

Supplementary Materials

Introduction

Shy is a framework for “Scrap your Boilerplate with Object Algebras”, using standard Java annotations. It is implemented in Java 8 and the development environment is Eclipse. Full code is publically available on GitHub: <https://github.com/JasonCHU/ObjectAlgebraFramework>.

Some details will be introduced in the following sections.

Folder: Library

This is the core project of our Shy framework. A Java annotation “@Algebra” is introduced which can generate generic boilerplate traversals automatically, for an object algebra interface annotated with it, including generic queries, generalized generic queries, generic transformations, contextual generic transformations, and so on.

Moreover, two simple classes, Monoid and Pair, are also defined in this project for use.

Please import this project to Eclipse to see how it works to generate code automatically, using Java reflection with annotations. Then export it into a JAR file.

Steps:

1. Java compiler: Java 8 required;
2. In Eclipse, Properties -> Java Build Path -> Libraries, add the exported file "Library.jar" as a library;
3. In Eclipse, Properties -> Java Compiler -> Annotation Processing, select "Enable project specific settings", "Enable annotation processing", "Enable processing in editor", and set the "Generated source directory", usually it should be "src";
4. In Eclipse, Properties -> Java Compiler -> Annotation Processing -> Factory Path, add "Library.jar" as a library. If you click "Advanced..." and can see "com.zewei.annotation.processor.AlgebraProcessor", you are done with it.

Folder: ObjectAlgebras

This project contains the source code of our research on object algebras with annotations. You can find the examples discussed in the paper related to Object Algebras here.

Folder: QL

This project contains the source code of our case study on QL questionnaire together with the results. You can find the examples discussed in section "Case Study" of our paper here.

Folder: naked-object-algebras

This project provides support for the QL project.