QUESTIONS FROM THE COURSES

Day 02: questions from the course on RDF.

Q2.0 What is the mathematical structure built by the RDF triples?
(give the type of structure and its definition/explanation)

The relation between two links. (vertex,edge,vertex)

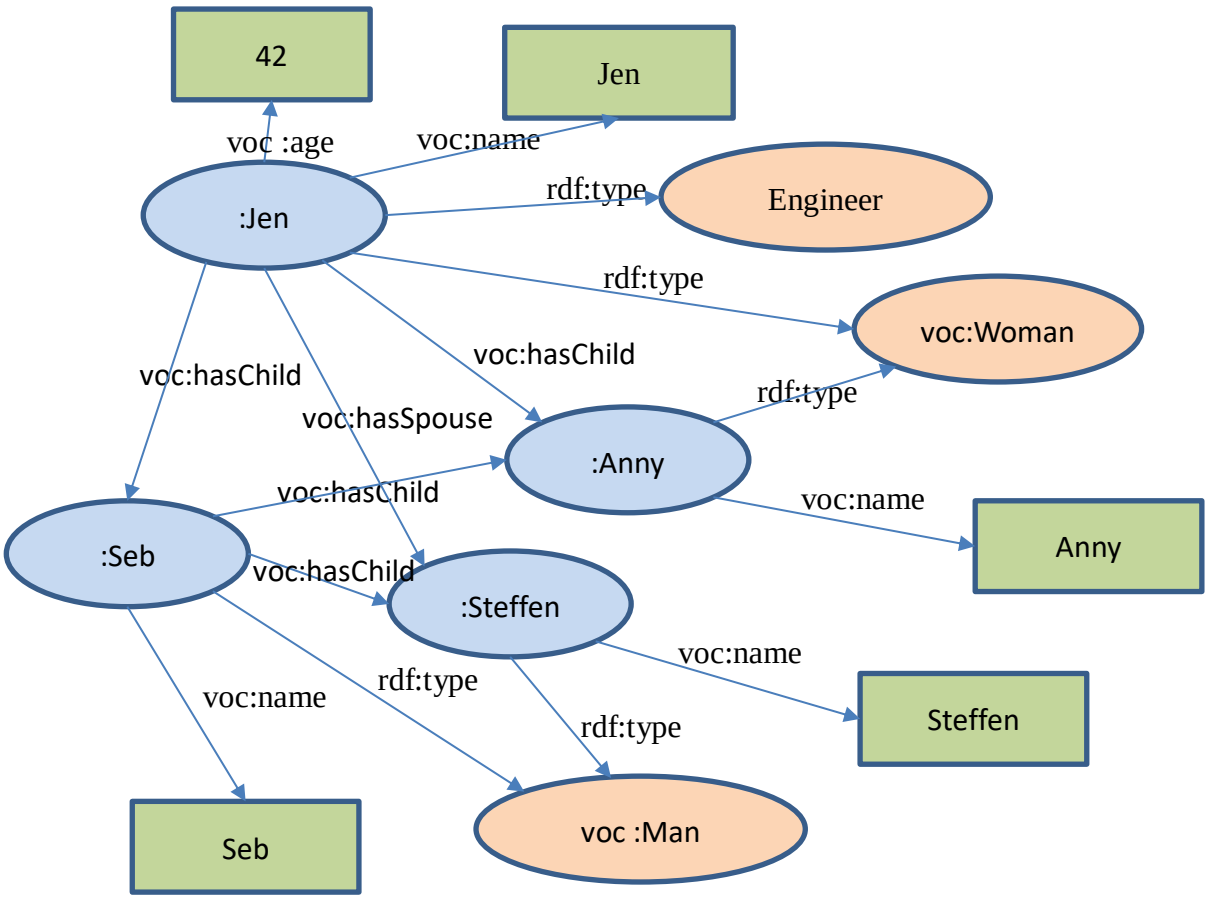
Q2.1 Fill the blanks

“Jen is an engineer woman, 42-year old, married to Seb who is a man with whom she had two children: Anny who is a woman and Steffen who is a man". For each person we also explicitly specify the name.

