Introduction to the Semantic Web

Work sheet 8

Deadline: Tuesday, December 18, 13:00

Question 1

Model the Simpson family in Protégé. For this, create appropriate ObjectProperties (e.g. `hasParent`) and use them to describe the relations between the Simpsons.

Question 2

Define an ObjectProperty `hasGrandfather` as a Property Chain.

Use the Pellet reasoner to deduse that Abe is the grandfather of Bart.

Question 3

Encode the (slightly adapted) knowledge base from exercise sheet 5, using Protégé:

```
@prefix : <http://example.org/> .
@prefix unit: <http://example.org/unit/> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
unit:kilometre  rdf:type  rdfs:Datatype .
:Sun  :hasRadius  "1.392e6"^^unit:kilometre ;
      :hasSatellite  :Mercury,
                     :Venus,
                     :Earth,
                     :Mars .
:Mercury  :hasRadius  "2439.7"^^unit:kilometre .
:Venus    :hasRadius  "6051.9"^^unit:kilometre .
:Earth    :hasRadius  "6372.8"^^unit:kilometre ;
          :hasSatellite  :Moon .
```

```
:Mars     :hasRadius  "3402.5"^^unit:kilometre ;
          :hasSatellite :Phobos,
                        :Deimos .
:Moon rdfs:label "Mond"@de ,
                 "Moon"@en ;
      :hasRadius  "1737.1"^^unit:kilometre .
:Phobos rdfs:label "Phobos" .
:Daimos rdfs:label "Daimos" .
```

Safe your file in Turtle Syntax and open it with a text editor. What do you notice?

Question 4

Define a class `VegetarianPizza` as a subclass of `Pizza` with appropriate restrictions on the toppings.

Create a salami pizza and use Pellet reasoner to prove that it is not vegetarian.