Developing Domain-Specific Modeling Languages by Metamodel Semantic Enrichment and Composition: a Case Study

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Verification

DS model

? = P
on the importance of a domain model
Domain models provide a framework for full analysis of requirements, which is independent of the technology of implementation.

T. Hoare
Domain theory

"Domain description together with lemmas, propositions and theorems that can be proved [...] to hold in the domain."

Dines Bjørner
DS model

?  =  P

lundi, 18 octobre 2010
DS model $\models P$
the wheel has already been invented
DS model

Low-level model
DS model

Intermediate formalism

Low-level model
DS model

Intermediate formalisms

Low-level model
DS model

Low-level model
DS model

Low-level model
DS model

Low-level model

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DS model

Question: intermediate formalism?

Low-level model
modularity is your friend
DS model

Low-level model
DS model

Low-level model
Question: semantics?

DS model

Low-level model
What’s in a name? model?
Question: traceability?
4 working on formalization challenges

a. Transformation-based verification

b. DSML/Transformation composition
4a: Transformation-based verification

D. Buchs: Adaptive model checking
4a: Transformation-based verification
Adaptive model checking
4a: Transformation-based verification
Adaptive model checking
4a: Transformation-based verification
Adaptive model checking
4a: Transformation-based verification
Adaptive model checking

Generalized semantic domains

A. Linard: polyDD
(polymorphic Decision Diagrams)
4b: DSML/Transformation composition

L. Pedro:
CoPsy framework
**4b: DSML/Transformation composition**

CoPsy framework

[Diagram showing relations between DSML Metamodel, fp, ep Metamodel, and a DSML Metamodel after parameterization]
4b: DSML/Transformation composition
CoPsy framework
Formalization is important for verification.

Transformations help.

Composition poses big challenges w.r.t. semantics.
Thank you.

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