



# Master's Thesis

at the Institute of Artificial Intelligence

## Unit Test Framework for Ontology Development

### Description

The ontology language OWL allows the modeling of an application domain in a formal language. For this purpose, classes and their relationships to other classes are modeled. Automatic reasoning tools, so-called reasoners, assist the modelers by automatically detecting conflicting statements. In addition, reasoners typically also compute relationships between classes in an ontology, which are then represented in a class hierarchy. Whether the calculated hierarchy meets the expectations of the developer must then be checked manually by the ontology engineer.

Generally, in the still very young field of ontology engineering, tools and methods that are widely used in more established areas are missing. In object-oriented software development, test procedures (unit, integration or regression tests) are typically used to record and verify expectations of the software to be developed. The aim of this work is, therefore, to develop automatic test procedures for ontologies and to implement them in a test framework. This can be realized, for example, as part of a plug-in for the ontology editor Protégé.

### Tasks

- Analysis of typical errors during ontology development
- Development of test methods and a corresponding test framework
- Implementation and evaluation of the test framework

### Requirements

Knowledge of ontologies and their developments and good implementations skills in Java are required.

Further thesis offers are available at the institute's website at <http://www.uni-ulm.de/in/ki.html>.

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