To fill the blanks we use the values: `:Seb, :Steffen, voc:name, voc:hasChild, voc:age, voc:hasSpouse, rdf:type, voc:Engineer, voc:Man, "Jen", "Seb", "Anny", "Steffen"`

For each person we also explicitly specify the name

<ANSWER HERE BY REPLACING ALL THE QUESTION MARKS/>:



Q2.2 Fill the blanks (RDF/XML)

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE rdf:RDF [  <!ENTITY vocab "http://www.unice.fr/voc">    <!ENTITY xsd
"http://www.w3.org/2001/XMLSchema#"> ]>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:voc="&vocab;#" xml:base="http://www.unice.fr/data">
 <voc:Woman rdf:about="#Jen">
    <voc:name>Jen</voc:name>
    <voc:age rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">42
</voc:age>
    <voc:hasSpouse rdf:resource="#Seb"></voc:hasSpouse>
    <voc:hasChild rdf:resource="#Steffen"></voc:hasChild>
```

```
    <voc:hasChild>
      <rdf:Description rdf:about="#Anny">
        <voc:name>Anny</voc:name>
        <rdf:type rdf:resource="&vocab;#Woman"></rdf:type>
      </rdf:Description>
    </voc:hasChild>
    <rdf:type rdf:resource="&vocab;#Engineer"></rdf:type>
 </voc:Woman>
 <voc:Man rdf:about="#Seb">
    <voc:name>Seb</voc:name>
    <voc:hasChild rdf:resource="#Steffen"></voc:hasChild>
    <voc:hasChild rdf:resource="#Anny"></voc:hasChild>
  </voc:Man >
  <voc:Man rdf:about="#Steffen">
    <voc:name>Steffen</voc:name>
  </voc:Man>
</rdf:RDF>
```

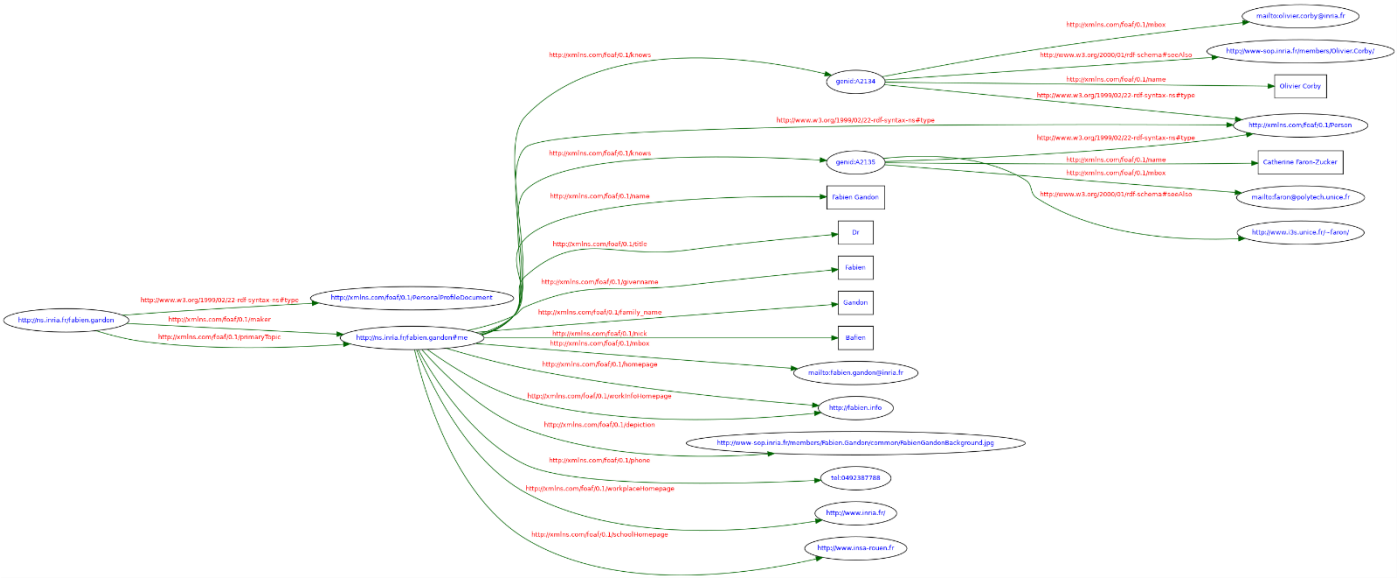
Q2.3 Fill the blanks (N3/Turtle)

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix voc: <http://www.unice.fr/voc#> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
<http://www.unice.fr/data#Jen> a voc:Engineer , voc:Woman ;
    voc:age "42"^^xsd:string ;
    voc:hasChild <http://www.unice.fr/data#Anny>, <
http://www.unice.fr/data#Steffen>;
    voc:hasSpouse <http://www.unice.fr/data#Seb> ;
    voc:name "Jen" .
<http://www.unice.fr/data#Seb> a voc:Man ;
    voc:hasChild <http://www.unice.fr/data#Anny>,
        <http://www.unice.fr/data#Steffen> ;
    voc:name "Seb" .
<http://www.unice.fr/data#Anny> a voc:Woman ;
    voc:name "Anny" .
< http://www.unice.fr/data#Steffen > a voc:Man ;
    voc:name “Steffen” .
```

