

# Sprawozdanie nr 3 – Wstęp do sieci semantycznych

Luśnia Przemysław, Milik Łukasz

## 1 Semantic vocabularies: Dublin Core

**Modify the file to include it in the report.**

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:dc="http://purl.org/dc/elements/1.1/">

  <rdf:Description rdf:about="http://example.org/mylibrary#book-majca">
    <author>John Vince</author>
    <dc:title
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Mathematics for Computer
Graphics
    </dc:title>
    <dc:language>en</dc:language>
  </rdf:Description>

  <rdf:Description rdf:about="http://example.org/mylibrary#book-fantasy1">
    <author>John Ronald Reuel Tolkien</author>
    <dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Lord
of The Rings: Fellowship of the
    Ring
    </dc:title>
    <dc:language>en</dc:language>
  </rdf:Description>

  <rdf:Description rdf:about="http://example.org/mylibrary#book-fantasy2">
    <author>Ursula Kroeber Le Guin</author>
    <dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">A
Wizard of Earthsea</dc:title>
    <dc:language>en</dc:language>
  </rdf:Description>

  <rdf:Description rdf:about="http://example.org/mylibrary#book-fantasy3">
    <author>Robert Jordan</author>
    <author>Brandon Sanderson</author>
    <dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Wheel
of Time</dc:title>
    <dc:language>en</dc:language>
  </rdf:Description>

  <rdf:Description rdf:about="http://example.org/mylibrary#cd-apocalyptic1">
    <author>Apocalyptica</author>
    <dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Plays
Metallica by Four Cellos
    </dc:title>
    <dc:date
rdf:datatype="http://www.w3.org/2001/XMLSchema#date">1996</dc:date>
  </rdf:Description>
```

```

    <rdf:Description rdf:about="http://example.org/mylibrary#cd-in_flames1">
      <author>In Flames</author>
      <dc:title
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Colony</dc:title>
      <dc:date
rdf:datatype="http://www.w3.org/2001/XMLSchema#date">1999</dc:date>
    </rdf:Description>

    <rdf:Description rdf:about="http://example.org/mylibrary#film-benek">
      <author> David Fincher</author>
      <dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">he
Curious Case of Benjamin Button
      </dc:title>
      <dc:date
rdf:datatype="http://www.w3.org/2001/XMLSchema#date">2008</dc:date>
    </rdf:Description>
</rdf:RDF>

```

## 2 RDFSchema

### Modify the file to include it in the report.

```

<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
  xml:base="http://example.org/mylibrary#">

  <rdfs:Class rdf:ID="MusicCD">
    <rdfs:subClassOf rdf:resource="#MultimediaItem" />
    <rdfs:label>Music Compact Discs class</rdfs:label>
  </rdfs:Class>
  <rdfs:Class rdf:ID="Book">
    <rdfs:subClassOf rdf:resource="#MultimediaItem" />
    <rdfs:label>Class with books on my shelf</rdfs:label>
  </rdfs:Class>
  <rdfs:Class rdf:ID="Movie">
    <rdfs:subClassOf rdf:resource="#MultimediaItem" />
    <rdfs:label>Best Movies on my DVD's</rdfs:label>
  </rdfs:Class>

    <rdf:Description rdf:about="http://example.org/mylibrary#book-majca">
      <author
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">John Vince</author>
      <title
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">>Mathematics for Computer
Graphics</title>
      <rdfs:type rdf:resource="http://example.org/mylibrary#Book"/>
    </rdf:Description>

    <rdf:Description rdf:about="http://example.org/mylibrary#book-
fantasy1">
      <author
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">John Ronald Reuel
Tolkien</author>
      <title
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Lord of The Rings:
Fellowship of the Ring</title>
      <rdfs:type rdf:resource="http://example.org/mylibrary#Book"/>
    </rdf:Description>

```

```

    <rdf:Description rdf:about="http://example.org/mylibrary#book-
fantasy2">
        <author
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Ursula Kroeber Le
Guin</author>
        <title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">A
Wizard of Earthsea</title>
        <rdf:type rdf:resource="http://example.org/mylibrary#Book"/>
    </rdf:Description>

    <rdf:Description rdf:about="http://example.org/mylibrary#book-
fantasy3">
        <authors rdf:parseType="Collection">
            <rdf:Description>
                <author
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Robert Jordan</author>
                <author
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Brandon Sanderson</author>
            </rdf:Description>
        </authors>
        <title
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Wheel of Time</title>
        <rdf:type rdf:resource="http://example.org/mylibrary#Book"/>
    </rdf:Description>

    <rdf:Description rdf:about="http://example.org/mylibrary#cd-
apocalyptic">
        <artist
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Apocalyptica</artist>
        <title
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Plays Metallica by Four
Cellos</title>
        <year
rdf:datatype="http://www.w3.org/2001/XMLSchema#decimal">1996</year>
        <rdf:type rdf:resource="http://example.org/mylibrary#MusicCD"/>
    </rdf:Description>

