

# Refactoring R Programs

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Refactoring code has been daily bread for developers since the advent of programming languages and is given a central role in modern programming methodologies such as eXtreme programming. Automation of refactoring operations is therefore supported by many professional IDEs for common programming languages.

For the R language, there has not yet been an in-depth study of refactoring operations and the current IDEs have no or limited support for it. In this presentation we determine how the specificities of the R language (as a functional language with object orientation) impact R software change and refactoring.

In a first part, the common refactoring operations are reviewed and a typology of the operations is proposed. The typology is confronted with other refactoring categorizations and frameworks published in the software engineering literature. Special attention will be given to the possibilities the R package concept offers to keep R code and other software artifacts (documentation, tests, etc.) in sync.

In a second part, a reflection is offered on user interfaces for automated refactoring (refactoring browsers etc.). This reflection will be based on studying interfaces for other programming languages in comparative perspective. The resulting refactoring framework and interface are planned to be integrated into the StatET eclipse plugin for R, though it is hoped for that other IDEs will benefit as well from our results.