EXERCISES WEEK 13 INF3580 SPRING 2011

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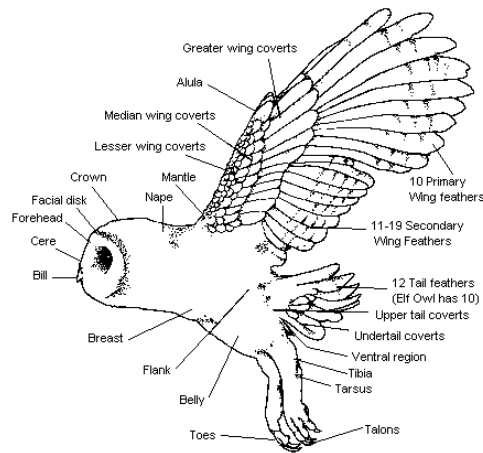
03 May 2011

Figure 1: A bird.

13   More SPARQL

The first exercise is to set up a real endpoint, and for this, we will use Joseki, which is a SPARQL endpoint that uses Jena and ARQ and is developed by the same people. We will set it up using Eclipse.

13.1   Run Joseki with Eclipse

- Download from `http://sourceforge.net/projects/joseki/files/OldFiles/`
- Unpack the file, e.g. unzip joseki-3.4.3.zip
- This will give you a directory named Joseki-3.4.3/
- Now start Eclipse.
- Start New . . . -> Project. . .
- Then select Java Project and click "Next".
- Give it a Project name and select "Create project from existing source" and the directory should be where you unpacked Joseki. Hit "Finish".
- You will now have a project for Joseki.

- Now find the joseki JAR file, and inspect it. In there, you'll find and entry "joseki", which has a "rdfserver.class". Highlight it and hit the "Run" button.

- When first running it, doubleclick "Java Application", which will suggest rdfserver as the application to run. Just hit run and it starts.

- Now go to `http://localhost:2020/sparql.html` and you should have a running SPARQL Endpoint!

13.2 RDF Dataset

Now, we will study the query from slide 18 from the lecture.

13.2.1 Exercise

Find necessary prefixes.

You need to begin your query with the namespace prefixes, which have been omitted from the slides for brevity. They look like this:

```
PREFIX gd: <http://vocab.lenka.no/geo-deling#>
```

You can use the service at `http://prefix.cc/` . What other prefix declarations do you need to run the query?

13.2.2 Exercise

Paste the query into the text field and run it. What's the result:

13.2.3 Exercise

Why do you think you get three solutions to the query?

13.2.4 Exercise

Why is the latitude and longitude only given for the two data.lenka.no sources?

13.2.5 Exercise

Why is the population only given in the Geonames solution?

13.3 SPARQL Update

Now, we will turn to SPARQL Update. To do this we need to configure Joseki to support SPARQL Update.

Stop the Joseki server by stopping the script with Eclipse.

In the top directory of the Joseki package, find `joseki-config.ttl`. This is the main configuration file for the server. It is written in Turtle, and contains some possible configs. Find the

```
<#serviceUpdate>
```

part of the file, you'll see that it is commented out. You need to uncomment

```
<#serviceUpdate>
```

and

```
<#serviceRead>
```

which is 20-something lines. You should then replace the triple

```
<#serviceRead> joseki:serviceRef    "sparql/read" ;
```

with

```
<#serviceRead> joseki:serviceRef    "sparql" ;
```

Then delete the

```
<#service1>
```

config from the file. Finally, save the config and restart the server.

To execute update queries you will use `http://localhost:2020/update.html` and to execute read queries use `http://localhost:2020/sparql.html` as before.

13.3.1 Exercise

Insert the data about Homer, Marge and Lisa Simpson, available at `http://sws.ifi.uio.no/inf3580/v11/data/simpsons.ttl` into the triple store. The endpoint may not give you any meaningful feedback the operation succeeded, so you may use the read endpoint with `SELECT * WHERE { ?s ?p ?o }` to confirm that it worked.

13.3.2 Exercise

Homer Simpson is actually 37 years old now. Update!

13.3.3 Exercise

Delete the fact that someone is 34 years old.

13.3.4 Exercise

Delete persons aged less than 10 years.

13.3.5 Exercise

Delete all the Simpsons triples.

13.3.6 Exercise

Insert the following triples (look up the prefix):

```
<http://example.org/dahut> rdfs:label "Dahut"@en_US, "Le Dahu"@fr .
```

13.3.7 Exercise

Find the English-language labels irrespective of locale.

13.4 Property paths

In this exercise we will use the family vocabulary we have used in previous exercises. Write SPARQL queries which use property path primarily to solve the following questions. Note that some of these queries will not return any results if executed on the simpsons data at `http://sws.ifi.uio.no/inf3580/v11/data/simpsons.ttl` .

13.4.1 Exercise

Find all pairs (x,y) where y is the grandmother of x.

13.4.2 Exercise

Find all pairs (x,y) where y is the grandparent of x.

13.4.3 Exercise

Find all pairs (x,y) where y is an ancestor of x.

13.4.4 Exercise

Find all pairs (x,y) where y is the uncle of x.

13.4.5 Exercise

Find everyone who is married. List them in one column, and remember, do not use `UNION` but paths solve this.

13.4.6 Exercise

Find all pairs (x,y) where y is the second cousin (norsk: tremenning) of x.

13.5 Aggregate functions

Using the same vocabulary as in the previous exercise, solve these exercises by using aggregate functions.

13.5.1 Exercise

List everyone and the number of siblings they have.

13.5.2 Exercise

Find the oldest and youngest person.