Towards Model-driven Web Application
Development with AspectWebML
An Integrated Graphical Development Environment

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The Graphical Modeling Framework (GMF) and the Eclipse Modeling Framework (EMF) provide a sound foundation upon which elaborate modeling applications can be built.

- **Almost no sophisticated modeling support for AOM languages.**
- The current EMF tree-based editor for aspectWebML is not sufficient in terms of functionality and usability.

- **Aspect weaving functionality for the tree-based IIDE will be subject of another master thesis.**
- **Aspect Web weaving is a very important feature of the aspectWebML language.**
- However, development of an Aspect Weaver for an aspect-oriented modeling language is a quite intricate task which is out of scope of this thesis.

- **Aspect-oriented modeling is a complex task, especially aspect-oriented interrelations are difficult to understand if the modeling environment provides no further assistance to the modeler.**
- **Standard generated GMF / EMF editors are not very user-friendly. Therefore customizations that are tailored to specific modeling languages' characteristics are desperately needed.**

- **The OCL Console of the Eclipse OCL examples tutorial will be integrated in order to verify the correctness of OCL expressions.**
- **A light-weight Problem View is to be developed that is able to present the modeler with meaningful error- and warning messages.**

- **Additional usability-enhancing features will be built that allow for a more rapid development of aspectWebML models.**

- **Model-driven Engineering aims to provide a solution to some of these problems in that it**
  - increases software quality,
  - advocates reusability,
  - boosts development speed and
  - raises level of abstraction.

- **Software Engineering is a complex interdisciplinary field among other well-established Engineering disciplines. In this respect, characteristics like**
  - long development cycles and
  - high percentage of project failures are somewhat typical for this industry.

- **Due to difficulties during development of the model transformation facility, the ultimate realization differs from the proposal.**

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**Cross References View**

- Aspect-oriented modeling is a complex interdisciplinary field among other well-established Engineering disciplines. In this respect, characteristics like long development cycles and high percentage of project failures are somewhat typical for this industry.

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**Problem Statement**

- For the aspectWebML language this component will be rebuilt from the scratch, allowing to navigate aspect-oriented interrelations depending on the currently selected model element. Some functionality for this view will be provided by Cornelia Tomasek in [**1**].

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**Proposed Solution**

- The GMF graphical-based editor supports several model-to-model and model-to-code transformations.
  - Using model transformation (M2M) a gmfgen model is produced.
  - From the gmfgen model one can ultimately generate (M2C) the graphical editor.

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**Solution**

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