





Towards Evolution of Generic Variability Models

Andreas Svendsen (SINTEF & UiO) Xiaorui Zhang (SINTEF & UiO) Øystein Haugen (SINTEF) Birger Møller-Pedersen (UiO)





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Motivation











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Common Variability Language (CVL)











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Fragment Substitution





CVL Applied to a TCL Model





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- CVL specifies structural base model changes
- Use CVL to also specify the evolution of the base model
 - Analysis of this CVL model according to the original CVL model
 - Match boundary elements in CVL models
 - Evolve the original CVL model
 - Evolved product model can be generated
- Resolve inconsistencies
 - CVL models modifying the same model element structures

















P1: Placement fragment in evolution CVL model P2: Placement fragment in original CVL model









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Resolving Inconsistencies







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Resolving Inconsistencies Ν ∞ P2 **P1** P1/R1: Original P2/R2: Evolution



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Discussion

- Extended CVL editor
 - Feasibility evaluation

Approach performs analysis of CVL substitutions

- A CVL model specifies exactly where and how the variability is applied
- One-way references to the base model

Boundary elements may not be uniquely identified

- The user has to choose between the identified choices
- Most effective with smaller base model changes
 - E.g. bug-fixes in the base model

Fragment substitution is flexible

Approach also applicable for simpler substitutions











Summary

CVL is a separate variability language

Specifies structural changes to a base model

Supporting Evolution of CVL models

- When associated base model is modified
- Resolved inconsistencies

Feasibility evaluation

- Fragment substitution
- TCL example

Current and Future work

- Semantic checking
- Language evolution



