Netzbasierte Informationssysteme: Assignment 8

Group 07:

Students:

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Files of the Assignment

File	Description
pizza.txt	Answers to the pizza ontology exercise
pizza_icecream.owl	Ontology containing a valid definition of the ice cream class and several types of ice cream.
dinner.owl	Ontology containing the pizza and ice cream classes, plus the wine class imported from another ontology.
IceCreamOntologyViz	Graphic visualization of the ice cream ontology.
WineOntologyViz	Graphic visualization of the wine ontology.
documentation.pdf	Documentation on the contents of the zip file and answers to the knowledge question

Knowledge Question: Describe the principal differences between RDF, RDF Schema and OWL (purpose, semantics, features) and how they are connected to each other.

RDF (Resource Description Framework) is a structured web data model to describe resources on the web in a machine readable and understandable way (allows a transition between an abstract syntax map to formal semantics of RDF). RDF is based

on resources, properties and statements. Statements settle the properties of the resources and can be viewed as triples ((x,P,y) where x and y are resources and P is a property).
RDF can be represented in XML as RDF/XML and embedded in HTML as RDFa.

RDF Schema is a semantic <u>extension</u> of RDF, this means that a RDFS file has the same syntax and structure as a RDF file. Whereas RDF does not assume or define semantics of any particular application domain, this can be done in RDFS using specific features such as classes and properties, class hierarchies and inheritance or property hierarchies.

OWL (Ontology Web Language) allows more expressiveness than RDF and RDFS through the definition of object property relations, definitions of constraints and cardinalities, definition of equivalences between classes, properties of properties, etc. Although ideally OWL would extend the RDFS, in practice it goes beyond than that to provide more expressive power and efficient reasoning. It is ideal to model ontologies and there are already several versions of the language.

RDF, RDFS and OWL form part of the semantic web and, at least theoretically, OWL builds on top of RDFS which extends RDF. They all address the problem of providing the web resources with a semantic meaning in a way that machines can also read and understand it.