Model Driven Engineering, VT2015

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Additional remarks for all assignment deliverables

- *State the authors of the deliverable (the group members)*
- *Correct language use, no grammar or spelling errors*
- *Reference and describe all figures/tables in the text*
- *Figures and graphs should be readable from a quality perspective*
- *Reference literature in your text where appropriate*
- *Define non-obvious acronyms*
- *The deliverable should be easily readable, understandable and complete*
- *Give arguments for your decisions (also using references)*
- *Show critical thinking*
- *Be prepared to get frustrated if something does not work as you think it should. Rise to the challenge!*

Assignment 5 – Model2Model

Hard deadline for Handin via PingPong: 24.2. 23:59 (CET)

A. Flattening hierarchical models

The metamodel from assignment 2 supports hierarchy. This means that ManufacturingSystems can contain other ManufacturingSystems via CompositeSteps. However, certain tasks, such as reachability analysis of a model, are only suited for flat models. That is, models without hierarchy. For this assignment, you are required to deliver a Model-to-Model transformation, written in QVT-O, which can transform a hierarchical model, which corresponds to our Manufacturing System metamodel, into a flattened Manufacturing System model. The result will be a model corresponding to the same metamodel as the input model.

B. Rules and Limitations

You only need to be able to handle models that contain one level of hierarchy. That is, a model of a ManufacturingSystem that can contain CompositeSteps. These, in turn, do not contain any hierarchy.

For the steps within the CompositeSteps, assign the responsible of the Steps in the source model. That is, if the Steps have a responsible, you shall ignore the Responsible, who was connected to the CompositeStep and the contained ManufacturingSystem. See Figure 1 for an explanation.

For incoming transitions into the CompositeStep, connect the previous step to one of the start storages of the ManufacturingSystem contained in the CompositeStep. The transition shall lead to a storage that stores the WorkPieceType referenced by the previous Step's OutputDecision. See Figure 2 for an example of this transformation.

For outgoing transitions from the CompositeStep, produce an intermediate transport Step. All end storages shall have a transition to this Step. The Step is connected to all following Steps, which were previously referenced by the CompositeStep. See Figure 3 for an example of this transformation.

First, give an overview about how your transformation works in text. Then, show and explain the individual model transformations textually in more detail.

Transform the example model into a flattened model and hand the output model in along with your report. A new version of the example is uploaded as *assignment5_example.zip*. This is a corrected version of the example, which validates successfully.

Include in the report a generated diagram for both the source model and the target model using your Model-to-Text transformation from Assignment 4.

Deliverable

- Document (pdf) reporting about the results for the assignment 5 as described.
- Maximum 6 pages for the content from this assignment, 12 font size
- A ZIP-archive of all plugins you developed, including the code for the QVT-O Model-to-Model transformation.
- The output model of the transformation executed on the example model from assignment 2 (use *assignment5_example.zip* from PingPong).
- You will be expected to demonstrate the transformation during the supervision.

