fUML Refactoring with EMF*

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Abstract. In this work we will present some ideas and concepts for refactoring fUML with EMF. The main contribution of this work is the extension of existing UML refactorings to cover not only the static aspect of UML such as class diagrams but also include refactorings for dynamic parts such as activity diagrams. In this work we will present basic concepts for refactoring with EMF and show how model semantics can be preserved through the use of OCL constraints. Finally we conclude with a discussion of EMF.Refactor, which shows how such refactorings can be included into Eclipse GUIs such as EMF tree editor or Papyrus.

* This work has been created in the context of the course "Advanced Model Engineering" (188.952) in SS14.

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1 Introduction

fUML adds semantics to UML models that make it possible to create semantically closed models which can be executed on the model level. With fUML classic refactorings are not enough to refactor those models as they do not support the refactoring of the dynamic aspects of models such as activity diagrams.

2 Motivation

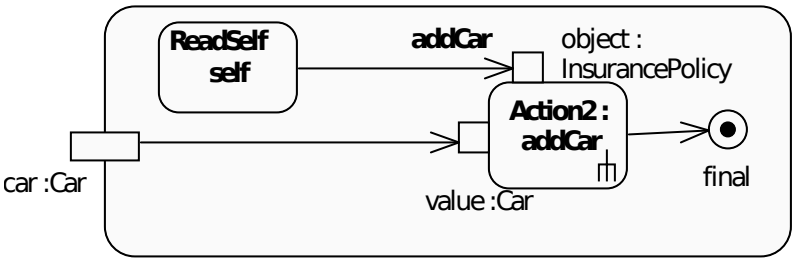
3 Refactorings Examples

- Rename Class
- Rename Method
- Rename Variable
- Add / Remove Parameter
- Encapsulate Field
- Pull up field

In this section we will present some general refactorings such as the "extract superclass" refactoring.

4 Refactoring of fUML diagrams

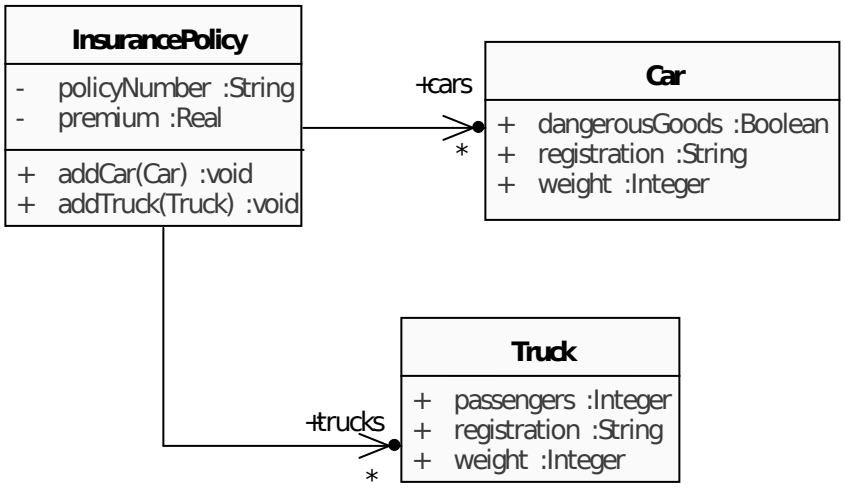
In this section we will present some general refactorings



5 Tool chain and implementation

For our tool chain we have relied on the moliz[1] repository, mainly for the ability to execute the fUML models with a virtual machine. The models are stored as XMI

[1] source...



5.1 Model refactoring

Describe our tool chain, how we created models, how we load them, what information of the abstract syntax we use for refactoring, etc.

5.2 GUI Integration

Describe what we did with EMF.Refactor.

6 Related Works

We have compared our works with several other available papers. In [..] there is a discussion of uml refactings which covers ....

some related works such as ...

7 Conclusion

We conclude this paper with...

References