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

Masterstudium: Wirtschaftsinformatik
Melanie Kapellner

Technische Universität Wien
Institut für Softwaretechnik und Interaktive Systeme
Arbeitsbereich: Business Informatik
Betreuung: O.Univ.-Prof. Dipl.-Ing. Mag. Dr.techn. Gerli Kappel

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
  Conjunctively, 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 finical 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 AMOR\(^3\).


contact: m.kapellner@gmx.at