

Due on: **Wednesday 11.07.2007 by 13:00** (via email: tso@ismll.uni-hildesheim.de)

Exercise 12.1

- a) [2 points] Explain why DL is used in Semantic Web instead of FOL when FOL is more expressive?
- b) [5 points] Use DL syntax to describe the RDFS Ontology in Exercise 10.2. (use the “*company.n3*” available on the department website.)
- c) [2 points] What is ontology? Name two different representations for ontologies. How do they differ?

Exercise 12.2

- a) [8 points] Represent the following knowledge base about beers and breweries in OWL(Abstract syntax). Indicate clearly which are classes, roles and individuals, indicating any properties, e.g., disjointness, symmetry, functional, cardinality, etc.

Beers are brewed by breweries.
Breweries brew beers.
Beers can have at least 3 ingredients and at most 6.
Water is an ingredient.
A beer must have at least one ingredient which is water.
Zapfler is a beer.
Jeva is a beer.
Becks is a beer.
ABC is a brewer.
XYZ is a brewer.
ABC brews only one brand of beer.
ABC brews Zapfler.
ABC brews Becks.
ABC does not brew the same beers as XYZ.

Are there any inconsistencies in your ontology? If so, justify your answer.

- b) [3 points] Considering your ontology of the previous question, define a statement saying that all the beers brewed by “XYZ” belong to a category of beers known as “Pilsner”.