Extended Kaos to Support Variability for Goal Oriented Requirements Reuse

Farida Semmak¹, Christophe Gnaho¹,², Régine Laleau¹

¹ Laboratoire Algorithmique, Complexité et Logique, Université Paris Est Créteil, 61 avenue du général de Gaulle, 94010 Créteil cedex {semmak, laleau}@univ-paris12.fr

² Université Paris Descartes, 45 rue des Saints-pères, 75006 Paris christophe.gnaho@math-info.univ-paris5.fr

Abstract
This work is done as part of the Tacos project¹ whose aim is to define a component-based approach to specify trustworthy systems from the requirements phase to the specification phase, in the Cycab transportation domain. This paper mainly deals with the improvement of requirements elicitation in the context of Cycab domain. For that purpose, we propose to extend the Kaos goal oriented metamodel in order to enable explicit representation of variability at the early-phase of requirements engineering. This extension allows specifying a requirements family model which integrates both reusable assets and a variability model. The latter expresses the relevant domain facets along with different variants to realize them. The facets allow the structuration and organization of domain knowledge for reusability. The variability model then enables designers to explicitly state strategic decisions for requirements model development and then choose more accurately the relevant options of the system to-be. We also propose a software prototype that validates this work.

Keywords: Requirements engineering, Family model, Variability, Land transportation domain.