Variability Mining for Extractive Software Product Line Engineering of Block-Based Modeling Languages

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Motivation

- Clone-and-own commonly used as an easy reuse strategy
- + no knowledge needed
- + little effort
- + short-term savings
- - errors are propagated
- - variant relations are lost
- - long-term maintenance costly

Goal

- Transition to structured functionality reuse with more elaborate strategies in a software product line
- Retrieve necessary variability information from the cloned variants
- Generation of variants from an existing core variant by applying transformational delta modules

Product Line Generation

- Determine required transformation actions
- Generate delta language to allow defining delta modules to transform the existing core variant to other variants

Conclusion & Future Work

- Family Mining: Transition from ad-hoc creation to structured reuse in a software product line
- In future work, we plan...
  - to use feature location techniques to create larger reusable artifacts (i.e., features) mapping to modules
  - to provide tooling for consistent semi-automatic refactorings of the generated product line

References

[1] Wille et al., Interface Variability in Family Model Mining, MAPLE’13, SPLC, 2013, pp. 44-51, ACM
[4] Wille et al., Custom-Tailored Variability Mining for Block-Based Languages, SANER’16, SANER, 2016, pp. 271-282, IEEE