav-link.le-nav-level-4 {
    padding-left: calc(4 * var(--link-indent));
}

av-level-5 {
    calc(5 * var(--link-indent));
}

av-level-6 {
    calc(6 * var(--link-indent));
}

av-level-7 {
    calc(7 * var(--link-indent));
}

.le-nav-link.le-nav-level-8 {
    padding-left: calc(8 * var(--link-indent));
}

.le-nav-link.le-nav-level-9 {
    padding-left: calc(9 * var(--link-indent));
}

```

Working with AI Assistants

- ":Generate the code to get the data about the feenkcom organization on github" ↗
- ▶ 1 explicit reference

a GtLlmActionChat

Chat Instance Messages Write Tools Assistant formats Assistant

GPT 4.1: Here is a Smalltalk code snippet to get the data about the feenkcom organization on GitHub: Reify Reify action Promote example ↗

Text Code snippet Code Variables Diff Arguments JSON data

Here is a Smalltalk code snippet to get the data about the feenkcom organization on GitHub:

```
| url json orgData |
url := 'https://api.github.com/orgs/feenkcom'.
json := ZnClient new
url: url;
get;
contents.
orgData := NeoJSONReader fromString: json.
```

This will fetch and parse the organization data as a Smalltalk dictionary. You already have the parsed result available in your variable `dictionary`.

You: Propose a wrapper class with the needed methods for the data about the feenkcom organization

GPT 4.1: Below is a wrapper class for Github organization data: Reify Reify action Promote example ↗

Text Code Variables Arguments JSON data Changes

Below is a wrapper class for Github organization data, including recommended methods and a Phlow view for the repository list. A usage example is also provided.

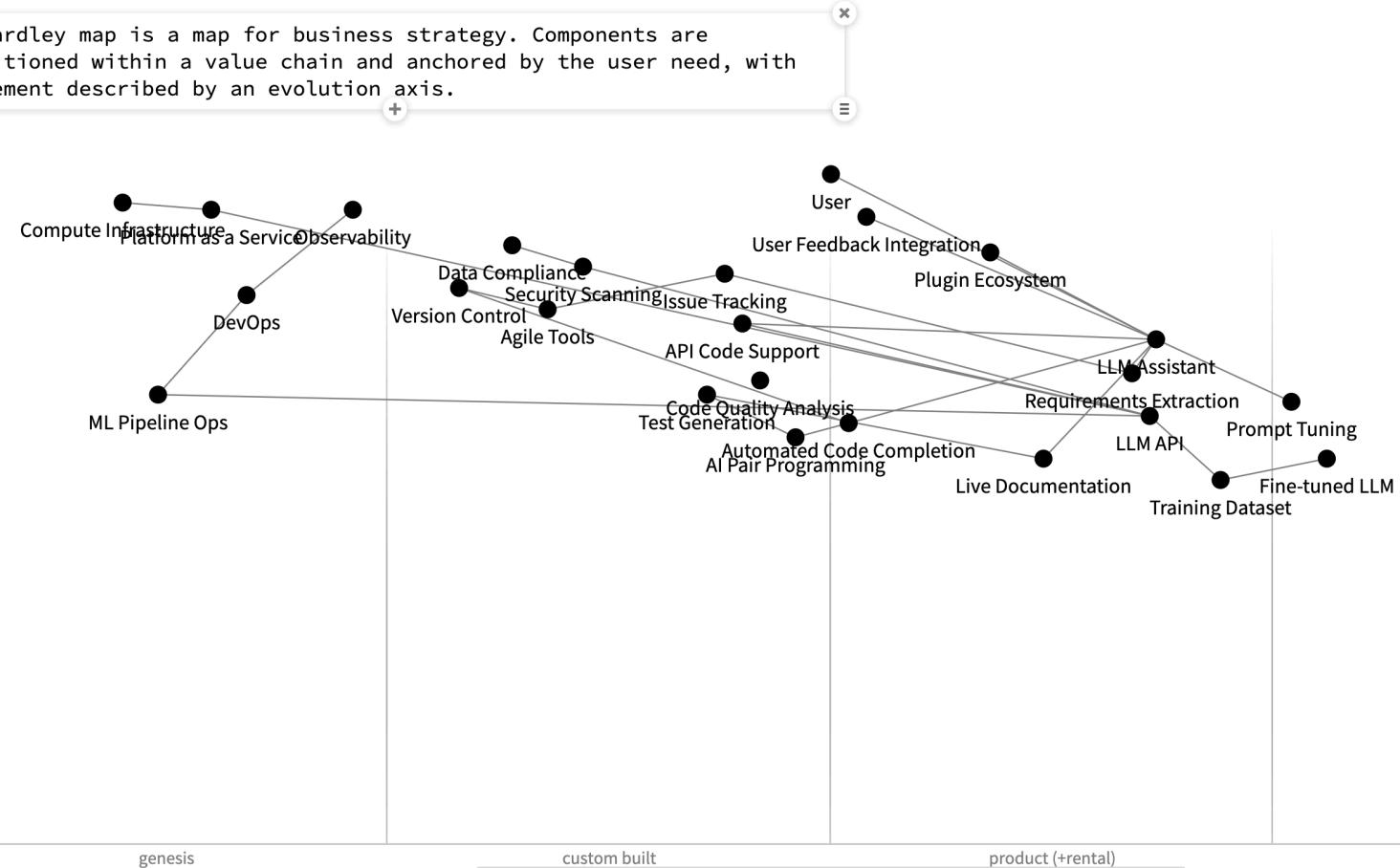
Class Definition

