

# Sprawozdanie

Modeling knowledge with Resource Description Framework (RDF)

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## RDF model

2.



The node for „<http://www.w3.org/>” is oval because it is a **resource** (object in this statement) and the node for „World Wide [Web](#) Consortium” is rectangular because it is **literal** which is a value of the object of this statement.

3.1.

The meaning of **genidAXXX** nodes.

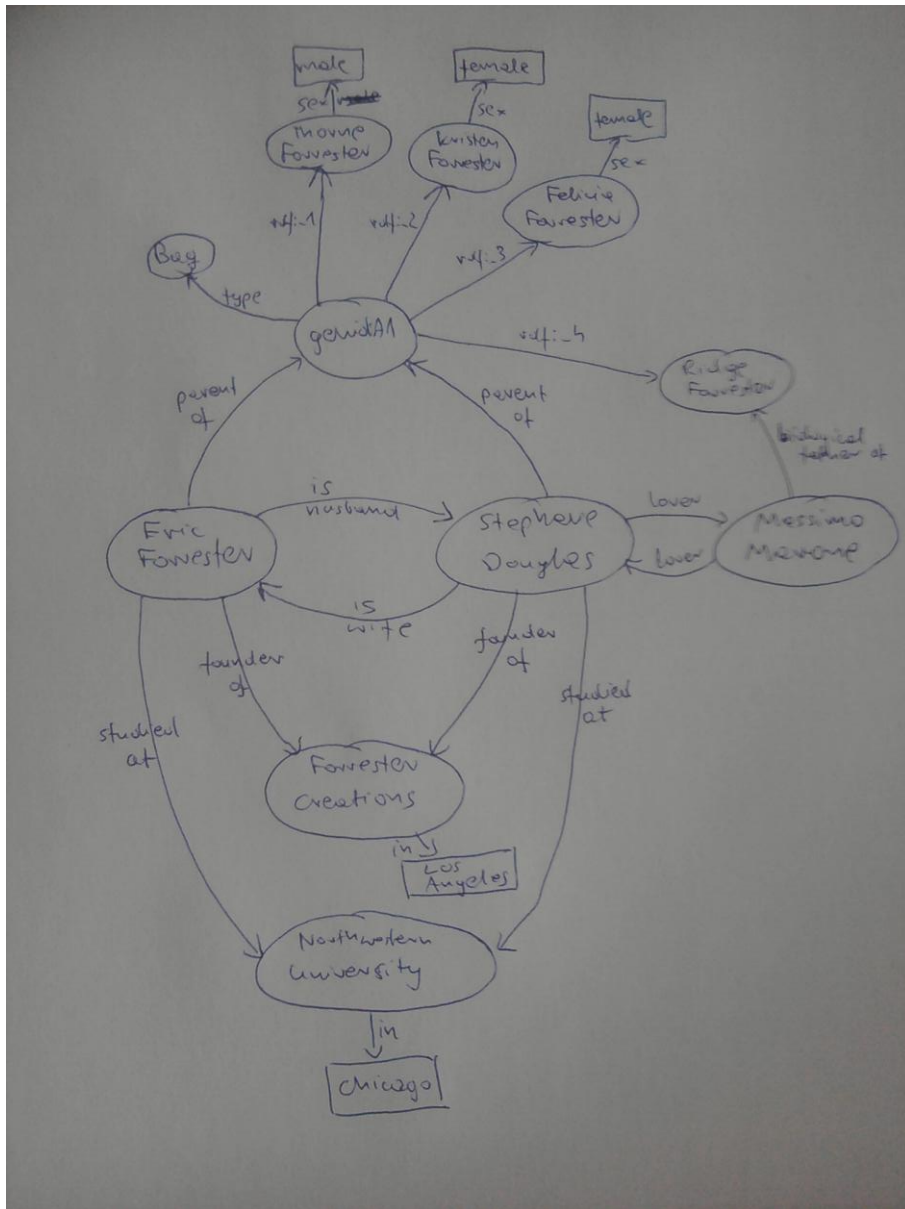
These are empty nodes, generated by RDF Validator to collect different information into one group. Here it means a person (foaf:Person).

