Exercise Sheet 9
Submission deadline is Wednesday, June 27th, 2012
Please note, that the lecture on June 26th takes place in HS003 (instead of HS002)

Exercise 9.1: [Motivation for Ontologies, UbisWorld] (1 Point)

Apply the geospatial utility ontology http://ubisworld.ai.cs.uni-sb.de/citysearch

Search and browse this multilingual ontology to find out …
  a) … if your birthplace is covered in the ontology?
  b) … how many named cities with the label “PARIS” exist in this ontology?
  c) … how many locations with the name “BERLIN” are included?
  d) … what is the altitude of the city “ONTO-ONTO”?

Exercise 9.2: [RDF, Reification] (3 Points)

Familiarize with RDF and RDF Schema by reading the specification (http://www.w3c.org/RDF) of the W3C. Explain the two following RDF descriptions and draw their graphical models. What information is represented?

```xml
<?xml version="1.0"?>
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:s="http://description.org/schema/">
  <rdf:Description rdf:about="http://www.google.com">
    <s:Creator>Peter Norvig</s:Creator>
  </rdf:Description>
  <rdf:Description rdf:type="rdf:Statement">"
    <s:believedBy>Fred</s:believedBy>
    <rdf:predicate>s:Creator</rdf:predicate>
    <rdf:subject>http://www.google.com</rdf:subject>
    <rdf:object>Peter Norvig</rdf:object>
  </rdf:Description>
</rdf:RDF>
```
Exercise 9.3: [Terminological Logics, Roles] (3 Points)

a) Build a graphical representation (in analogy to the lecture) for different kinds of “buildings” containing primitive and disjunct classes, partitions and overlappings. Mark them according to the lecture.

b) Draw a graphical representation of the following roles: “Roads are financed through taxes that are paid by citizens, who use roads”.

Exercise 9.4: [OWL, Ontology Design, Domain Ontology] (3 Points + 5 Points extra)

Familiarize with OWL by reading for example the primer specification of the W3C [http://www.w3.org/TR/owl-guide/](http://www.w3.org/TR/owl-guide/).

The task of this exercise is to design your first “real” domain ontology. The domain is the following one: In contemporary psychology the “Five Factor Model” of personality describes five dimensions of personality that are used to describe human character. Read the page [http://5cm.de/zsgei](http://5cm.de/zsgei) to collect your domain knowledge.

Try to represent important parts of this knowledge with the OWL knowledge representation formalism that was addressed in the lecture: Use the OWL Protégé editor, see [http://protege.stanford.edu/](http://protege.stanford.edu/)

If you find it helpful, you could anchor, extend or reuse parts of the partial User Model Ontology GUMO: [http://www.u2m.org/2003/02/UserModelOntology.owl](http://www.u2m.org/2003/02/UserModelOntology.owl). But of course you can also start your ontology from scratch.

**Remark:** According to the size and the quality of your domain ontology, you can gain up to 5 extra points. You should submit your OWL ontology via email to your tutor and to heckmann@dfki.de