Validation of UML Artifacts in Model Driven Engineering using Description Logics based Ontology Reasoners

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 171 - Number 3

Year of Publication: 2017

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10.5120/ijca2017915003

Abstract

This article presents an automatic approach to validate UML artifacts created during Model Driven Engineering. This validation approach may be used at both model and metamodel layer of Model Driven Architecture. This approach first automatically translates the UML artifacts into logical equivalent OWL 2 axioms and then use OWL 2 reasoners to validate the translations. Furthermore, the viability of the approach is demonstrated by validating 303 models and metamodels available in an online repository and the results show that half of the models and metamodels found erroneous.

References


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Index Terms

Computer Science

Information Sciences

Keywords

Reasoning, Metamodels, Models, MDE, Ontology