## Modeling knowledge with RDF graphs

Representing relations with more than 2 resources.

Such relations can be represented with empty nodes as we have put here earlier. Those empty nodes can represent Collections as for example Bags.

Sketch:



## 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://aleksanderLeszek.com/bnb#>.
```

```
bnb:Eric-Forrester
```

```

    bnb:is-husband bnb:Stephanie-Douglas;
    bnb:founder-of bnb:Forrester-Creations;
    bnb:studied-at bnb:Northwestern-University;
    bnb:parent-of bnb:_children.

bnb:Stephanie-Douglas
    bnb:is-wife bnb:Eric-Forrester;
    bnb:founder-of bnb:Forrester-Creations;
    bnb:studied-at bnb:Northwestern-University;
    bnb:lover bnb:Massimo-Marone;
    bnb:parent-of bnb:_children.

bnb:Massimo-Marone
    bnb:lover bnb:Stephanie-Douglas;
    bnb:biological-father-of bnb:Ridge-Forrester.

bnb:Forrester-Creations bnb:in bnb:Los-Angeles.

bnb:Northwestern-University bnb:in bnb:Chicago.

bnb:Ridge-Forrester bnb:sex bnb:male.

_:children
rdf:type rdf:Bag;
rdf:_1 bnb:Thorne-Forrester;
rdf:_2 bnb:Kristen-Forrester;
rdf:_3 bnb:Felicia-Forrester;
rdf:_4 bnb:Ridge-Forrester.

bnb:Thorne-Forrester bnb:sex bnb:male.
bnb:Kristen-Forrester bnb:sex bnb:female.
bnb:Felicia-Forrester bnb:sex bnb:female.
]>

```

### .rdf file:

```

<?xml version="1.0"?>
<rdf:RDF xmlns:bnb="http://aleksanderLeszek.com/bnb#" xmlns:rdf="http://www.w3.org/1999/02/22-
rdf-syntax-ns#">
  <rdf:Description rdf:about="http://aleksanderLeszek.com/bnb#Eric-Forrester">
    <bnb:is-husband>
      <rdf:Description
rdf:about="http://aleksanderLeszek.com/bnb#Stephanie-Douglas">
        <bnb:is-wife
rdf:resource="http://aleksanderLeszek.com/bnb#Eric-Forrester" />
          <bnb:founder-of
rdf:resource="http://aleksanderLeszek.com/bnb#Forrester-Creations" />
            <bnb:studied-at
rdf:resource="http://aleksanderLeszek.com/bnb#Northwestern-University" />
              <bnb:lover>
                <rdf:Description
rdf:about="http://aleksanderLeszek.com/bnb#Massimo-Marone">
                  <bnb:lover
rdf:resource="http://aleksanderLeszek.com/bnb#Stephanie-Douglas" />

```

