

Foundations of Semantic Web Technologies

Tutorial 1

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Exercise 1.1. Explain the following elements of the RDF and RDFS vocabulary (presuming the usual namespace definitions).

- | | |
|----------------------------|-------------------------------|
| (a) <code>rdf:type</code> | (d) <code>rdf:resource</code> |
| (b) <code>rdf:about</code> | (e) <code>rdf:nil</code> |
| (c) <code>rdf:Seq</code> | (f) <code>rdfs:value</code> |

Exercise 1.2. Consider the following RDF document:

```
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
  xmlns:iswww="http://sw.edu/#"
>

<rdf:Description rdf:about="http://sw.edu/#germany">
  <rdf:type rdf:resource="http://sw.edu/#country" />
</rdf:Description>

<rdf:Description rdf:about="http://sw.edu/#capital_of">
  <rdf:type
    rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property" />
  <rdfs:domain rdf:resource="http://sw.edu/#city" />
  <rdfs:range rdf:resource="http://sw.edu/#country" />
</rdf:Description>

<rdf:Description rdf:about="http://sw.edu/#country">
  <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Class" />
  <rdfs:label xml:lang="de">Land</rdfs:label>
</rdf:Description>

<rdf:Description rdf:about="http://sw.edu/#berlin">
  <rdfs:label xml:lang="en">Berlin</rdfs:label>
  <rdf:type rdf:resource="http://sw.edu/#city" />
  <iswww:capital_of rdf:resource="http://sw.edu/#germany" />
</rdf:Description>
```

```

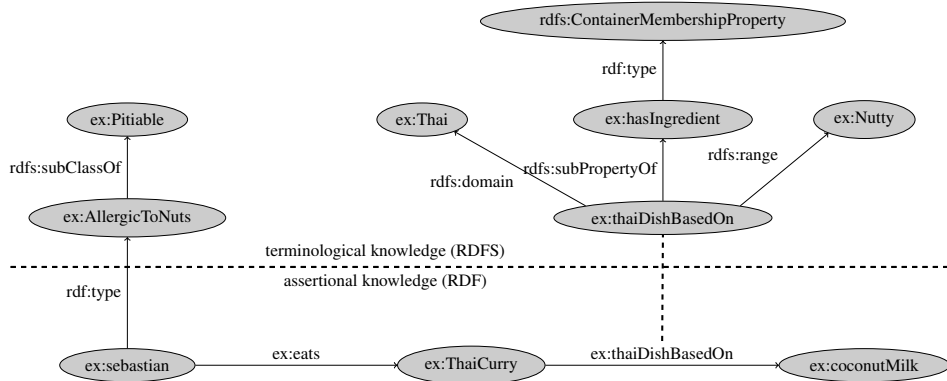
<rdf:Description rdf:about="http://sw.edu/#city">
  <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Class" />
  <rdfs:label xml:lang="de">Stadt</rdfs:label>
</rdf:Description>

</rdf:RDF>

```

- Describe in natural language the content of this document.
- Draw the graph representation of the above document.
- Translate the document into Turtle syntax.

Exercise 1.3. Represent the following sketch of an RDF graph in RDF/XML syntax:



Exercise 1.4. Explain the difference between open and closed lists and give for each an example in Turtle syntax. What is meant by “open” and “closed”?

Exercise 1.5. As you know, the unique name assumption does not hold in RDF(S), i.e. in a model, several URIs might be assigned to the same resource. Contemplate whether (and if so, how) it is possible to specify in RDFS that two given URIs refer to the same resource.