Q2.4 Visit me please

Get the RDF data from: http://ns.inria.fr/fabien.gandon#me

1. Get the RDF data from: http://ns.inria.fr/fabien.gandon#me
2. What is the syntax used?
3. Validate it and see the graph:
   http://www.w3.org/RDF/Validator/
4. Translate into Turtle/N3:
   http://rdf-translator.appspot.com/
   http://www.easyrdf.org/converter
5. Visualize it also with:
   http://cltl.nl/visualrdf/
   http://www.easyrdf.org/converter (PNG, SVG)
6. Adapt to your data and do it again




```
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .

<http://ns.inria.fr/fabien.gandon> a foaf:PersonalProfileDocument ;
      foaf:maker <http://ns.inria.fr/fabien.gandon#me> ;
      foaf:primaryTopic <http://ns.inria.fr/fabien.gandon#me> .

<http://ns.inria.fr/fabien.gandon#me> a foaf:Person ;
      foaf:depiction <http://www-sop.inria.fr/members/Fabien.Gandon/common/FabienGandonBackground.jpg> ;
      foaf:family_name "Gandon" ;
```

```
    foaf:givenname "Fabien" ;
    foaf:homepage <http://fabien.info> ;
    foaf:knows [ a foaf:Person ;
                rdfs:seeAlso <http://www.i3s.unice.fr/~faron/> ;
                foaf:mbox <mailto:faron@polytech.unice.fr> ;
                foaf:name "Catherine Faron-Zucker" ],
            [ a foaf:Person ;
                rdfs:seeAlso <http://www-sop.inria.fr/members/Olivier.Corby/> ;
                foaf:mbox <mailto:olivier.corby@inria.fr> ;
                foaf:name "Olivier Corby" ] ;
    foaf:mbox <mailto:fabien.gandon@inria.fr> ;
    foaf:name "Fabien Gandon" ;
    foaf:nick "Bafien" ;
    foaf:phone <http://ns.inria.fr/tel:0492387788> ;
    foaf:schoolHomepage <http://www.insa-rouen.fr> ;
    foaf:title "Dr" ;
    foaf:workInfoHomepage <http://fabien.info> ;
    foaf:workplaceHomepage <http://www.inria.fr/> .
```

```
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .

<http://ns.inria.fr/fabien.gandon>
   a foaf:PersonalProfileDocument ;
   foaf:maker <http://ns.inria.fr/fabien.gandon#me> ;
   foaf:primaryTopic <http://ns.inria.fr/fabien.gandon#me> .

<http://ns.inria.fr/fabien.gandon#me>
   a foaf:Person ;
   foaf:name "Fabien Gandon" ;
   foaf:title "Dr" ;
   foaf:givenname "Fabien" ;
   foaf:family_name "Gandon" ;
   foaf:nick "Bafien" ;
   foaf:mbox <mailto:fabien.gandon@inria.fr> ;
   foaf:homepage <http://fabien.info> ;
   foaf:depiction <http://www-sop.inria.fr/members/Fabien.Gandon/common/FabienGandonBackground.jpg> ;
   foaf:phone <tel:0492387788> ;
   foaf:workplaceHomepage <http://www.inria.fr/> ;
   foaf:workInfoHomepage <http://fabien.info> ;
   foaf:schoolHomepage <http://www.insa-rouen.fr> ;
   foaf:knows [
```

```
    a foaf:Person ;
    foaf:name "Olivier Corby" ;
    foaf:mbox <mailto:olivier.corby@inria.fr> ;
    rdfs:seeAlso <http://www-sop.inria.fr/members/Olivier.Corby/>
  ], [
    a foaf:Person ;
    foaf:name "Catherine Faron-Zucker" ;
    foaf:mbox <mailto:faron@polytech.unice.fr> ;
    rdfs:seeAlso <http://www.i3s.unice.fr/~faron/>
  ] .
```

