

SEMANTIC WEB – SPRAWOZDANIE 3

1. Semantic vocabularies: Dublin Core

```
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xmlns="http://example.org/kamil_krzysiek_library#">
  <rdf:Description rdf:about="http://example.org/kamil_krzysiek_library#book-hunger_games">
    <dc:author rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Suzanne Collins</dc:author>
    <dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">The Hunger Games</dc:title>
    <dc:publicationDate rdf:datatype="http://www.w3.org/2001/XMLSchema#date">14-09-2008</dc:publicationDate>
    <dc:pages rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">374</dc:pages>
  </rdf:Description>
  <rdf:Description rdf:about="http://example.org/kamil_krzysiek_library#book-band_of_brothers">
    <dc:author >Ambrose Stephen</dc:author>
    <dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Band of Brothers: E Company, 506th
  Regiment, 101st Airborne from Normandy to Hitler's Eagle's Nest</dc:title>
    <dc:publicationDate rdf:datatype="http://www.w3.org/2001/XMLSchema#date">01-08-2001</dc:publicationDate>
    <dc:pages rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">336</dc:pages>
  </rdf:Description>
  <rdf:Description rdf:about="http://example.org/kamil_krzysiek_library#book-desing_patterns">
    <dc:authors rdf:parseType="Collection">
      <rdf:Description>
        <rdf:first rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Erich Gamma</rdf:first>
        <rdf:rest>
          <rdf:Description>
            <rdf:first rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Richard Helm</rdf:first>
            <rdf:rest>
              <rdf:Description>
                <rdf:first rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Ralph Johnson</rdf:first>
                <rdf:rest>
                  <rdf:Description>
                    <rdf:first rdf:datatype="http://www.w3.org/2001/XMLSchema#string">John
  Vlissides</rdf:first>
                    <rdf:rest rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#nil" />
                  </rdf:Description>
                </rdf:rest>
              </rdf:Description>
            </rdf:rest>
          </rdf:Description>
        </rdf:rest>
      </dc:authors>
    <dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Design Patterns: Elements of Reusable
  Object-Oriented Software </dc:title>
    <dc:publicationDate rdf:datatype="http://www.w3.org/2001/XMLSchema#date">01-01-1994</dc:publicationDate>
    <dc:pages rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">395</dc:pages>
  </rdf:Description>
  <rdf:Description rdf:about="http://example.org/kamil_krzysiek_library#cd-night_at_the_opera">
    <dc:artist rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Queen</dc:artist>
    <dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">A Night at the Opera</dc:title>
    <dc:publicationYear rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">1975</dc:publicationYear>
  </rdf:Description>
  <rdf:Description rdf:about="http://example.org/kamil_krzysiek_library#cd-attero_dominatus">
    <dc:artist rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Sabaton</dc:artist>
    <dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Attero Dominatus</dc:title>
    <dc:publicationYear rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">2006</dc:publicationYear>
  </rdf:Description>
</rdf:RDF>
```

2. RDFSchemata

```
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:dc="http://purl.org/dc/elements/1.1/"
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#">
```

```

xmlns="http://example.org/kamil_krzysiek_library#">

<rdfs:Class rdf:ID="Multimedialtem" />
<rdfs:Class rdf:ID="Book">
<rdfs:subClassOf rdf:resource="#Multimedialtem"/>
<rdfs:label>Books class</rdfs:label>
<rdfs:comment>Class of books in our library.</rdfs:comment>
</rdfs:Class>
<rdfs:Class rdf:ID="CD">
<rdfs:subClassOf rdf:resource="#Multimedialtem"/>
<rdfs:label>Compact Discs class</rdfs:label>
<rdfs:comment>Class of the CDs in our library.</rdfs:comment>
</rdfs:Class>

<rdf:Description rdf:about="http://example.org/kamil_krzysiek_library#book-hunger_games">
<dc:author rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Suzanne Collins</dc:author>
<dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">The Hunger Games</dc:title>
<dc:publicationDate rdf:datatype="http://www.w3.org/2001/XMLSchema#date">14-09-2008</dc:publicationDate>
<dc:pages rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">374</dc:pages>
<rdf:type rdf:resource="http://example.org/kamil_krzysiek_library#Book"/>
</rdf:Description>
<rdf:Description rdf:about="http://example.org/kamil_krzysiek_library#book-band_of_brothers">
<dc:author >Ambrose Stephen</dc:author>
<dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Band of Brothers: E Company, 506th
Regiment, 101st Airborne from Normandy to Hitler's Eagle's Nest</dc:title>
<dc:publicationDate rdf:datatype="http://www.w3.org/2001/XMLSchema#date">01-08-2001</dc:publicationDate>
<dc:pages rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">336</dc:pages>
<rdf:type rdf:resource="http://example.org/kamil_krzysiek_library#Book"/>
</rdf:Description>
<rdf:Description rdf:about="http://example.org/kamil_krzysiek_library#book-desing_patterns">
<dc:authors rdf:parseType="Collection">
<rdf:Description>
<rdf:first rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Erich Gamma</rdf:first>
<rdf:rest>
<rdf:Description>
<rdf:first rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Richard Helm</rdf:first>
<rdf:rest>
<rdf:Description>
<rdf:first rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Ralph Johnson</rdf:first>
<rdf:rest>
<rdf:Description>
<rdf:first rdf:datatype="http://www.w3.org/2001/XMLSchema#string">John
Vlissides</rdf:first>
<rdf:rest rdf:resource="http://www.w3.org/1999/02/22-rdfsyntax-ns#nil" />
</rdf:Description>
</rdf:rest>
</rdf:Description>
</rdf:rest>
</rdf:Description>
</rdf:rest>
</rdf:Description>
</dc:authors>
<dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Design Patterns: Elements of Reusable
Object-Oriented Software </dc:title>
<dc:publicationDate rdf:datatype="http://www.w3.org/2001/XMLSchema#date">01-01-1994</dc:publicationDate>
<dc:pages rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">395</dc:pages>
<rdf:type rdf:resource="http://example.org/kamil_krzysiek_library#Book"/>
</rdf:Description>
<rdf:Description rdf:about="http://example.org/kamil_krzysiek_library#cd-night_at_the_opera">
<dc:artist rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Queen</dc:artist>
<dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">A Night at the Opera</dc:title>
<dc:publicationYear rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">1975</dc:publicationYear>
<rdf:type rdf:resource="http://example.org/kamil_krzysiek_library#CD"/>
</rdf:Description>
<rdf:Description rdf:about="http://example.org/kamil_krzysiek_library#cd-attero_dominatus">
<dc:artist rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Sabaton</dc:artist>
<dc:title rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Attero Dominatus</dc:title>
<dc:publicationYear rdf:datatype="http://www.w3.org/2001/XMLSchema#integer">2006</dc:publicationYear>
<rdf:type rdf:resource="http://example.org/kamil_krzysiek_library#CD"/>
</rdf:Description>
</rdf:RDF>

