LEVEL 0 SUMMARY

Name of student:

BURLON Carla

Name of your Level 1:

GONCALVES MELIM Maria Lolita

Source (e.g. scholars.google.com):

Paper available on Github

Paper title:

Soraya Mesli. Adaptation des contraintes à l'évolution de leur méta-modele. Genie logiciel [cs.SE]. 2013. <dumas-00854894>

Keywords specific to the paper:

Meta-model evolution, Co-evolution, OCL adaptation, and QVT-R.

Summary of the main contributions:

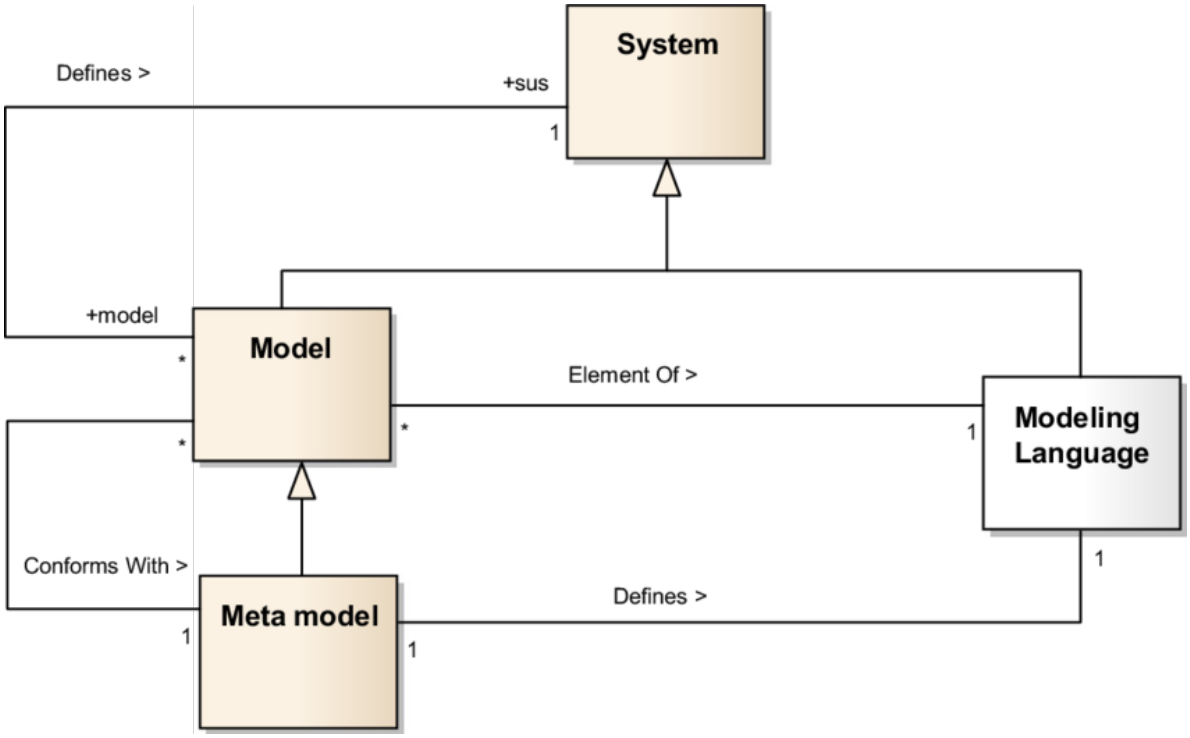
In Model-driven Engineering, a methodology that aims to create and exploit conceptual models, Meta-Object Facility is an object management standard. It provides a type system and a set of interfaces though which those types can be created or updated. It is used for object oriented modelling.

Objective :

This paper aims to tackle the issue of meta model evolutions due to new constraints applied to existing meta model. When new constraints are added, the meta models artefacts (models, transformation models and existing constraints) must also evolve. To do so this paper

presents a library of evolution operations for the aforementioned artefacts. These evolutions are written in QVT-R, yet another language/standard that describes model transformations.

The start of this paper delves into the state of the art surrounding meta-model an constraint evolutions. The three main considerations for constraints modifications are : model to meta-model coevolution, transformation model to meta-model coevolution and model or meta-model to constraints evolution. The manual approach presents evident limitations, in that it requires a lot of error prone manual work.



The start of the work presented in this paper is based on a thesis by Hassam which already proposes a set of evolution operations. This paper expands the library and covers more evolution scenari. The constraint modifications are more detailed and cover use cases which were not covered or in less depth. This paper's approach also corrects and improves upon certain operations. However the main difference is that this paper also proposes an Eclipse Plugin implementation (Eclipse is a software Interactive Developpement Editor which supports several languages) which renders the work directly usable.

The paper then details the different operations and how they allow the co evolution of artefacts with changing constraints. These operations are described using the QVT-R standard and are classified in 3 categories : operations with no influence on existing constraints, operations with influence and operations requiring the deletion of existing constraints. Each operation is presented with an example as well as a discussion on the limitations of existing implementations.

The evoked limitations of this paper are that it does not tackle changes to meta-model itself (only to the constraints of the meta model). Another limitation is that some transformation change the meta model between the source and the target.

The thesis work focuses on adapting OCL constraints to the evolution of their meta-model. It proposes an approach involving a library of evolution operations along with the necessary OCL adaptations for each operation, described in QVT-R. This methodology allows for the

adaptation of OCL constraints in response to progressive changes in the meta-model, aiming to maintain their conformity and coherence throughout the evolution process.