Q2.5 what is the meaning of this RDF? What is this description saying?

```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:exs="http://example.org/schema#">
 <rdf:Description rdf:about="http://example.org/doc.html">
  <rdf:type rdf:resource="http://example.org/schema#Report"/>
  <exs:theme rdf:resource="http://example.org#Music"/>
  <exs:theme rdf:resource="http://example.org#Danse"/>
  <exs:nbPages
rdf:datatype="http://www.w3.org/2001/XMLSchema#int">73</exs:nbPages>
 </rdf:Description>
</rdf:RDF>
```

Write in rdf/xml

Open a description in url, "http://example.org/doc.html".

It is about music, danse and

Q2.6 Visit to Victor Hugo

1. See HTML data from:
   http://id.loc.gov/authorities/names/n79091479.html
2. Get RDF data from:
   http://id.loc.gov/authorities/names/n79091479.rdf
3. What is the syntax?
4. Translate into Turtle/N3:
   http://rdf-translator.appspot.com/
5. Any remark about the values of the properties of Victor Hugo?

RDF/XML

Q2.7 What is the syntax of the following RDF statement? What does it mean?

```
@prefix dcterms: <http://purl.org/dc/terms/>.
GRAPH  <http://inria.fr/topics/algebra>
{
  <http://inria.fr/rr/doc.html>
    dcterms:subject
      <http://data.bnf.fr/ark:/12148/cb121105993> .
}
```

TriG, talking about graphs and is turtle alike

Q2.8 Visit Leukocyte surface antigen CD53

1. See HTML data from:
   http://www.uniprot.org/uniprot/Q61451
2. Get RDF data from:
   http://www.uniprot.org/uniprot/Q61451.rdf
3. What is the syntax?
4. Translate into Turtle/N3:
   http://rdf-translator.appspot.com/
5. Any remark about the structure of the data?

rdf:Statement

PRACTICAL SESSIONS

Day 02: Answers to the practical session on RDF.

Software requirements

- A real text editor (e.g. Notepad++, Gedit, Sublime Text, Emacs, etc.)
- The RDF XML online validation service by W3C: https://www.w3.org/RDF/Validator/
- The RDF online translator: http://rdf-translator.appspot.com/
- The SPARQL Corese engine: https://project.inria.fr/corese/

Create RDF

Read carefully the following statements:

> "Jen is a 42-year old woman and she has a shoe size of 36 and trouser size of 38. She is, married to Seb who is a man with whom she had two children: Anny who is a woman and Steffen who is a man. Jen is also an engineer and Catherine and Fabien are her colleagues. Jen's father is a man named Thomas"

1. Use your text editor and write the above statements in RDF in N3 syntax inventing your own vocabulary. Save you file as "Jen.ttl"
2. Use your favorite text or XML editor and write the above statements in RDF in XML syntax reusing the same vocabulary "Jen.rdf"
3. Use the RDF XML online validation service to validate your XML and see the triples https://www.w3.org/RDF/Validator/
4. In the validator use the option to visualize the graph
5. Use the RDF online translator to validate your N3 and translate it into RDF/XML: http://rdf-translator.appspot.com/
6. Compare your RDF/XML with the result of the N3 translation
7. Translate in other formats to see the results.

Code of validated RDF in N3 syntax:

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix voc: <http://www.unice.fr/voc#> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .

