

AGH
University of Science and Technology in Krakow
Faculty of Electrical Engineering, Automatics, Computer Science and
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DEPARTMENT OF AUTOMATICS



Podstawy Inżynierii Wiedzy
Introduction to the Semantic Web

Raport Lab2

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1 RDF model

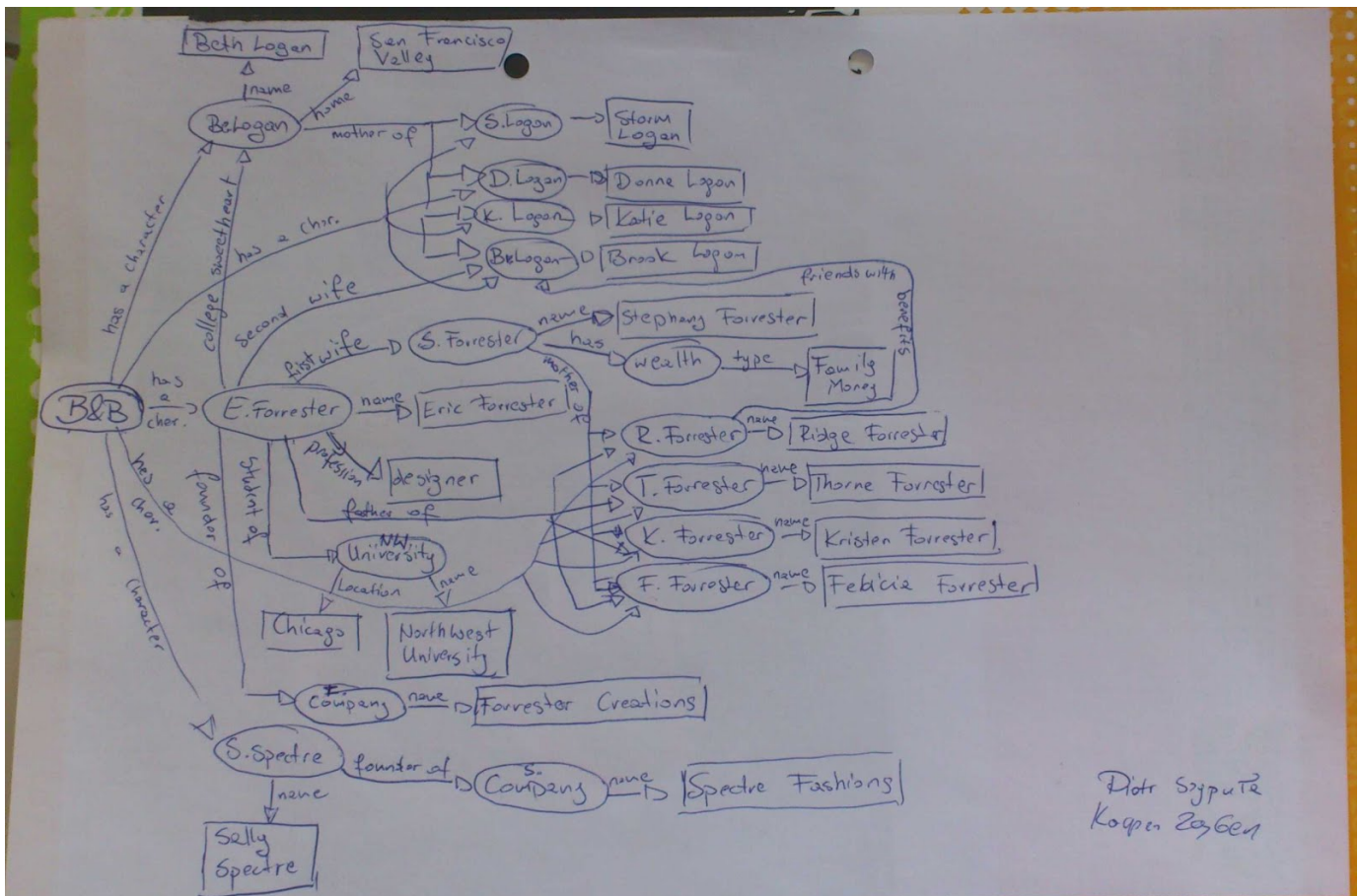
Q: Why is the node for „<http://www.w3.org/>” oval and the node for „World Wide Web Consortium” rectangular? What's the difference between these two resources?

A: „<http://www.w3.org/>” is a resource and „World Wide Web Consortium” is raw data.

Q: What's the meaning of the nodes for genid:A15816 and genid:A15815 objects?

A: They are names for <foaf:Person> nodes generated by parser.

2 Modeling knowledge with RDF graphs



3 Modeling knowledge with RDF triples

.ttl file:

@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>.

