

# 《语义网与知识图谱》实验手册

## 实验一 RDF (RDFS) 应用

目的:

- (1) 回顾了解 XML、RDF 语法;
- (2) 理解语义网资源描述语言;
- (3) 掌握 RDF(S)的使用。

### 1、在线学习 XML 和 RDF 教程

<https://www.w3cschool.cn/xml/>

<https://www.w3cschool.cn/rdf/>

### 2、练习

【习题 1】 Consider the following RDF document:

```
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
  xmlns:iswww="http://sw.edu/#"
>
  <rdf:Description rdf:about="http://sw.edu/#germany">
    <rdf:type rdf:resource="http://sw.edu/#country" />
  </rdf:Description>
  <rdf:Description rdf:about="http://sw.edu/#capital_of">
    <rdf:type rdf:resource="http://www.w3.org/1999/02/22-rdf-syntax-ns#Property"/>
    <rdfs:domain rdf:resource="http://sw.edu/#city" />
    <rdfs:range rdf:resource="http://sw.edu/#country" />
  </rdf:Description>
  <rdf:Description rdf:about="http://sw.edu/#country">
    <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Class" />
    <rdfs:label xml:lang="de">Land</rdfs:label>
  </rdf:Description>
  <rdf:Description rdf:about="http://sw.edu/#berlin">
    <rdfs:label xml:lang="en">Berlin</rdfs:label>
    <rdf:type rdf:resource="http://sw.edu/#city" />
    <iswww:capital_of rdf:resource="http://sw.edu/#germany" />
  </rdf:Description>
  <rdf:Description rdf:about="http://sw.edu/#city">
    <rdf:type rdf:resource="http://www.w3.org/2000/01/rdf-schema#Class" />
    <rdfs:label xml:lang="de">Stadt</rdfs:label>
  </rdf:Description>
</rdf:RDF>
```

- Describe in natural language the content of this document.

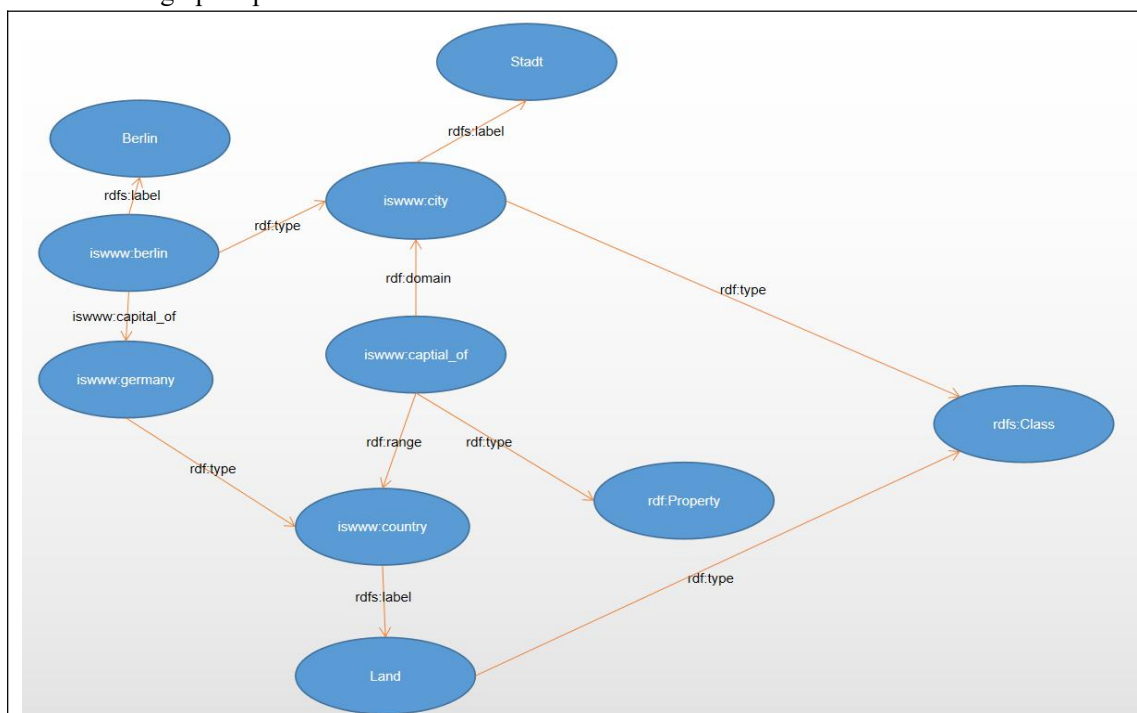
- Germany 是 Country 的一个实例；  
 - capital\_of 是 Property\_Of 的一个实例，其定义域是 city，值域是 country；  
 - country 是 Class 的一个实例，其德语表达是 Land，rdfs:label 中的 lang 标签“de”的语言为德语，可见图 1

ISO639-1 Code	ISO639-2 Code	中文名	英文名
ar	ara	阿拉伯语	Arabic
ko	kor	朝鲜语	Korean
de	deu	德语	German
ru	rus	俄语	Russian
fr	fra	法语	French
zh	zho	汉语	Chinese
la	lat	拉丁语	Latin
pt	por	葡萄牙语	Portuguese
ja	jpn	日语	Japanese
es	spa	西班牙语	Spanish
en	eng	英语	English
it	ita	意大利语	Italian
hi	hin	印地语	Hindi
yi	yid	意第绪语	Yiddish

