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Multilevel coupled model transformations for precise and reusable definition of model behaviour. (English) [Zbl 1423.68105](#)

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Summary: The use of Domain-Specific Languages (DSLs) is a promising field for the development of tools tailored to specific problem spaces, effectively diminishing the complexity of hand-made software. With the goal of making models as precise, simple and reusable as possible, we augment DSLs with concepts from multilevel modelling, where the number of abstraction levels are not limited. This is particularly useful for DSL definitions with behaviour, whose concepts inherently belong to different levels of abstraction. Here, models can represent the state of the modelled system and evolve using model transformations. These transformations can benefit from a multilevel setting, becoming a precise and reusable definition of the semantics for behavioural modelling languages. We present in this paper the concept of Multilevel Coupled Model Transformations, together with examples, formal definitions and tools to assess their conceptual soundness and practical value.

MSC:

68N30 Mathematical aspects of software engineering (specification, verification, metrics, requirements, etc.) Cited in 1 Document

Keywords:

[model-driven engineering](#); [graph transformation](#); [multilevel modelling](#); [multilevel coupled model transformation](#); [behavioural modelling](#)

Software:

[AGG](#); [VIATRA2](#); [ATL](#); [Henshin](#); [GROOVE](#)

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