OWL: Protégé

Goals for today: Introduction to Protégé, ontology editing and OWL

Protégé: https://protege.stanford.edu/software.php#desktop-protege

As described in class, the pizza ontology is a well-known ontology in the semantic web community. It is developed for educational purposes by the University of Manchester, which is a leading university in the development of semantic technologies.

The pizza ontology and a tutorial that uses it is found at:

- http://protegewiki.stanford.edu/wiki/Protege4Pizzas10Minutes
- http://owl.cs.manchester.ac.uk/publications/talks-and-tutorials/protg-owl-tutorial/

The tutorial is primarily for learning how to use Protégé 4. Although the following exercises were adapted to Protégé 5.5, you may/should use the tutorial to get help on how to use Protégé in the coming exercises.

Exercise

Open the pizza ontology in Protégé. Take some time to browse the class hierarchy, the property hierarchies and the individuals and note how the ontology describes the domain of pizzas.

Exercise 1

Find Margherita and see how it is defined as a pizza with only cheese and tomato topping. Look at the definition of VegetarianPizza. Is a Margherita pizza a vegetarian pizza? Why / why not?

Exercise 2

Find hasIngredient. What is the domain and range of this property? What are the subproperties of hasIngredient? What is the inverse property of hasIngredient? What property characteristics does hasIngredient have? Explain it.

Exercise 3

Classify the ontology by choosing a reasoner (Pellet) and then "Start Reasoner" in the reasoner menu. In the "Inferred class hierarchy" two classes show up as subclasses of owl:Nothing. Answer the following questions:

• In general, what is the difference between the asserted class hierarchy and the inferred class hierarchy?

• What does it mean for a class to be a subclass of owl:Nothing?

• Explain why these two classes appear as subclasses of owl:Nothing.

• Find Margherita in the inferred class hierarchy and see which classes are inferred as superclasses of Margherita

References

- Semantic Web Programming: chapter 4, 5
- Foundations of Semantic Web Technologies: chapter 4, 5.
- Based on the exercises from IN3060 - Semantic Technologies, University of Oslo