@prefix xsd: <http://www.w3.org/2001/XMLSchema#>.

@prefix bnb: <http://student.agh.edu.pl/~ja/piw2012/BnB#>.

bnb:BnB

 bnb:has-a-characters _:bnb-characters.

_:bnb-characters

 rdf:type rdf:Bag;
 rdf:_1 bnb:E.Forrester;
 rdf:_2 bnb:S.Forrester;
 rdf:_3 bnb:R.Forrester;
 rdf:_4 bnb:T.Forrester;
 rdf:_5 bnb:K.Forrester;
 rdf:_6 bnb:F.Forrester;
 rdf:_7 bnb:Be.Logan;
 rdf:_8 bnb:S.Logan;
 rdf:_9 bnb:D.Logan;
 rdf:_10 bnb:K.Logan;
 rdf:_11 bnb:Br.Logan;
 rdf:_12 bnb:S.Spectre.

bnb:E.Forrester

 bnb:name "Eric Forrester"^^xsd:string;
 bnb:profession "Designer"^^xsd:string;
 bnb:first-wife bnb:S.Forrester;
 bnb:second-wife bnb:Br.Logan;
 bnb:college-sweetheart bnb:Be.Logan;
 bnb:student-of bnb:NW.University;
 bnb:father-of _:children-of-forresters;
 bnb:founder-of bnb:F.Company.

bnb:NW.University

 bnb:name "NorthWest University"^^xsd:string;
 bnb:location "Chigaco"^^xsd:string;

bnb:S.Forrester

 bnb:name "Stephanie Forrester"^^xsd:string;
 bnb:has bnb:wealth;
 bnb:mother-of _:children-of-forresters.

bnb:F.Company

 bnb:name "Forrester Creations"^^xsd:string;

bnb:S.Spectre
 bnb:name "Sally Spectre"^^xsd:string;
 bnb:founder-of bnb:S.Company.

bnb:S.Company
 bnb:name "Spectre Fashions"^^xsd:string.

_:children-of-forrester
 rdf:type rdf:Bag;
 rdf:_13 bnb:R.Forrester;
 rdf:_14 bnb:T.Forrester;
 rdf:_15 bnb:K.Forrester;
 rdf:_16 bnb:F.Forrester.

bnb:Be.Logan
 bnb:name "Beth Logan"^^xsd:string;
 bnb:mother-of _:children-of-Beth-Logan;
 bnb:home "San Francisco Valley"^^xsd:string.

_:children-of-Beth-Logan
 rdf:type rdf:Bag;
 rdf:_17 bnb:S.Logan;
 rdf:_18 bnb:D.Logan;
 rdf:_19 bnb:K.Logan;
 rdf:_20 bnb:Br.Logan.

bnb:R.Forrester
 bnb:name "Ridge Forrester"^^xsd:string.

bnb:T.Forrester
 bnb:name "Thorne Forrester"^^xsd:string.

bnb:K.Forrester
 bnb:name "Kristen Forrester"^^xsd:string.

bnb:F.Forrester
 bnb:name "Felicia Forrester"^^xsd:string.

bnb:S.Logan
 bnb:name "Storm Logan"^^xsd:string.

bnb:D.Logan
 bnb:name "Donna Logan"^^xsd:string.

bnb:K.Logan
 bnb:name "Katie Logan"^^xsd:string.

bnb:B.Logan
 bnb:name "Brook Logan"^^xsd:string.

.rdf file:

```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:BnB="http://
student.agh.edu.pl/~ja/piw2012/BnB#">
  <rdf:Description rdf:about="http://student.agh.edu.pl/~ja/piw2012/BnB#">
    <BnB:has_a_character>
      <rdf:Description rdf:about="http://student.agh.edu.pl/~ja/piw2012/
BnB#E.Forrester">
        <BnB:name>Eric Forrester</BnB:name>
        <BnB:first_wife rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#S.Forrester" />
        <BnB:second_wife rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#Br.Logan" />
        <BnB:college_sweetheart rdf:resource="http://student.agh.edu.pl/
~ja/piw2012/BnB#Be.Logan" />
        <BnB:father_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#R.Forrester" />
        <BnB:father_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#T.Forrester" />
        <BnB:father_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#K.Forrester" />
        <BnB:father_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#F.Forrester" />
        <BnB:Faunder_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#F.Company" BnB:name="Forrester Creations" />
        <BnB:student_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#NW.University" BnB:name="NorthWest University" BnB:location="Chicago" />
      </rdf:Description>
    </BnB:has_a_character>
    <BnB:has_a_character>
      <rdf:Description rdf:about="http://student.agh.edu.pl/~ja/piw2012/
BnB#S.Forrester">
        <BnB:name>Stephanie Forrester</BnB:name>
        <BnB:mother_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#R.Forrester" />
        <BnB:mother_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#T.Forrester" />
        <BnB:mother_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#K.Forrester" />
        <BnB:mother_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#F.Forrester" />
        <BnB:has rdf:resource="http://student.agh.edu.pl/~ja/piw2012/
BnB#wealth" BnB:type="Family Money" />
      </rdf:Description>
    </BnB:has_a_character>
    <BnB:has_a_character>
      <rdf:Description rdf:about="http://student.agh.edu.pl/~ja/piw2012/
BnB#R.Forrester">
        <BnB:name>Ridge Forrester</BnB:name>
        <BnB:friends_with_benefits rdf:resource="http://
```

