

Representation and Conformance of UML models containing ordered properties using OWL2

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Abstract. In this article we show how to represent UML models depicting ordered properties using OWL2, and how to reason about model conformance using OWL2 reasoners. Our translation from UML models to OWL2 is driven by three important forces. First, we want to maintain the close-world assumption about UML models. Second, we want to preserve structural model information of ordered properties. Finally, model conformance is defined solely by OWL2 axioms so that reasoning can be done by using existing and future OWL2 reasoner developed by others. We have implemented the translation as an automatic model transformation tool. The model transformation tool takes as input a UML object model and its class model and produces an ontology that can be processed by an OWL2 reasoner to reveal if the object model elements conform to their class model or not.

Keywords: Model Validation, OWL2, Ordering, Reasoning.