Refactoring to Aspects – an Experiment
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ABSTRACT
Aspect-oriented (AO) programming proposes a solution to the crosscutting problem in Object-oriented (OO) programming by supporting the modularization of crosscutting concerns with new composition mechanisms. This paper evaluates the solution through aspect mining two existing Java code-bases and then refactoring crosscutting concerns found in them into aspects using AspectJ. It documents the process, reports a suspected bug found in AJDT, compares the modularity of resulting code to that of the original, and discusses on causes behind the difficulties encountered during the process. The main observation obtained from the refactoring is that due to variations in implementation of a crosscutting concern, making general pointcuts and writing advices’ inner structures to cover an entire concern is non-trivial. It concludes that AOP does have the potential to improve system’s modularity, but with current technology of AOP and available supporting tools, AO refactoring is hard and the refactored AO system most unlikely preserves the behavior of the original OO system in most cases.