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student.agh.edu.pl/~ja/piw2012/BnB#Br.Logan" />
    </rdf:Description>
    </BnB:has_a_character>
    <BnB:has_a_character rdf:resource="http://student.agh.edu.pl/~ja/piw2012/
BnB#T.Forrester" BnB:name="Thorne Forrester" />
    <BnB:has_a_character rdf:resource="http://student.agh.edu.pl/~ja/piw2012/
BnB#K.Forrester" BnB:name="Kristen Forrester" />
    <BnB:has_a_character rdf:resource="http://student.agh.edu.pl/~ja/piw2012/
BnB#F.Forrester" BnB:name="Felicia Forrester" />
    <BnB:has_a_character>
    <rdf:Description rdf:about="http://student.agh.edu.pl/~ja/piw2012/
BnB#Be.Logan">
        <BnB:name>Beth Logan</BnB:name>
        <BnB:mother_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#S.Logan" />
        <BnB:mother_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#D.Logan" />
        <BnB:mother_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#K.Logan" />
        <BnB:mother_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#Br.Logan" />
        <BnB:home>San Francisco Valley</BnB:home>
    </rdf:Description>
    </BnB:has_a_character>
    <BnB:has_a_character rdf:resource="http://student.agh.edu.pl/~ja/piw2012/
BnB#S.Logan" BnB:name="Storm Logan" />
    <BnB:has_a_character rdf:resource="http://student.agh.edu.pl/~ja/piw2012/
BnB#D.Logan" BnB:name="Donna Logan" />
    <BnB:has_a_character rdf:resource="http://student.agh.edu.pl/~ja/piw2012/
BnB#K.Logan" BnB:name="Katie Logan" />
    <BnB:has_a_character rdf:resource="http://student.agh.edu.pl/~ja/piw2012/
BnB#Br.Logan" BnB:name="Brook Logan" />
    <BnB:has_a_character>
    <rdf:Description rdf:about="http://student.agh.edu.pl/~ja/piw2012/
BnB#S.Spectre">
        <BnB:name>Sally Spectre</BnB:name>
        <BnB:Founder_of rdf:resource="http://student.agh.edu.pl/~ja/
piw2012/BnB#S.Company" BnB:name="Spectre Fashions" />
    </rdf:Description>
    </BnB:has_a_character>
</rdf:Description>
<rdf:Description rdf:about="http://student.agh.edu.pl/~ja/piw2012/BnB#E.Forreter">
    <BnB:profession>designer</BnB:profession>