<http://www.unice.fr/data#Jen> a voc:Engineer , voc:Woman ;
```

```
        voc:age "42"^^xsd:string ;
        voc:shoesize "36"^^xsd:string ;
        voc:trousersize "38"^^xsd:string ;
        voc:hasFather <http://www.unice.fr/data#Thomas> ;
        voc:hasSpouse <http://www.unice.fr/data#Seb> ;
        voc:hasChild <http://www.unice.fr/data#Anny>, <http://www.unice.fr/data#Steffen> ;
        voc:hasColleague <http://www.unice.fr/data#Catherine>, <http://www.unice.fr/data#Fabien> ;
        voc:name "Jen" .
<http://www.unice.fr/data#Thomas> a voc:Man ;
        voc:name "Thomas" .
<http://www.unice.fr/data#Seb> a voc:Man ;
        voc:hasChild <http://www.unice.fr/data#Anny>, <http://www.unice.fr/data#Steffen> ;
        voc:name "Seb" .
<http://www.unice.fr/data#Anny> a voc:Woman ;
        voc:name "Anny" .
<http://www.unice.fr/data#Steffen> a voc:Man ;
        voc:name "Steffen" .
<http://www.unice.fr/data#Catherine> ;
        voc:name "Catherine" .
<http://www.unice.fr/data#Fabien> ;
        voc:name "Fabien" .
```

Code of validated RDF in XML syntax:

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF
     xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
     xmlns:voc="http://www.unice.fr/voc#"
>
   <rdf:Description rdf:about="http://www.unice.fr/data#Seb">
        <rdf:type rdf:resource="http://www.unice.fr/voc#Man"/>
        <voc:hasChild rdf:resource="http://www.unice.fr/data#Steffen"/>
        <voc:hasChild rdf:resource="http://www.unice.fr/data#Anny"/>
        <voc:name>Seb</voc:name>
   </rdf:Description>
   <rdf:Description rdf:about="http://www.unice.fr/data#Jen">
        <voc:hasChild rdf:resource="http://www.unice.fr/data#Anny"/>
        <voc:age rdf:datatype="http://www.w3.org/2001/XMLSchema#string">42</voc:age>
        <voc:hasColleague rdf:resource="http://www.unice.fr/data#Catherine"/>
        <voc:shoesize rdf:datatype="http://www.w3.org/2001/XMLSchema#string">36</voc:shoesize>
        <voc:hasSpouse rdf:resource="http://www.unice.fr/data#Seb"/>
        <voc:hasChild rdf:resource="http://www.unice.fr/data#Steffen"/>
```

```
    <voc:hasColleague rdf:resource="http://www.unice.fr/data#Fabien"/>
    <voc:hasFather rdf:resource="http://www.unice.fr/data#Thomas"/>
    <voc:trousersize rdf:datatype="http://www.w3.org/2001/XMLSchema#string">38</voc:trousersize>
    <rdf:type rdf:resource="http://www.unice.fr/voc#Engineer"/>
    <rdf:type rdf:resource="http://www.unice.fr/voc#Woman"/>
    <voc:name>Jen</voc:name>
  </rdf:Description>
  <rdf:Description rdf:about="http://www.unice.fr/data#Steffen">
    <voc:name>Steffen</voc:name>
    <rdf:type rdf:resource="http://www.unice.fr/voc#Man"/>
  </rdf:Description>
  <rdf:Description rdf:about="http://www.unice.fr/data#Thomas">
    <rdf:type rdf:resource="http://www.unice.fr/voc#Man"/>
    <voc:name>Thomas</voc:name>
  </rdf:Description>
  <rdf:Description rdf:about="http://www.unice.fr/data#Fabien">
    <voc:name>Fabien</voc:name>
  </rdf:Description>
  <rdf:Description rdf:about="http://www.unice.fr/data#Catherine">
    <voc:name>Catherine</voc:name>
  </rdf:Description>
  <rdf:Description rdf:about="http://www.unice.fr/data#Anny">
    <rdf:type rdf:resource="http://www.unice.fr/voc#Woman"/>
    <voc:name>Anny</voc:name>
  </rdf:Description>
</rdf:RDF>
```

Query your data

Download the Corese.jar library and start it as a standalone application: On Window double-click the file ".jar". If it does not work or on other platforms, run the command " java -jar -Dfile.encoding=UTF8 " followed by the name of the ".jar" archive. Notice that you need java on your machine and proper path configuration.

This interface provides two tabs: (1) one to load input files and see traces of execution, and (2) the default tab to start loading or writing queries and see their result. Load the annotations contained in the file "Jen.rdf" you created and validated before. The interface contains a default SPARQL query:

```
Select ?x ?t where { ?x rdf:type ?t}
```

The SPARQL language will be presented in the next course. Just know that this query can find all of the resources referred to in the data you loaded and their types. Launch the query and check the results.