```

                                <bnb:biological-father-of>
                                <rdf:Description>
rdf:about="http://aleksanderLeszek.com/bnb#Ridge-Forrester">
                                <bnb:sex
rdf:resource="http://aleksanderLeszek.com/bnb#male" />
                                </rdf:Description>
                                </bnb:biological-father-of>
                                </rdf:Description>
                                </bnb:lover>
                                <bnb:parent-of
rdf:resource="http://aleksanderLeszek.com/bnb#_children" />
                                </rdf:Description>
                                </bnb:is-husband>
                                <bnb:founder-of>
                                <rdf:Description
rdf:about="http://aleksanderLeszek.com/bnb#Forrester-Creations">
                                <bnb:in
rdf:resource="http://aleksanderLeszek.com/bnb#Los-Angeles" />
                                </rdf:Description>
                                </bnb:founder-of>
                                <bnb:studied-at rdf:resource="http://aleksanderLeszek.com/bnb#Northwestern-
University" />
                                <bnb:parent-of rdf:resource="http://aleksanderLeszek.com/bnb#_children" />
                                </rdf:Description>
                                <rdf:Description rdf:about="http://aleksanderLeszek.com/bnb#Northwestern-
Univeristy">
                                <bnb:in rdf:resource="http://aleksanderLeszek.com/bnb#Chicago" />
                                </rdf:Description>
                                <rdf:Bag>
                                <rdf:li>
                                <rdf:Description
rdf:about="http://aleksanderLeszek.com/bnb#Thorne-Forrester">
                                <bnb:sex
rdf:resource="http://aleksanderLeszek.com/bnb#male" />
                                </rdf:Description>
                                </rdf:li>
                                <rdf:li>
                                <rdf:Description
rdf:about="http://aleksanderLeszek.com/bnb#Kristen-Forrester">
                                <bnb:sex
rdf:resource="http://aleksanderLeszek.com/bnb#female" />
                                </rdf:Description>
                                </rdf:li>
                                <rdf:li>
                                <rdf:Description
rdf:about="http://aleksanderLeszek.com/bnb#Felicia-Forrester">
                                <bnb:sex
rdf:resource="http://aleksanderLeszek.com/bnb#female" />
                                </rdf:Description>
                                </rdf:li>
                                <rdf:li rdf:resource="http://aleksanderLeszek.com/bnb#Ridge-Forrester" />
                                </rdf:Bag>
                                </rdf:RDF>

```

## RDF/XML document: Datatypes

Our RDF/XML document:

```

<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:lib="http://aleksanderLeszek.com/mylibrary#">

```

```

<rdf:Description rdf:about="http://aleksanderLeszek.com/mylibrary#book-catch22">
  <lib:author rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Joseph Heller</author>
  <lib:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Catch 22</title>
  <lib:publisher rdf:datatype="http://www.w3.org/2001/XMLSchema#string">PRIMA</publisher>
</rdf:Description>

<rdf:Description rdf:about="http://aleksanderLeszek.com/mylibrary#book-gameofthrones">
  <lib:author rdf:datatype="http://www.w3.org/2001/XMLSchema#string">George R.R. Martin</author>
  <lib:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">A Game of Thrones</title>
  <lib:publisher rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Nova</publisher>
</rdf:Description>

<rdf:Description rdf:about="http://aleksanderLeszek.com/mylibrary#book-dancewithdragons">
  <lib:author rdf:datatype="http://www.w3.org/2001/XMLSchema#string">George R.R. Martin</author>
  <lib:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">A Dance With Dragons</title>
  <lib:publisher rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Nova</publisher>
</rdf:Description>

<rdf:Description rdf:about="http://aleksanderLeszek.com/mylibrary#book-catcher">
  <lib:author rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Jerome David Salinger</author>
  <lib:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">The Catcher in the Rye</title>
  <lib:publisher rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Iskry</publisher>
</rdf:Description>

<rdf:Description rdf:about="http://aleksanderLeszek.com/mylibrary#book-11minutes">
  <lib:author rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Paulo Coelho</author>
  <lib:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Eleven Minutes</title>
  <lib:publisher rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Drzewo Babel</publisher>
</rdf:Description>

<rdf:Description rdf:about="http://aleksanderLeszek.com/mylibrary/MyFavouriteBooks">
  <lib:MyFavouriteBooks>
    <rdf:Bag>
      <rdf:li rdf:resource="http://aleksanderLeszek.com/mylibrary#book-catch22"/>
      <rdf:li rdf:resource="http://aleksanderLeszek.com/mylibrary#book-catcher"/>
    </rdf:Bag>
  </lib:MyFavouriteBooks>
</rdf:Description>

</rdf:RDF>

```

## RDF Visualization

Are there any problems/limitations with the tool?

The generated graphs are quite messy, and it is hard to use the program in the beginning as it is rather not user-friendly. Although, one have to apply filters to make the graphs more clear and obvious.

One of the visualized files (.rdf file for Forrester Family):

