

# RDF(S)

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## 1 Background

This seminar will be devoted to the RDF(S) model. Please refer to lecture 2 for details on RDF(S).

To ensure data you put into your repository will be dereferenceable, everyone will use IRIs of the form

`http://onto.fel.cvut.cz/ontologies/REPOSITORYNAME/WHATEVERYOUWANT`, where

**REPOSITORYNAME** is the name of the repository in GraphDB.

**WHATEVERYOUWANT** is a local identifier, according to your local identification scheme.

For example, in a repository named `testrepo`, we would like to create a new reference to a person John Doe. We decide to represent the IRI as `http://onto.fel.cvut.cz/ontologies/testrepo/person/doe-john` and the class `person` as `http://onto.fel.cvut.cz/ontologies/testrepo/person`. Note, that this is not the only option and it is a matter of design decision, how a IRI is constructed, e.g.

**generic identification scheme** creates unified IRIs for all individuals, another for all IRIs, e.g. `http://onto.fel.cvut.cz/ontologies/testrepo/object-1`,

**class-prefixed identification scheme** creates unified IRIs for all individuals of a particular class, e.g. `http://onto.fel.cvut.cz/ontologies/testrepo/person-1`,

**class-related identification scheme** creates unified IRIs for all individuals of a particular class, e.g. `http://onto.fel.cvut.cz/ontologies/testrepo/person/1`.

## 2 Exercises

**Ex. 1** — Open a Turtle editor at `http://onto.fel.cvut.cz/turtle-editor` and explore the default turtle document. Take a look at its graphical view as well. Delete german labels from all resources, producing a valid turtle document.

**Ex. 2** — Consider the RDF graph  $G$  in Figure 1.

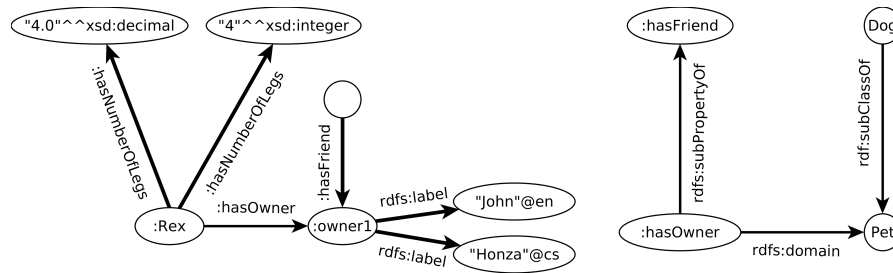


Figure 1: An example RDF graph

1. decide, whether  $G$  is ground,
2. decide, whether  $G$  is lean, if no, simplify it, so that it becomes lean.
3. rewrite the graph into the Turtle syntax
4. which triples are entailed by  $G$  under simple entailment,
5. which triples are entailed by  $G$  under RDF- $\{xsd:decimal\}$  entailment,
6. which triples are entailed by  $G$  under RDFS- $\{xsd:decimal, xsd:integer\}$  entailment
7. write a statement describing that the information about number of legs of Rex was provided by a person with IRI `:Tom`.

**Ex. 3** — Create an RDF document in Turtle syntax, representing the following knowledge. Define your own IRIs for named resources:

- John is a husband of Mary.
- Mary and George have the same mother (who is unknown).
- George is 180 cm tall.

**Ex. 4** — Create a schema document to the previous example, formalizing the knowledge about people – namely classes `Person`, `Man`, `Woman`, and properties `date – of – birth`, `has – husband`, `is – relative – of`, `has – mother`, `has – father`. Try to express as much knowledge about these classes/properties, as possible, using RDF Schema 1.1 constructs.

**Ex. 5** — Using a text editor, create an RDF document (in Turtle) with your public RDF profile (i.e basic data, your interests, etc.). Use FOAF vocabulary (<http://xmlns.com/foaf/spec/>), where possible.

### 3 Relevant References

- RDF Validator – <http://www.w3.org/RDF/Validator/>
- Any23 (transformation between RDF formats) – <http://any23.org/>