Source-To-Source Analysis with SATIrE

Markus Schordan

Vienna University of Technology, Austria
`markus@complang.tuwien.ac.at`

Abstract. The design of the *Static Analysis Tool Integration Engine* (SATIrE) allows to map source code annotations to its intermediate program representation as well as generating analysis results that are attached to the intermediate representation as annotations in source code. This enables numerous applications such as automatic annotation of interfaces, testing of analyses by checking the results of an analysis with provided annotations, domain aware analysis by utilizing domain-specific program annotations, and making analysis results persistent as annotations in source code.

This concept is supported by a plug-in mechanism which allows to add user-defined analyses. Based on the annotation mechanism, users can view the results of their analyses as annotations in a given program, can test the analyzer by providing expected analysis results as annotations in source code and have it checked by SATIrE, or combine different analyses by accessing analysis information computed by a previous analyzer run. The technical challenges are the design of the analysis information annotation language, the bidirectional propagation of the analysis information through different phases of the internal translation processes, and the combination of the different analyses through the plug-in mechanism. In its current version SATIrE operates source-to-source on C/C++ programs.