num	?x	?t
1	rdf:type	rdf:Property
2	<http://www.unice.fr/data#Seb>	<http://www.unice.fr/voc#Man>
3	<http://www.unice.fr/voc#hasChild>	rdf:Property
4	<http://www.unice.fr/data#Steffen>	<http://www.unice.fr/voc#Man>
5	<http://www.unice.fr/data#Anny>	<http://www.unice.fr/voc#Woman>
6	<http://www.unice.fr/voc#name>	rdf:Property
7	<http://www.unice.fr/data#Jen>	<http://www.unice.fr/voc#Engineer>
8	<http://www.unice.fr/data#Jen>	<http://www.unice.fr/voc#Woman>
9	<http://www.unice.fr/voc#age>	rdf:Property
10	<http://www.unice.fr/voc#hasColleague>	rdf:Property
11	<http://www.unice.fr/voc#shoesize>	rdf:Property
12	<http://www.unice.fr/voc#hasSpouse>	rdf:Property
13	<http://www.unice.fr/voc#hasFather>	rdf:Property
14	<http://www.unice.fr/data#Thomas>	<http://www.unice.fr/voc#Man>
15	<http://www.unice.fr/voc#trousersize>	rdf:Property

Understand existing data

1, Get the RDF/XML about http://ns.inria.fr/fabien.gandon#me and translate the RDF/XML into Turtle/N3

Code of validated RDF in N3 syntax:

```
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .

<http://ns.inria.fr/fabien.gandon> a foaf:PersonalProfileDocument ;
    foaf:maker <http://ns.inria.fr/fabien.gandon#me> ;
    foaf:primaryTopic <http://ns.inria.fr/fabien.gandon#me> .

<http://ns.inria.fr/fabien.gandon#me> a foaf:Person ;
    foaf:depiction <http://www-sop.inria.fr/members/Fabien.Gandon/common/FabienGandonBackground.jpg> ;
    foaf:family_name "Gandon" ;
    foaf:givenname "Fabien" ;
    foaf:homepage <http://fabien.info> ;
```

```
    foaf:knows [ a foaf:Person ;
                rdfs:seeAlso <http://www.i3s.unice.fr/~faron/> ;
                foaf:mbox <mailto:faron@polytech.unice.fr> ;
                foaf:name "Catherine Faron-Zucker" ],
            [ a foaf:Person ;
                rdfs:seeAlso <http://www-sop.inria.fr/members/Olivier.Corby/> ;
                foaf:mbox <mailto:olivier.corby@inria.fr> ;
                foaf:name "Olivier Corby" ] ;
    foaf:mbox <mailto:fabien.gandon@inria.fr> ;
    foaf:name "Fabien Gandon" ;
    foaf:nick "Bafien" ;
    foaf:phone <http://ns.inria.fr/tel:0492387788> ;
    foaf:schoolHomepage <http://www.insa-rouen.fr> ;
    foaf:title "Dr" ;
    foaf:workInfoHomepage <http://fabien.info> ;
    foaf:workplaceHomepage <http://www.inria.fr/> .
```

Can you guess the link between http://ns.inria.fr/fabien.gandon and http://ns.inria.fr/fabien.gandon#me

Creation and creator

2, Get the Turtle data of Paris on DBpedia.org then in the file find the triple that declares it as a capital in Europe.

The triple is:

Subject	Predicate	Object
http://dbpedia.org/resource/Paris	http://www.w3.org/1999/02/22-rdf-syntax-ns#type	http://dbpedia.org/class/yago/WikicatCapitalsInEurope
http://dbpedia.org/resource/Paris	http://purl.org/dc/terms/subject	http://dbpedia.org/resource/Category:Capitals_in_Europe

3, If you don't have the human dataset file yet, at the following address you will find an RDF file containing several annotations:

http://wimmics.inria.fr/doc/tutorial/human_2013.rdf

Download the file and use the RDF XML online validation service to validate the XML and see the triples and the graph.

1. What is the namespace used for instances / resources created in this file?

http://www.inria.fr/2007/09/11/humans.rdfs

2. By which mechanism is the association between instances and namespace done i.e. how was the instance namespace specified?

xml:base ="&humans;-instances" >

3. What is the namespace of the vocabulary used to describe the resources in the dataset and how is it associated with the tags?

rdf:ID, e.g. rdf:ID="Harry"

4. Explain the code `xmlns="&humans;#"`

"http://www.inria.fr/2007/09/11/humans.rdfs" + "#"

5. Find *everything* about information on John in this file.
   all the information:

Shoesize "14", Trouserssize "44", Age "37", hasParent #Sophie, Type # Person, Name "John", Shirtsize "12"

