Background
Patterns are a well-accepted document format to describe good solutions to reoccurring problems in various fields. The method originally aimed at building architects but has since then been used in the IT domains of object-oriented programming, enterprise application integration, and cloud computing. Further, patterns have been used to capture good practices in business organizational efforts and teaching. While there is a common understanding in the pattern community regarding what a pattern is, the pattern document structure and especially the interrelations between patterns forming a pattern language differ greatly between domains. Further, interrelations between different pattern languages have currently not been captured thoroughly. In model driven development (MDD), similar properties of system entities and their relations are often captured in models and metamodels. In this scope, a metamodel describes elements that may form a system and a model describes the actual system that was created according to a metamodel. Common modeling languages are, for example, UML [1] and ER-Diagrams [2]. Similarly, a metamodel could be used to express a pattern format as well as the interrelations between patterns. This approach would enable pattern writers to describe the pattern format and relations used in a domain to coordinate their work on patterns and to capture patterns in a more formalized way.

Tasks
The main objective of this thesis is to review and test of modeling tools for IT systems for their applicability in different pattern domains:
- Review of modeling languages, such as UML and ER-Diagrams for patterns.
- Capturing of a universal pattern metamodel using identified modeling approaches.
- Creation of pattern metamodels for a specific set of pattern languages.

Requirements
We assume a basic understanding of modeling and metamodeling concepts. Existing knowledge regarding UML modeling tools, such as Enterprise Architect [3] is beneficial but not required.

Literature
   http://www.omg.org/spec/UML/2.4.1/.

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