```
Object subclass: #GithubOrganization
instanceVariableNames: 'data'
```

Wardley Map exploration

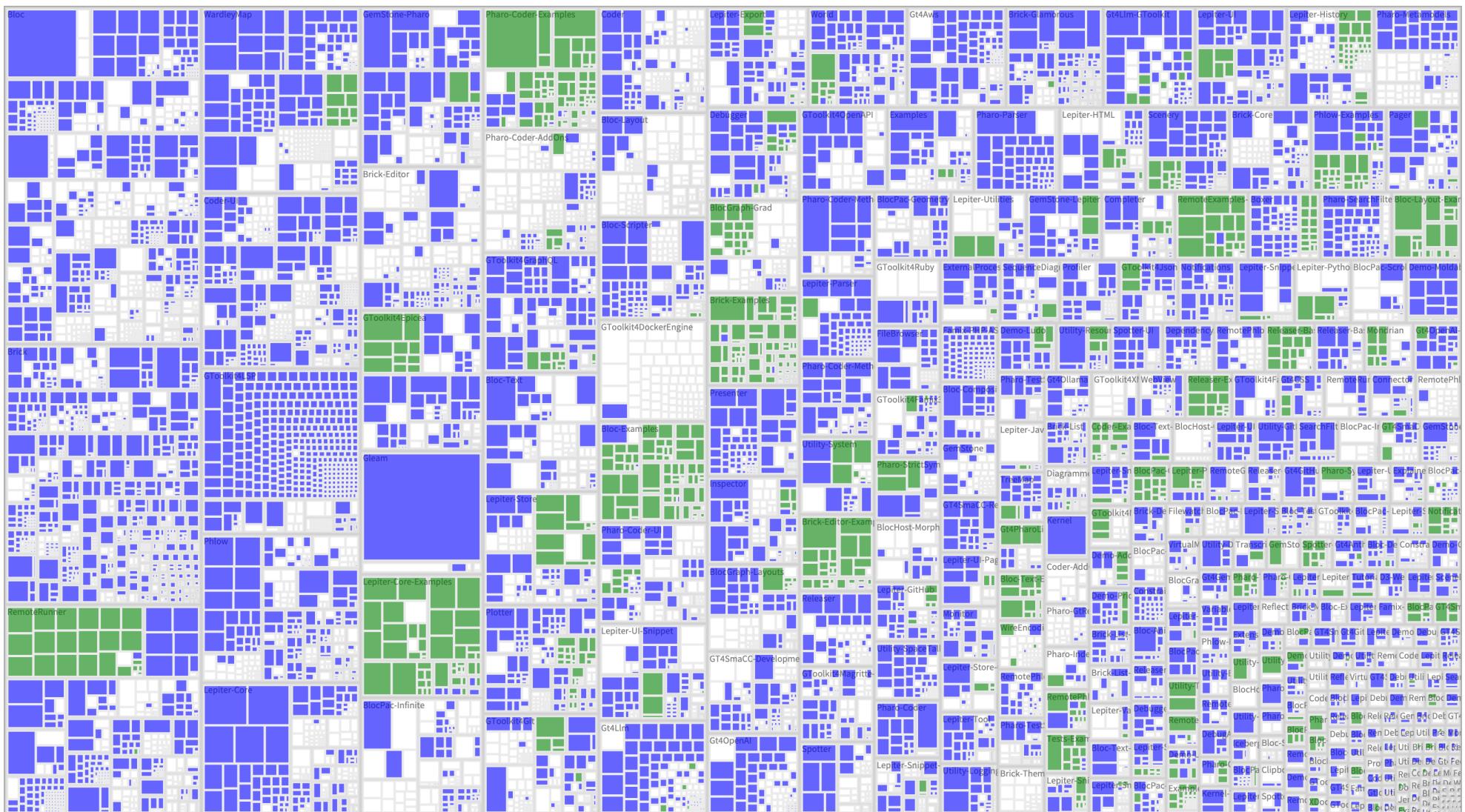
Let's use an AI assistant to create a Wardley Map.

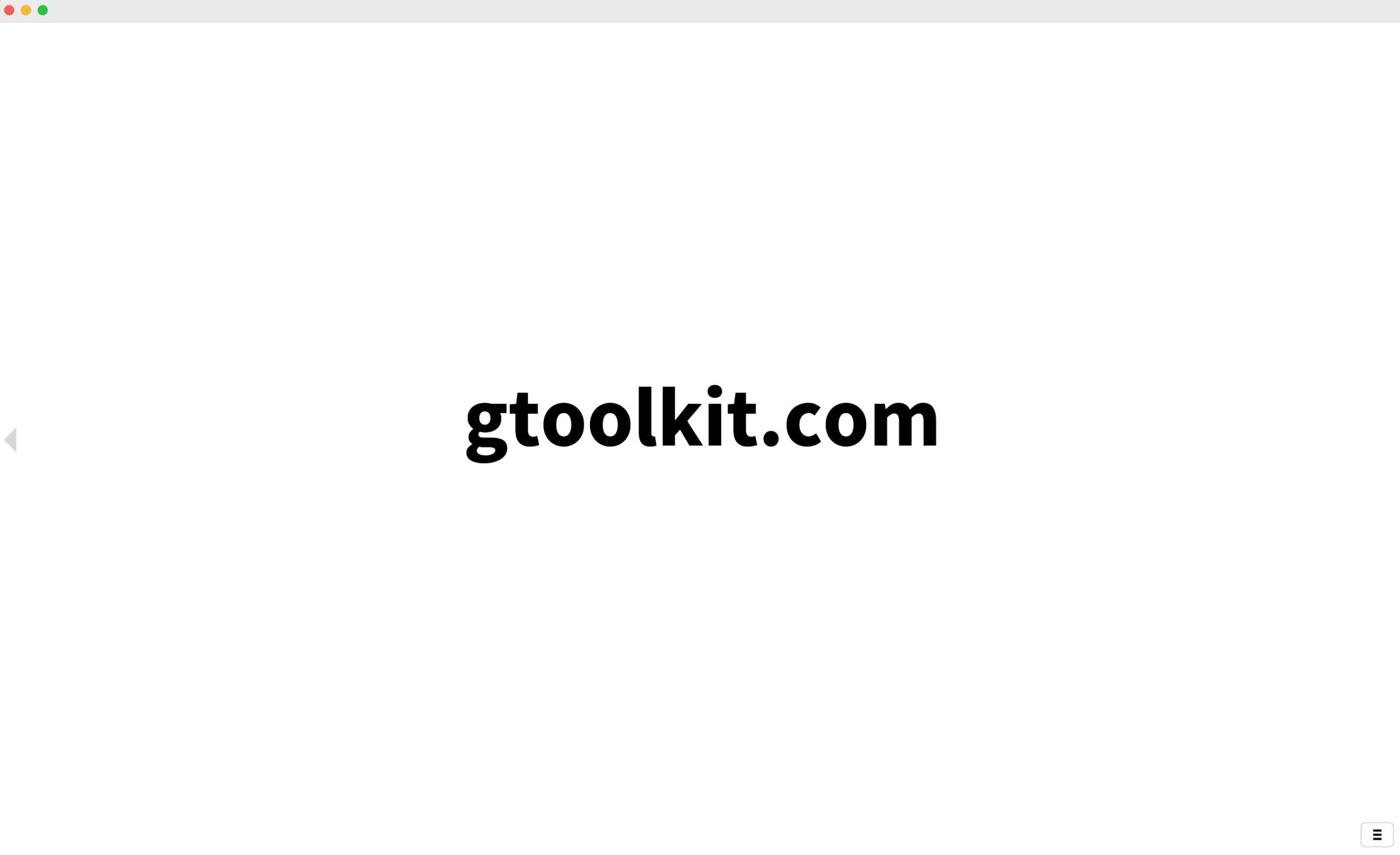
A Wardley map is a map for business strategy. Components are positioned within a value chain and anchored by the user need, with movement described by an evolution axis.



<an unnamed volatile knowledgebase>

The whole system is touched by custom views that are then complemented by examples.





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