```

3. What semantic vocabularies are used in the queries? What are they for?

Słowniki semantyczne dostarczają predykatów do opisu konkretnych rodzajów informacji takich jak FOAF, RSS itp.

4. What do SELECT queries do?

Kwerendy SELECT dostarczają informację w postaci tabel oraz powiązań między innymi, analogicznie do instrukcji SELECT w językach SQL.

5. What do CONSTRUCT queries do?

Instrukcja CONSTRUCT służy do pobierania informacji, tworzenia z nich trójek RDF oraz przedstawianiu ich na grafie RDF.

6. friends who have name and e-mail defined

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

```
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
```

```
SELECT ?name ?email
```

```
WHERE
```

```
{
```

```
  ?x rdf:type foaf:Person .
```

```
  ?x foaf:name ?name.
```

```
  ?x rdf:type foaf:Person .
```

```
  ?x foaf:email ?email
```

```
}
```

7. friends who have name and e-mail defined and optional homepage

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

```
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
```

```
SELECT ?name ?email ?schoolHomepage
```

```
WHERE
```

```
{
```

```
  ?x rdf:type foaf:Person .
```

```
  ?x foaf:name ?name.
```

```
  ?x rdf:type foaf:Person .
```

```
  ?x foaf:email ?email
```

```
  OPTIONAL
```

```
{
```

```
  ?x rdf:type foaf:Person .
```

```
  ?x foaf:schoolHomepage ?schoolHomepage
```

```
}
```

```
}
```

8. friends who have name and e-mail defined and optional homepage, sorted by name descending

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

```
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
```

```
SELECT ?name ?email ?schoolHomepage
```

```
WHERE
```

```
{
```

```
  ?x rdf:type foaf:Person .
```

```
  ?x foaf:name ?name.
```

```
  ?x rdf:type foaf:Person .
```

```
  ?x foaf:email ?email
```

```
  OPTIONAL
```

```
{
```

```
  ?x rdf:type foaf:Person .
```

```
  ?x foaf:schoolHomepage ?schoolHomepage
```

```
}
```

```
}
```

```
ORDER BY DESC (?name)
```

9. people whose name starts with 'K'

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

```
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
```

```

SELECT ?name
WHERE
{
  ?x rdf:type foaf:Person .
  ?x foaf:name ?name.
  FILTER regex(?name, '^K')
}

```

10. people who are older than 18 years old

```

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
SELECT ?name ?age
WHERE
{
  ?x rdf:type foaf:Person .
  ?x foaf:name ?name.
  ?x foaf:age ?age

  FILTER (?age > 18)
}

```

11. people whose name starts with 'K' or are older than 18 years old, make search caseinsensitive

```

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
SELECT ?name ?age
WHERE
{
  ?x rdf:type foaf:Person .
  {?x foaf:name ?name.
  FILTER regex(?name, '^K', 'i')}
UNION
  {?x foaf:age ?age
  FILTER (?age > 18)}
}

```

12. people having e-mails on student.agh.edu.pl server

```

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
SELECT ?name ?mbox
WHERE
{
  ?x rdf:type foaf:Person .
  ?x foaf:name ?name.
  ?x foaf:mbox ?mbox
  FILTER regex(?mbox, '^[A-Za-z0-9_-]+@student.agh.edu.pl')
}

```

13. name of people, who have homepage or e-mail on student.agh.edu.pl server

```

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
SELECT ?name ?mbox ?homepage
WHERE
{
  ?x rdf:type foaf:Person .
  ?x foaf:name ?name.
  {?x foaf:mbox ?mbox.
  FILTER regex(?mbox, '^[A-Za-z0-9_-]+@student.agh.edu.pl')}
UNION
  {?x foaf:homepage ?homepage.
  FILTER regex(?homepage, '^http://student.agh.edu.pl')}
}

```

14. What are the main limitations of using (querying for information) the RDF datasets such as DBpedia or MusicBrainz?

- wyszukiwanie informacji ze względu na wielkość bazy, oraz brak możliwości efektywnego indeksowania jest czasochłonne,
- konieczność używania specjalnego języka zapytań SPARQL,