



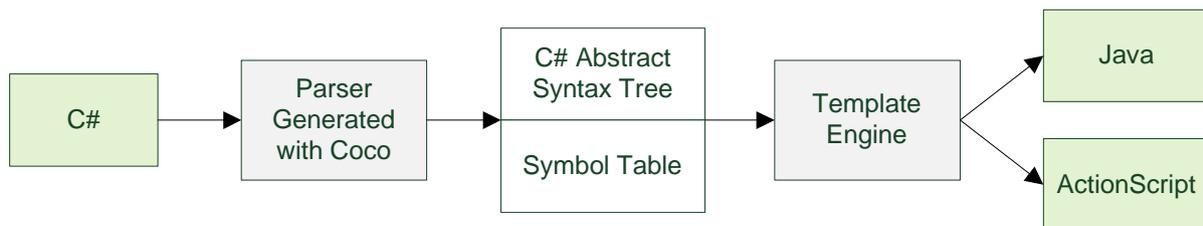
Source to Source Translator from C# to Java and ActionScript

Master thesis for Christoph Wimberger

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The goal of this thesis is the implementation of a source code translator that takes C# 3.0 code as input and produces corresponding Java 1.6 and ActionScript 3.0 code from it. The translator should use an existing C# EBNF description¹ and the Coco/R compiler generator² to process the input source files and create an abstract syntax tree representation for them. The backend should use an existing template engine³ to produce source files for Java and ActionScript. The following diagram gives an overview of the desired program architecture:



The translator may define a reasonable subset of supported C# 3.0 features and does not have to implement the full C# specification. Comments should be preserved between statements as well as before declarations. The input is specified a set of C# files as well as a set of referenced .NET assemblies for looking up types used in the source files. The output is a set of files in the target language.

In general, a reference to an unknown C# class (e.g. a library class) should translate to a reference to a class with the same name in the target language. The target language version of this class has to be manually provided by the tool user. For a small set of often used standard library classes (e.g. System.Collections.IList), the translator should automatically map to the corresponding concept in the target language.

The source code language for the translator should be C# and the development should be test-driven with automated tests that check semantic equality between example input programs and their translated versions. A modular design of the application should simplify maintenance and future extensions.

The work progress should be discussed with the supervisor at least every 2 weeks. Please note the guidelines of the Institute for System Software when preparing the written thesis.

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¹ <http://ssw.jku.at/Research/Projects/Coco/CS/CSharp3.atg>

² <http://ssw.jku.at/Research/Projects/Coco/>

³ "Entwurf und Implementierung eines Cross-Compilers von Delphi nach C#", Markus Jahn, Master's thesis, March 2009.