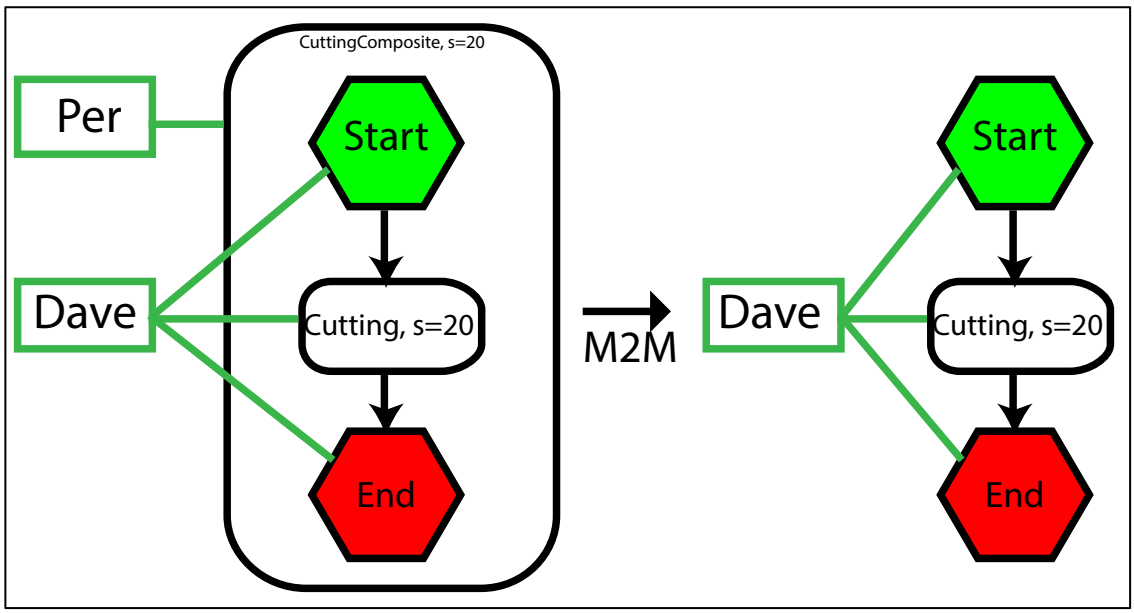

Figure 1: Responsibilities

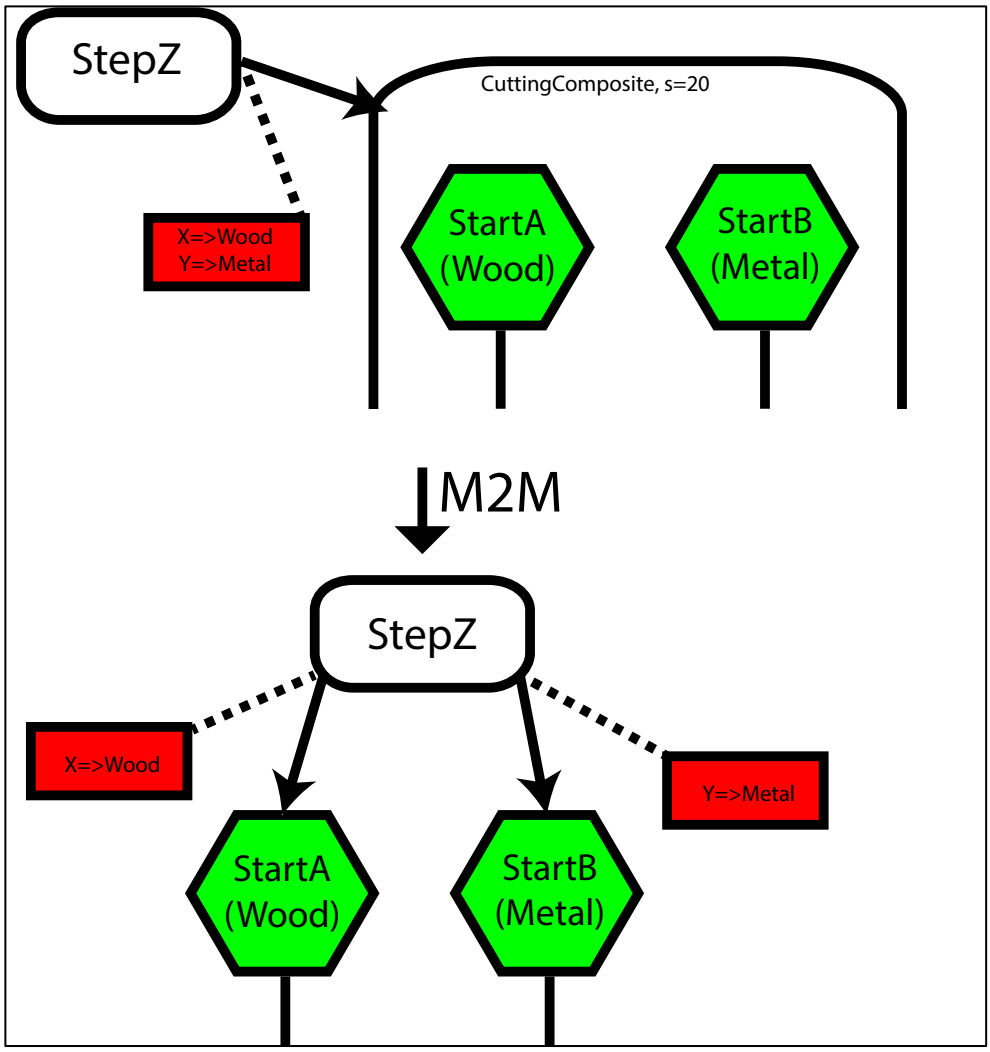

