Analysis Strategies for Software Product Lines:
A Classification and Survey

Thomas Thüm,[1] Sven Apel,[2] Christian Kästner,[3] Ina Schaefer,[4] and Gunter Saake[1]

[1] University of Magdeburg, Germany
[2] University of Passau, Germany
[3] Carnegie Mellon University, USA
[4] Technische Universität Braunschweig, Germany

Abstract: Software-product-line engineering enables the efficient development of similar software products. Instead of developing each product from scratch, products are generated from common artifacts. However, the product generation is a challenge for the analysis of correctness properties. Applying traditional analysis techniques, such as type checking and model checking, to each product involves redundant effort and is often not feasible to the combinatorial explosion of products. Approaches to scale analysis techniques to product lines have been presented in unrelated research areas with a different terminology each. We propose a classification of analysis strategies and classify a corpus of more than 100 approaches. Based on our insights, we develop a research agenda to guide research on product-line analyses.

This talk is based on our recent ACM Computing Surveys article [TAK+14].

References

[TAK+14] Thomas Thüm, Sven Apel, Christian Kästner, Ina Schaefer, and Gunter Saake. A Classification and Survey of Analysis Strategies for Software Product Lines. *ACM Computing Surveys*, 47(1):6:1–6:45, June 2014.