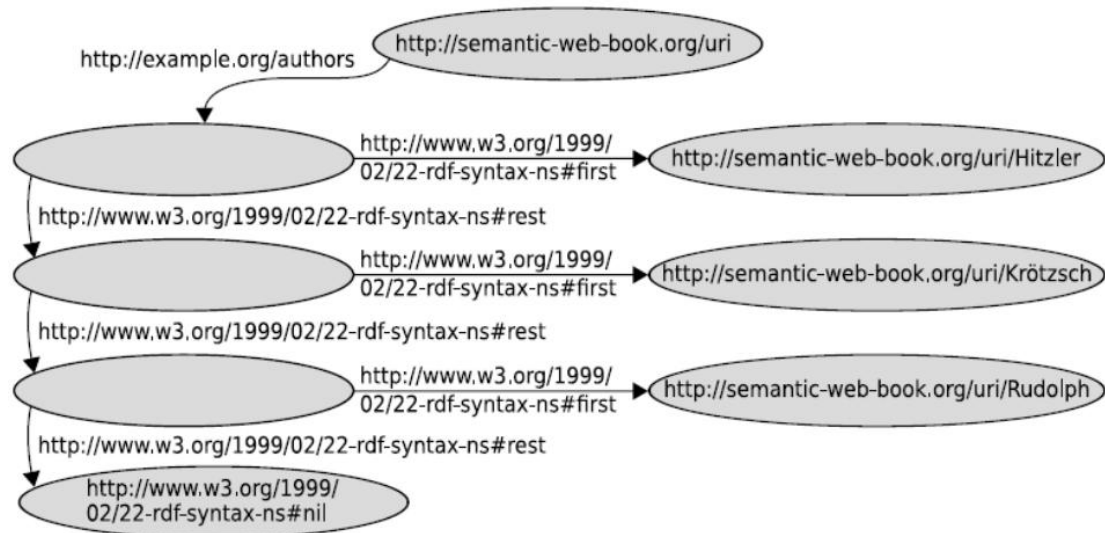
图 1 常见语言 ISO 代码

- berlin 的英语是 Berlin，berlin 是 city 的一个实例，berlin 是 germany 的首都  
 - city 是 class 的一个实例，其德语表达是 Stadt

- Draw the graph representation of the above document.\



【习题 2】 Write down the modeled list authors of this book from following RDF graph in Turtle syntax.



Hitzler  
Krötzsch  
Rudolph

【习题 3】 Write the following Turtle triple in RDF/XML syntax:

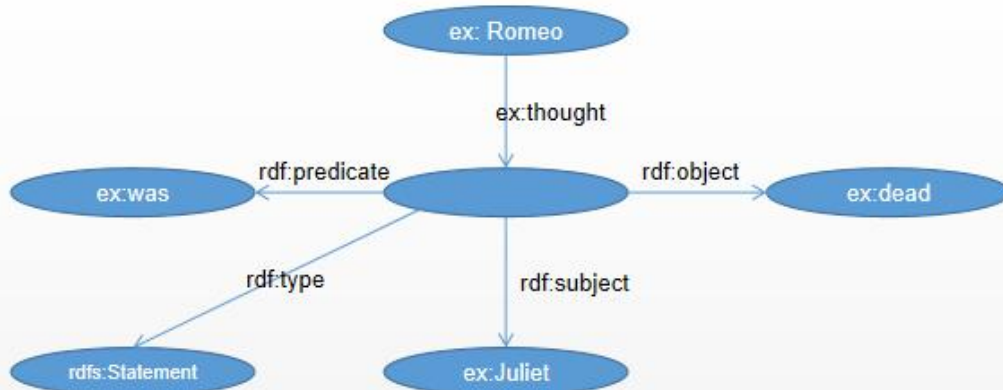
:Person rdfs:comment "Represents the set of all people."^^xsd:string .

```
<?xml version = "1.0"?>
<rdf:RDF
  xmlns:rdf = "http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:rdfs = "http://www.w3.org/2000/01/rdf-schema#"
>
  <rdf:Description rdf:about = "http://Person">
    <rdfs:comment rdfs:Datatype = "http://www.w3.org/2000/01/rdf-schema#string">
      Represents the set of all people.
    </rdfs:comment>
  </rdf:Description>
</rdf:RDF>
```

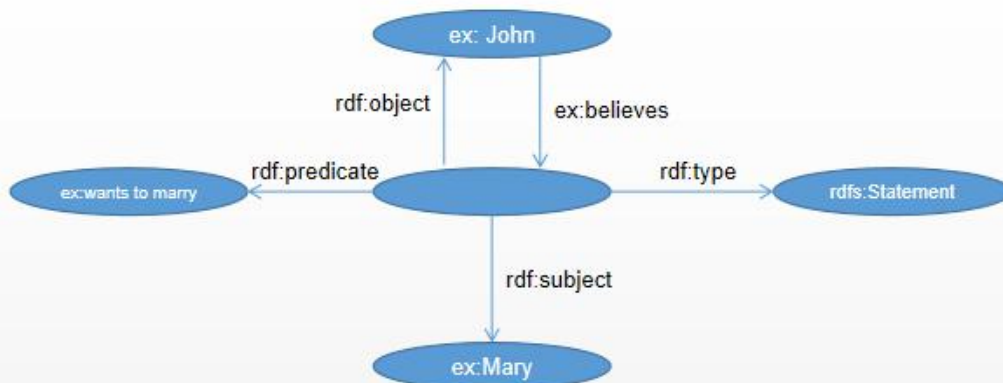
【习题 4】 Represent the following sentences graphically by means of reified triples:

- Romeo thought that Juliet was dead.
- John believes that Mary wants to marry him.
- The dwarf noticed that somebody had been eating from his plate.

Romeo thought that Juliet was dead.



John believes that Mary wants to marry him.



The dwarf noticed that somebody had been eating from his plate.

