Introduction to the Semantic Web

Work sheet 7

Deadline: Tuesday, December 11, 13:00

Question 1

Write a small ontology to describe the zoo domain (e.g., tigers, monkeys, penguins, visitors, tickets, snacks etc.). Introduce some classes, properties, and individuals. Use some of the RDFS and OWL vocabulary introduced in the lecture.

Question 2

Use OWL to model the following axioms.

1. *Pizzas always have at least two toppings.*

2. *Every Margherita pizza has a tomato topping.*

3. *No Margherita pizza has a meat topping.*

Question 3

Give an example of a property that is:

1. Transitive

2. Symmetric

3. Functional

4. Inverse Functional

Be creative – do not list those already presented in the lecture.

Question 4

In OWL Lite, the property `owl:disjointWith` is not allowed. Given two classes `A` and `B`, find a way to state in OWL Lite that these two classes are disjoint.

Question 5

Imagine a game with the name Stones. It is played by two players where players take turns – each turn is another step in the game.

An experienced player is a player that participated in at least two games of stones where in each game a special situation occurred. A special situation is when exactly one red stone and one blue stone is won as the result of a single move.

Use OWL restriction classes to model a class `ex:ExperiencedPlayer` that contains all experienced players. Via reasoning it should be possible that player that satisfy the conditions of being experienced players are automatically assigned to the class `ex:ExperiencedPlayer`. Use Turtle syntax to describe your solution.

Hint: You might need multiple restriction classes.