

QVTR²: A Rational and Performance-Aware Extension to the Relations Language*

Mauro Luigi Drago, Carlo Ghezzi, and Raffaella Mirandola

Politecnico di Milano
DeepSE Group - Dipartimento di Elettronica e Informazione
Piazza Leonardo Da Vinci, 32 - 20133 Milano, Italy
{drago,ghezzi,mirandola}@elet.polimi.it
<http://deepse.dei.polimi.it>

Abstract. Model transformations glue together models in an MDE process and represent the rationale behind it. It is however likely that in a design/development process different solutions (or alternatives) for the same problem are available. When alternatives are encountered, engineers need to make a choice by relying on past experience and on quality metrics. Several languages exist to specify transformations, but all of them bury deep inside source code rational information about performance and alternatives, and none of them is capable of providing feedback to select between the different solutions. In this paper we present QVT-Relations Rational (QVTR²), an extension to the Relations language to help engineers in keeping information about the design rationale in declarative transformations, and to guide them in the alternatives selection process by using performance engineering techniques to evaluate candidate solutions. We demonstrate the effectiveness of our approach by using our QVTR² prototype engine on a modified version of the common UML-to-RDBMS example transformation, and by guiding the engineer in the selection of the most reasonable and performing solution.

* This research was partially funded by the European Commission, IDEAS-ERC Project 227977-SMScom and EU FP7 Q-ImPrESS project.