#Mark hasFather, #Jennifer hasSpouse, #Alice hasFriend, #Harry hasChild

```
<rdf:Description rdf:about="http://www.inria.fr/2007/09/11/humans.rdfs-instances#Harry">
      <hasChild rdf:resource="http://www.inria.fr/2007/09/11/humans.rdfs-instances#John"/>

<rdf:Description rdf:about="http://www.inria.fr/2007/09/11/humans.rdfs-instances#John">
      <shoesize rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">14</shoesize>
      <rdf:type rdf:resource="http://www.inria.fr/2007/09/11/humans.rdfs#Person"/>
      <name>John</name>
      <age rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">37</age>
      <shirtsize rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">12</shirtsize>
      <hasParent rdf:resource="http://www.inria.fr/2007/09/11/humans.rdfs-instances#Sophie"/>
      <trouserssize rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">44</trouserssize>
   </rdf:Description>

  <rdf:Description rdf:about="http://www.inria.fr/2007/09/11/humans.rdfs-instances#Alice">
     <hasFriend rdf:resource="http://www.inria.fr/2007/09/11/humans.rdfs-instances#John"/>
```

```
<rdf:Description rdf:about="http://www.inria.fr/2007/09/11/humans.rdfs-instances#Jennifer">
      <hasSpouse rdf:resource="http://www.inria.fr/2007/09/11/humans.rdfs-instances#John"/>

<rdf:Description rdf:about="http://www.inria.fr/2007/09/11/humans.rdfs-instances#Mark">
    <hasFather rdf:resource="http://www.inria.fr/2007/09/11/humans.rdfs-instances#John"/>
```

6. Translate the file in turtle and save it as human_2013.ttl

   10 first lines:

```
@prefix : <http://www.inria.fr/2007/09/11/humans.rdfs#> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix xml: <http://www.w3.org/XML/1998/namespace> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .

<http://www.inria.fr/2007/09/11/humans.rdfs-instances#Eve> a :Lecturer,
:Person ;
      :hasFriend <http://www.inria.fr/2007/09/11/humans.rdfs-instances#Alice> ;
      :hasSpouse <http://www.inria.fr/2007/09/11/humans.rdfs-instances#David> ;
```

7. In the turtle version find *everything* about Laura.

   all the information:

```
<http://www.inria.fr/2007/09/11/humans.rdfs-instances#William> a :Person ;
      :hasSpouse <http://www.inria.fr/2007/09/11/humans.rdfs-instances#Laura> ;

<http://www.inria.fr/2007/09/11/humans.rdfs-instances#Catherine> a :Woman ;
      :hasMother <http://www.inria.fr/2007/09/11/humans.rdfs-instances#Laura> .

<http://www.inria.fr/2007/09/11/humans.rdfs-instances#Laura> a :Lecturer,
            :Person,
            :Researcher ;
      :hasFriend <http://www.inria.fr/2007/09/11/humans.rdfs-instances#Alice> ;
      :name "Laura" .
```

Day 02: Answers to the practical session on SHACL.

Software requirements

- A real text editor (e.g. Notepad++, Gedit, Sublime Text, Emacs, etc.)
- The RDF XML online validation service by W3C: https://www.w3.org/RDF/Validator/
- The SPARQL Corese engine: https://project.inria.fr/corese/

- The human dataset file and the human shape file from the archive

What is that shape

With you text editor open the file human_2013_shape.ttl and look at the content

What is the qualified name of the main shape being defined:

:PersonShape a sh:NodeShape ;

What is the type of that shape:

Person (sh:targetClass :Person)

What is the target of that shape:

sh:targetClass :Person

Explain in English the constraint it places on the focus node:

A person should have at least one name. If not, showing "a Person must have a name" in English.

```
(sh:property [
        sh:message "a Person must have a name"@en;
        sh:severity sh:Violation;
        sh:path :name ;
        sh:minCount 1
    ])
```

What is the severity level of that constraint?

Minimal 1

In Corese load the human dataset (menu “load RDF”) and this shape (menu “load SHACL”) and run the validation in a query tab (button “SHACL”). Explain in English shat the report is saying:

