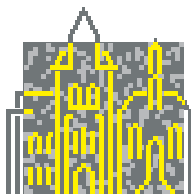F. Tip (IBM T.J. Watson Res. Center, USA), G. Snelting (Univ. Passau, D), R. Johnson (Univ. of Illinois, USA)
(Editors)

Program Analysis for Object-Oriented Evolution

SCHLOSS DAGSTUHL

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FÜR INFORMATIK

Summary

Maintenance and restructuring are activities that have traditionally been associated with "legacy" languages such as Cobol and PL/I. However, with the increasing use of object-oriented languages for large-scale industrial projects, the same activities are now often required in the object-oriented domain as well. But due to the complexity of advanced object-oriented software development, existing techniques for maintenance and restructuring procedural programs are not adequate.

In order to tackle the challenges of object-oriented maintenance, the Dagstuhl seminar "Program Analysis for Object-Oriented Evolution" brought together two groups of scientists: the program analysis community and the refactoring community. Program analysis has a long tradition and has recently been used extensively to support maintenance activities. Refactoring is a new approach to improve object-oriented designs by applying a sequence of semantics-preserving transformations.

The workshop featured a series of presentations about state-of-the-art program analysis and refactoring technology, as well as extensive discussions about mutual benefit. As an overall result,

- Program analysis researchers now do understand current problems in evolution and restructuring of object-oriented programs. They do understand that the principle of conservative approximation, which is essential in traditional program analysis, can be softened in a refactoring context.

- Researchers in evolution and refactoring now do understand the possibilities provided by the state-of-th-art in program analysis. They do understand that program analysis can provide the semantic guarantees needed for successful refactorings.

As a consequence, we expect many new research projects utilizing these insights. Some such projects have already been started. These projects open the door for safer and more powerful refactorings, providing more reliable and efficient evolution of object-oriented systems.

Highlights, Training, European added value

The workshop featured 30 presentations. There were 4 outstanding keynote presentations on program analysis and refactoring. The other talks presented ongoing research. Two discussion sessions culminated in a collection of open research topics. Half of the talks were given by young scientists (graduate students or postdocs). These young researchers had excellent opportunity to discuss their work with the more senior participants, thus obtaining many valuable insights. About half of the participants (and more than half of the young researchers) were from Europe.

Participants

- Aßmann, Uwe (TU Dresden)
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