    <rdf:Description rdf:about="http://example.org/mylibrary#cd-
in_flames1">
        <artist
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">In Flames</artist>
        <title
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Colony</title>
        <year
rdf:datatype="http://www.w3.org/2001/XMLSchema#decimal">1999</year>
        <rdf:type rdf:resource="http://example.org/mylibrary#MusicCD"/>
    </rdf:Description>

    <rdf:Description rdf:about="http://example.org/mylibrary#film-benek">
        <director
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">David Fincher</director>
        <title
rdf:datatype="http://www.w3.org/2001/XMLSchema#string">The Curious Case of Benjamin
Button</title>
        <year
rdf:datatype="http://www.w3.org/2001/XMLSchema#decimal">2008</year>
        <rdf:type rdf:resource="http://example.org/mylibrary#Movie"/>
    </rdf:Description>
</rdf:RDF>

```

## 3 SPARQL - demo

### What semantic vocabularies are used in the queries? What are they for?

FOAF- opisywanie osób i zależności między nimi

DC - opis dokumentów

SIOC – platformy dyskusyjne [np. fora]

REV – rankingi i recenzje

PRJ - opis projektów

RSS – powiadamianie o newsach i wpisach na bloga

### What do `SELECT` queries do?

`SELECT` Wyciągają z pliku odpowiednie znaczniki określone odpowiednimi kryteriami. Wynik w postaci tabeli.

### What do `CONSTRUCT` queries do?

`CONSTRUCT` Wyciągają z pliku odpowiednie znaczniki określone odpowiednimi kryteriami. Wynik w postaci dokumentów.

## 4 SPARQL queries - basics

### Put the constructed queries in the report.

```
PREFIX foaf:
<http://xmlns.com/foaf/>
SELECT ?name
FROM
<http://student.agh.edu.pl/zoinho/foaf.rdf>
WHERE {
  ?person foaf:name ?name;
  foaf:email ?email
}
```

```
PREFIX foaf:
<http://xmlns.com/foaf/>
SELECT ?name
FROM
<http://student.agh.edu.pl/zoinho/foaf.rdf>
WHERE {
  ?person foaf:name ?name;
  foaf:email ?email
}
```

```
OPTIONAL { ?person foaf:homepage ?homepage }
}
```

PREFIX foaf:

```
<http: / xmlns.com / foaf / />
SELECT ?name
FROM
<http: / student.agh.edu.pl / zoinho / foaf.rdf>
WHERE {
  ?person foaf:name ?name;
  foaf:email ?email
  OPTIONAL { ?person foaf:homepage ?homepage }
}
ORDER BY DESC(?name)
```

## 5 SPARQL queries – options

**Put the queries in the report.**

PREFIX foaf:

```
<http: / xmlns.com / foaf / />
SELECT ?name
FROM
<http: / student.agh.edu.pl / kakrol / foaf.rdf>
```

```
WHERE {
  ?person foaf:name ?name

  FILTER regex(?name, "^K") .
}
```

PREFIX foaf:

```
<http: / xmlns.com / foaf / />
SELECT ?name
FROM
<http: / student.agh.edu.pl / kakrol / foaf.rdf>
WHERE {
  ?person foaf:age ?age

  FILTER (?age>18).
}
```

PREFIX foaf:

```
<http: / xmlns.com / foaf / />
SELECT ?name
FROM
<http: / student.agh.edu.pl / kakrol / foaf.rdf>

WHERE {
  ?person foaf:name ?name;
  foaf:age ?age .

  FILTER regex(?name, "^K", „i”) ||
  (?age > 18) .
}
```

PREFIX foaf:

```
<http: / xmlns.com / foaf / />
SELECT ?name
FROM
<http: / student.agh.edu.pl / kakrol / foaf.rdf>

WHERE {
  ?person foaf:name ?name;
  foaf:email ?email

  FILTER regex(?email, "@student.agh.edu.pl$") .
}
```

PREFIX foaf:

```
<http: / xmlns.com / foaf / />
SELECT ?name
FROM
<http: / student.agh.edu.pl / kakrol / foaf.rdf>

WHERE {
  ?person foaf:name ?name;
  foaf:email ?email
  foaf:homepage ?homepage

  FILTER regex(?email, "@student.agh.edu.pl$") ||
  regex(?homepage, "^http://student.agh.edu.pl") .
}
```

## 6 Open Data Sets

**Answer the question: What are the main limitations of using (querying for information) the RDF datasets such as DBPedia or MusicBrainz?**

Obecnie, bazy wiedzy jak MusicBrainz, etc pokrywają tylko konkretne domeny. Dodatkowo utrzymywanie informacji aktualnych i dodawanie nowych jest kosztuje duzo czasu i wysiłku. Ponadto, im więcej jest dokumentów RDF do przeszukania i zapytanie jest bardziej skomplikowane, tym dłużej trwa wyszukiwanie wyników.