There is an error in <http://www.inria.fr/2007/09/11/humans.rdfs-instances#Karl> which does not have a name.

```
prefix tt: <http://ns.inria.fr/sparql-template/turtlehtml#>
prefix rs: <http://www.w3.org/2001/sw/DataAccess/tests/result-set#>
prefix xsh: <http://www.w3.org/ns/shacl#>
prefix ft: <http://ns.inria.fr/sparql-template/format/ds/>
prefix sh: <http://www.w3.org/ns/shacl#>
prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
prefix doc: <http://w3c.github.io/data-shapes/shacl/#>

[a sh:ValidationReport ;
   sh:conforms false ;
   sh:result <urn:uuid:d37e9437-c4f8-4287-9e56-7ace56905450>] .

<urn:uuid:d37e9437-c4f8-4287-9e56-7ace56905450>
   a sh:ValidationResult ;
   sh:focusNode <http://www.inria.fr/2007/09/11/humans.rdfs-instances#Karl> ;
   sh:resultMessage "a Person must have a name"@en ;
   sh:resultPath <http://www.inria.fr/2007/09/11/humans.rdfs#name> ;
   sh:resultSeverity sh:Violation ;
   sh:sourceConstraintComponent sh:MinCountConstraintComponent ;
   sh:sourceShape _:b15095 ;
   sh:value 0 .
```

Add your constraints

Extend the shape to add a constraint of severity level “Warning” enforcing that a Person should have an age:

```
sh:property [
        sh:message "a Person must have a age"@en;
        sh:severity sh:Warning;
        sh:path :sh:age ;
        sh:minCount 1
```

In Corese load the human dataset (menu “load RDF”) and this shape (menu “load SHACL”) and run the validation in a query tab (button “SHACL”). Explain in English shat the report is saying:

There are three people do not have the age, David, Eve and Laura.

```
prefix tt: <http://ns.inria.fr/sparql-template/turtlehtml#>
prefix rs: <http://www.w3.org/2001/sw/DataAccess/tests/result-set#>
prefix xsh: <http://www.w3.org/ns/shacl#>
```

```
prefix ft: <http://ns.inria.fr/sparql-template/format/ds/>
prefix sh: <http://www.w3.org/ns/shacl#>
prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
prefix doc: <http://w3c.github.io/data-shapes/shacl/#>

[a sh:ValidationReport ;
   sh:conforms false ;
   sh:result <urn:uuid:2a05b17f-386c-4bde-a0d8-12b52835055d> ;
   sh:result <urn:uuid:f37dce97-0c8d-48f4-a7cc-6c180649fbb4> ;
   sh:result <urn:uuid:fe06e1fa-a5fb-444c-b8b5-46c4268e15a4>] .

<urn:uuid:fe06e1fa-a5fb-444c-b8b5-46c4268e15a4>
   a sh:ValidationResult ;
   sh:focusNode <http://www.inria.fr/2007/09/11/humans.rdfs-instances#David> ;
   sh:resultMessage "a Person must have a age"@en ;
   sh:resultPath <http://www.inria.fr/2007/09/11/humans.rdfs#age> ;
   sh:resultSeverity sh:Warning ;
   sh:sourceConstraintComponent sh:MinCountConstraintComponent ;
   sh:sourceShape _:b15096 ;
   sh:value 0 .

<urn:uuid:2a05b17f-386c-4bde-a0d8-12b52835055d>
   a sh:ValidationResult ;
   sh:focusNode <http://www.inria.fr/2007/09/11/humans.rdfs-instances#Eve> ;
   sh:resultMessage "a Person must have a age"@en ;
   sh:resultPath <http://www.inria.fr/2007/09/11/humans.rdfs#age> ;
   sh:resultSeverity sh:Warning ;
   sh:sourceConstraintComponent sh:MinCountConstraintComponent ;
   sh:sourceShape _:b15096 ;
   sh:value 0 .

<urn:uuid:f37dce97-0c8d-48f4-a7cc-6c180649fbb4>
   a sh:ValidationResult ;
   sh:focusNode <http://www.inria.fr/2007/09/11/humans.rdfs-instances#Laura> ;
   sh:resultMessage "a Person must have a age"@en ;
   sh:resultPath <http://www.inria.fr/2007/09/11/humans.rdfs#age> ;
   sh:resultSeverity sh:Warning ;
   sh:sourceConstraintComponent sh:MinCountConstraintComponent ;
   sh:sourceShape _:b15096 ;
   sh:value 0 .
```

Extend the shape to add a constraint of severity level “Info” enforcing that a person’s name should be in English:

```
sh:property [
        sh:message "a Person must have a name in English"@en;
        sh:severity sh:Info;
        sh:path :sh:name ;
        sh:languageIn("en")
```

In Corese load the human dataset (menu “load RDF”) and this shape (menu “load SHACL”) and run the validation in a query tab (button “SHACL”). Explain in English shat the report is saying:

All check.