</rdf:Description>
</rdf:RDF>

```

6 RDF/XML document: Datatypes

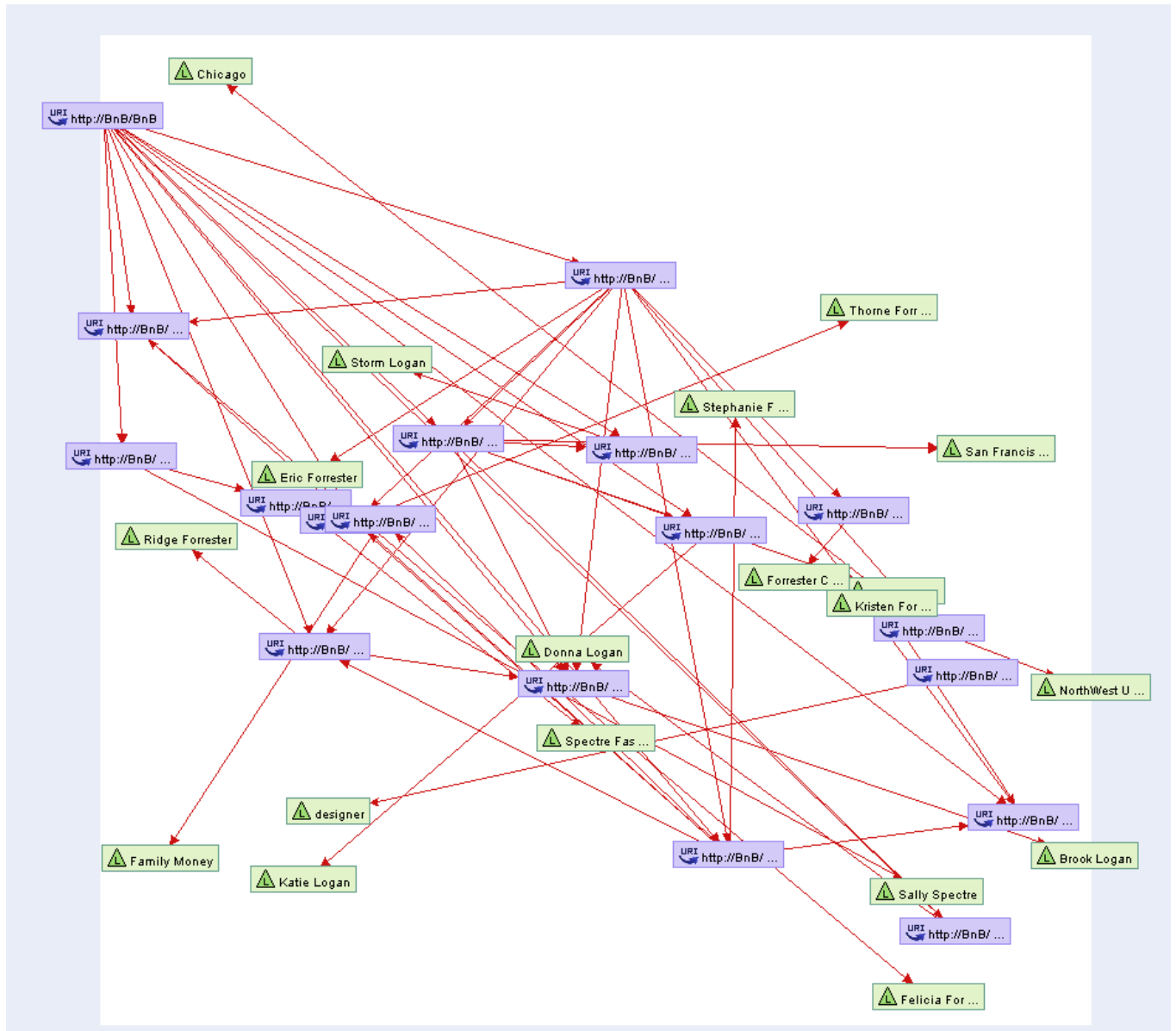
```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns="http://sem.pl/mylibrary#">
  <rdf:Description rdf:about="http://sem.pl/mylibrary#book-semwebprimer">
    <author>Grigoris Antoniou</author>
    <author>Frank van Harmelen</author>
    <title>A Semantic Web Primer</title>
  </rdf:Description>
  <rdf:Description rdf:about="http://sem.pl/mylibrary#cd-opeth_damnation">
    <artist>Opeth</artist>
    <title>Damnation</title>
  </rdf:Description>
  <rdf:Description rdf:about="http://sem.pl/mylibrary#MyFavouriteBooks">
    <MyFavouriteBooks>
      <rdf:Bag>
        <rdf:li rdf:resource="http://sem.pl/mylibrary#MyFavouriteBooks/
Wiedzmin"/>
        <rdf:li rdf:resource="http://sem.pl/mylibrary#MyFavouriteBooks/
Narrenturn"/>
        <rdf:li rdf:resource="http://sem.pl/mylibrary#MyFavouriteBooks/
Kłamca"/>
      </rdf:Bag>
    </MyFavouriteBooks>
  </rdf:Description>
  <rdf:Description rdf:about="http://sem.pl/mylibrary#book/Introduction_To_Algorithms">
    <authors rdf:parseType="Collection">
      <rdf:Description rdf:about="http://sem.pl/authors/Thomas_H.Cormen"/>
      <rdf:Description rdf:about="http://sem.pl/authors/Charles_E.Leiserson"/>
      <rdf:Description rdf:about="http://sem.pl/authors/Ronald_L.Rivest"/>
      <rdf:Description rdf:about="http://sem.pl/authors/Clifford_Stein"/>
    </authors>
    <title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Introduction To
Algorithms</title>
    <publicationDate rdf:datatype="http://www.w3.org/2001/XMLSchema#date">2001-01-
01</publicationDate>
  </rdf:Description>
</rdf:RDF>
```

7 RDF Visualization

Q: Are there any problems/limitations with the tool? Write your observations in the report.

A: One thing that comes to mind is poor arrangement of nodes in graph generated by this program. If one were to use it to generate really big graph, it could be quite unreadable. Apart from that, we have found this program to be very intuitive and easy to use.

B&B:



mylibrary:

