How to Efficiently Collaborate in Model Versioning
A Guideline to Reduce and Resolve Conflicts

Masterstudium:
Wirtschaftsinformatik

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Software Engineering is a Team Effort

Collaboration in MDD
- models used as inter-expert language
- version control, allowing concurrent development

To Efficiently Collaborate...
- proper tools and techniques have to be provided for
  - coordination and collaborative execution of tasks
  - communication
- there has to be steady and concurrent access to all relevant information and tools
- social aspects have to be minded (cultural and geographical aspects, individual behaviour, etc)

Specifically, support has to be provided for
- spontaneous and prearranged collaborative activities
- synchronous and asynchronous communication
- social awareness

Collaboration in the Context of Model Versioning
- In model versioning, concurrent development of artefacts leads to parallel versions.
- The merge of two versions may result in a conflict.
- Resolution of conflicts is a precarious and preferably collaborative process.
- Collaborative conflict resolution leads to best solution possible.

Benefits
- use of only one tool better traceability and uncomplicates work;
- supplementary features improve social awareness (user list, profile, status);
- a chat feature provides built-in communication support;
- rules and policies define efficient use of tools or features;
- graphical representations and graphical communication provide model-specific support;
- ”sticky notes” may be used as comments and messages;
- hooks provide possibilities for extensions;

The Collaborative Conflict Resolution Process
- Inform
  All relevant information is given, this includes textual and graphical representation of the conflict, base version, surrounding area of the fragment, and, if available, suggestions for resolution.
- Communicate
  Problem and solution possibilities are discussed in textual manner (chat), and through graphical communication (whiteboard).
- Resolve
  Conjointly, a version is chosen or a new version is created, suggestions in form of patterns aid the process.
- Save
  As the found solution is stored into the repository, a new resolution pattern for future conflict situations is created.

This Thesis
- provides a general survey on possibilities to improve the MDD process in regard to collaborative aspects.
- analyses means and methods of collaboration in theory and practice (within software development and other fields).
- highlights the importance of attaching a greater value to collaboration in research and practice.
- includes a specific example for enhanced collaboration in conflict resolution in model versioning, an especially finicial task, by design of the Collaborative Conflict Resolver (CCR)² in detail, and shows the potential of such a component for a model versioning system like AMOR³.

2 Brosch, P., Sendi, M., Wieland, K., Wimmer, M., and Langer, P. We can work it out: Collaborative Conflict Resolution in Model Versioning. ESEC/FSE 2009, Springer-Verlag

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