Figure 2: Inputs

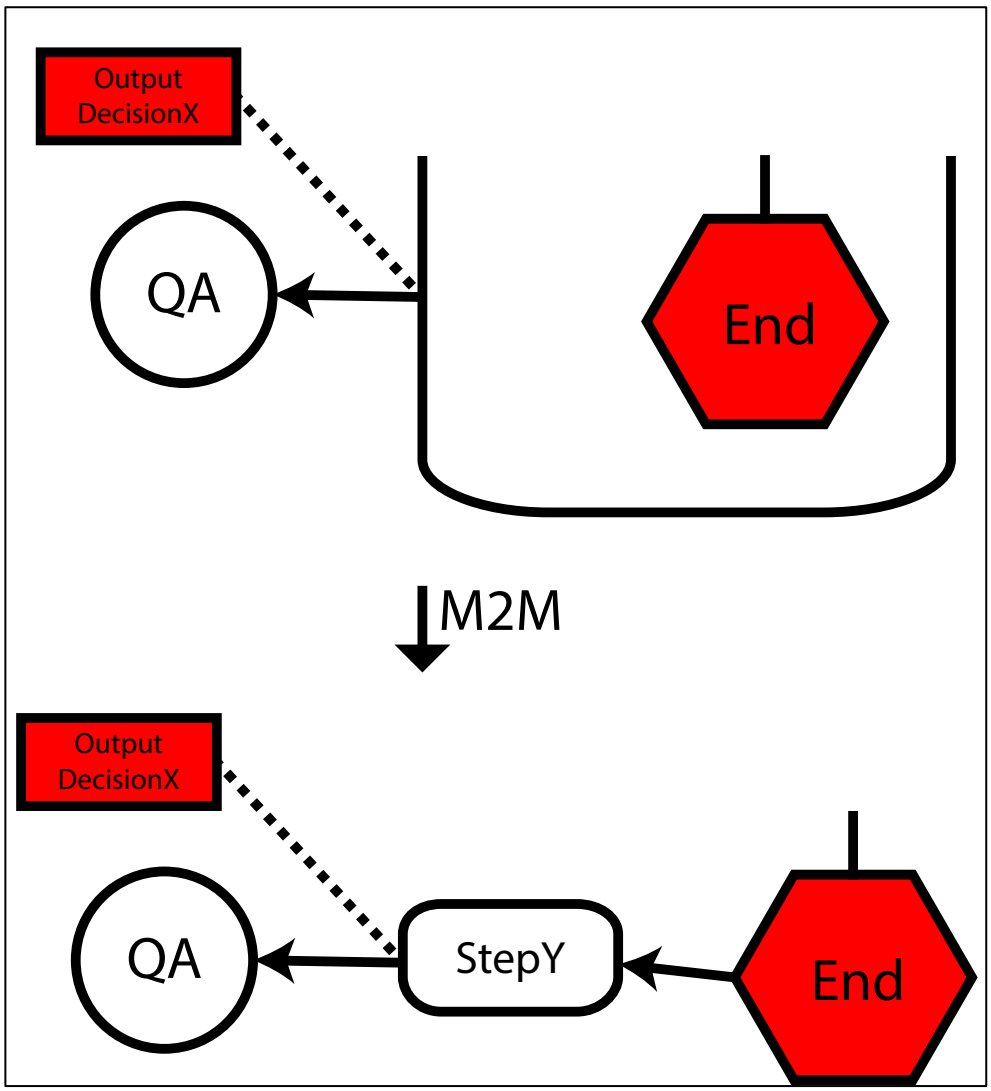

Figure 3: Outputs