RoelTyper [rule typer]

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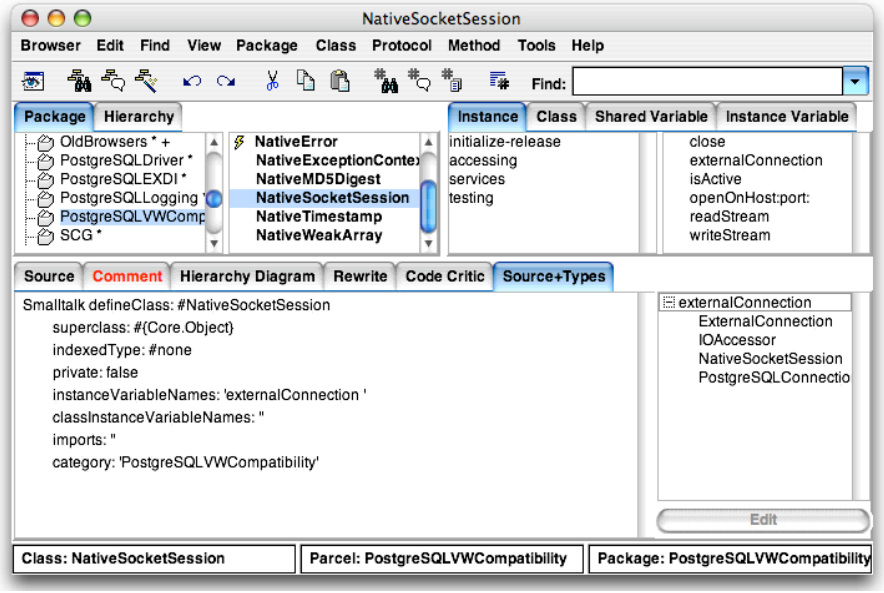
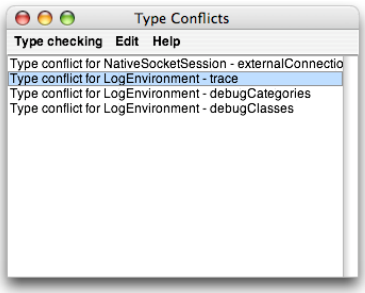
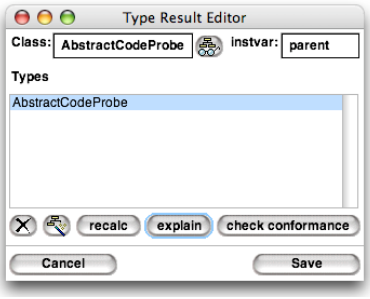






Open Pluggable Type System for ST

Ever looked at code you did not write (or that you wrote a long time ago), and wondered what the type of an instance variable was? If so, you will probably love RoelTyper. RoelTyper is an extremely fast optional pluggable type system for Smalltalk, based on heuristics and implemented as a byte-code interpretator. It simply type-checks instance variables of classes. Typing a complete VisualWorks Smalltalk image takes less than one minute and a half! For this speed you get the types for about 80% of instance variables in the system. While a solution is not guaranteed, in a lot of cases you gain insight in source code. The approach is quite similar to what the Refactoring Browser does when generating comments for classes, but with refined heuristics. It also type-checks whenever you accept a method, and notifies when the types of instance variables do not match by adding a type conflict in a floating window (if you like this sort of thing).

The extracted type information can then be used by various tools:

- a new pane in the standard VisualWorks Refactoring Browser allows to edit the types for instance variables and to explain the extracted results.
- a floating window can be opened that warns of possible type conflicts when methods are compiled. This is less intrusive than statically typed languages, yet gives some feedback and can remove some message-not-understood exceptions.

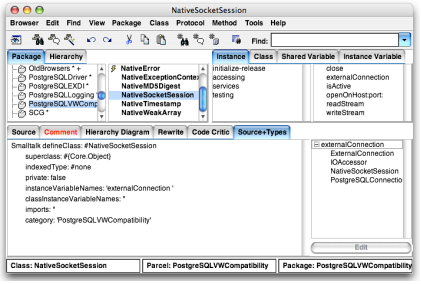
To try it out for yourself, load the bundle 'RoelTyperBundle' from the Cincom public Store.

Main Features

- Free
- Integrated in the Refactoring Browser.
- Floating window that logs type conflicts when methods are accepted.
- Conflict Editor to compare and edit type results.
- Fast: types all instance variables in a VisualWorks image in one and a half minute.
- Open: quite easy to add new heuristics.
- Pluggable: completely other type systems (think Chuck, for example) could be added.
- Runs on VisualWorks (with graphical user interface as described) and in Squeak (without the graphical user interface)

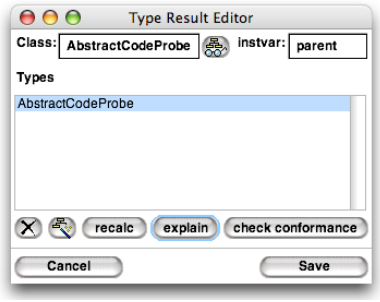
http://decomp.ulb.ac.be/roelwuyts/smalltalk/roeltyper

Refactoring Browser Integration



The Refactoring Browser features a new pane that shows the types for the instance variables of a selected class. The results shown are either extracted by RoelTyper, or edited manually. Right-clicking an entry allows to open up the Typing Results Explainer, or the Type Result Editor.

Type Result Editor



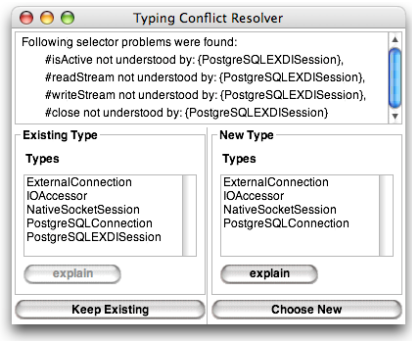
The Type Result editor is the place for viewing and editing types. Initially the types shown are the ones extracted by RoelTyper. The results are sometimes too general (when lots of classes conform to the interface used by the variable). In that case you can manually edit the types, and save the results. Manually added types can be checked for conformance with the source code.

Type Conflicts Window

Type Conflicts is a tool that can be opened from the VisualWorks launcher. When it is open, accepting methods can trigger type conflicts that are then shown in this window. Conflicts can be clicked, and then a Typing Conflict Resolver window will open, allowing to view the differences in detail.

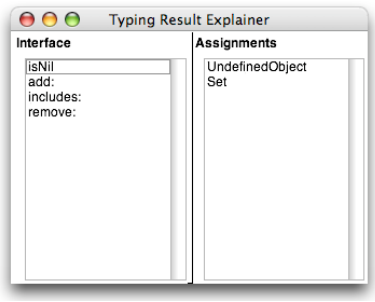
Using the menu, the interactive type checking can be enabled, and the displaying of conflicts can be controlled.

Typing Conflict Resolver



The Typing Conflict Resolver puts two conflicting typing results side by side, so that you can choose which one to accept.

Typing Results Explainer



The Results Explainer shows the interface sent to this instance variable and assignments made to this variable (direct or through accessors).

BIOGRAPHY Roel Wuyts has been using Smalltalk for 10 years. He had lots of fun implementing MagicKeys (graphically changing keyboard shortcuts), the StarBrowser (classifications in action) and Soul (the Smalltalk Open Unification Language). He is also an avid Mac-user, and loves to play with new software. Hence this flyer, a first project done with the text editor Pages. If not, you would probably have read a very research-prototype looking Latex-based document instead of this sleek flyer...

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