



BONSAI KICKOFF

Matteo Lissandrini



AALBORG UNIVERSITY
DENMARK

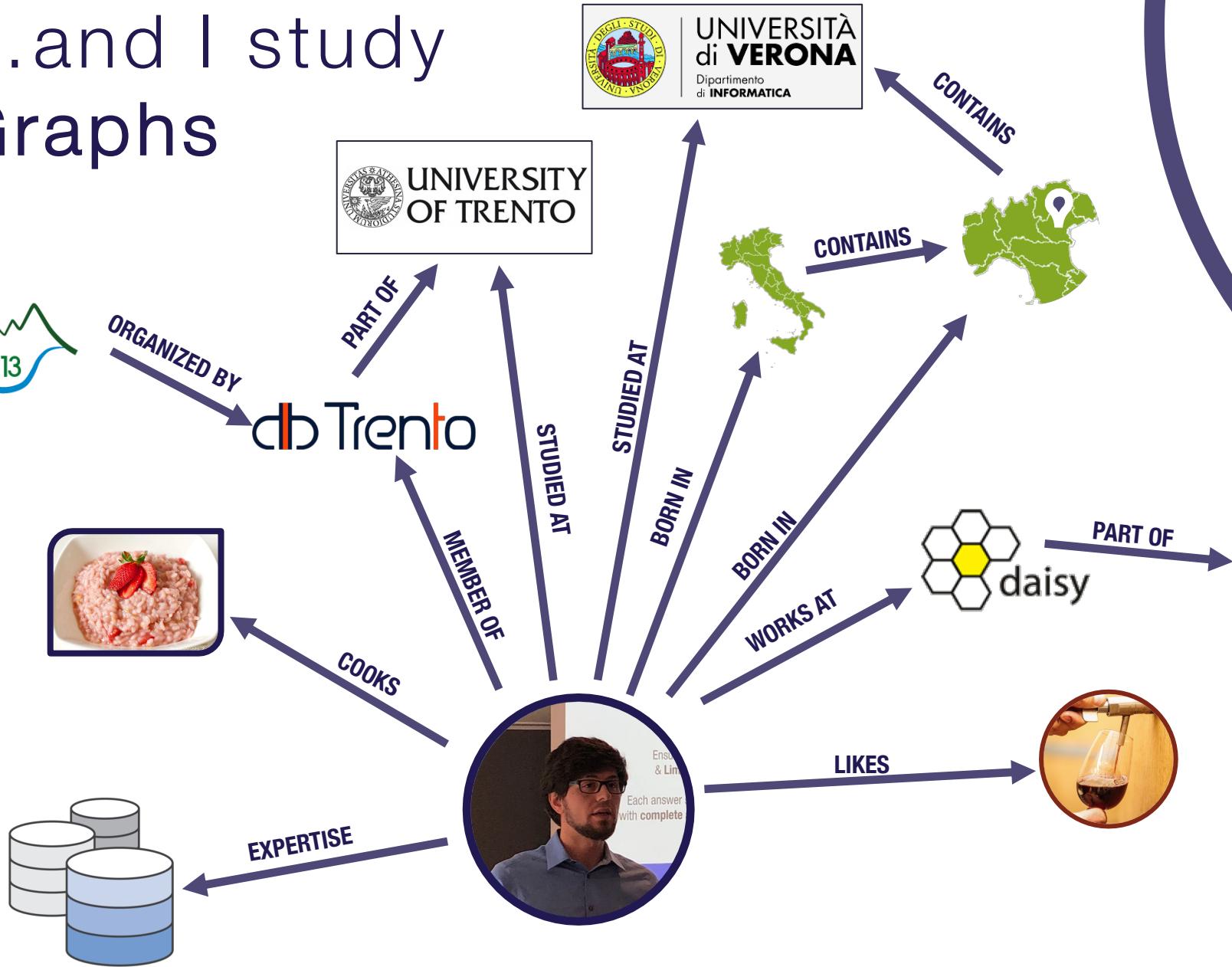
Hi! My name is
Matteo Lissandrini



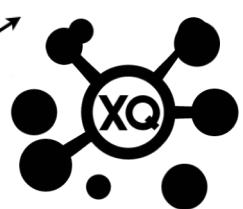
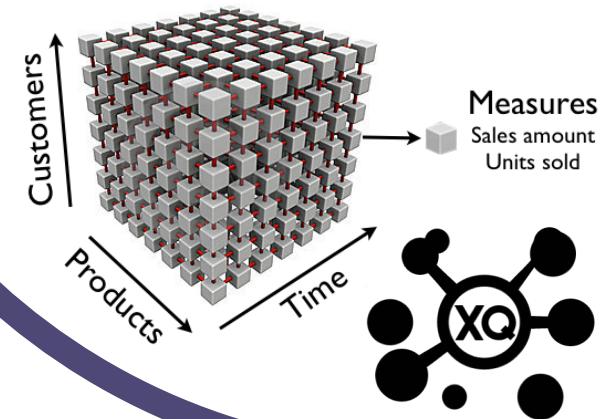
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...and I study Graphs

VLDB 2013



Analytical Exploration of Semantic Graphs



RDF Graphs

Resource Description Framework

- **Resources** on the Web Identified by Universal Resource Identifiers (**URIs**)
- **Statements** About Resources in the form of: Subject Predicate Object (*triples*)

<http://dbpedia.org/page/Barcelona>

(s , p , o)

“Barcelona” , “is part of”, “Spain”

“Barcelona” , “is part of”, “Catalonia”

<http://dbpedia.org/page/Barcelona>

<http://dbpedia.org/page/Spain>

<http://dbpedia.org/ontology/isPartOf>

PREFIX **dbo**: <<http://dbpedia.org/ontology/>>

PREFIX **dbp**: <<http://dbpedia.org/page/>>



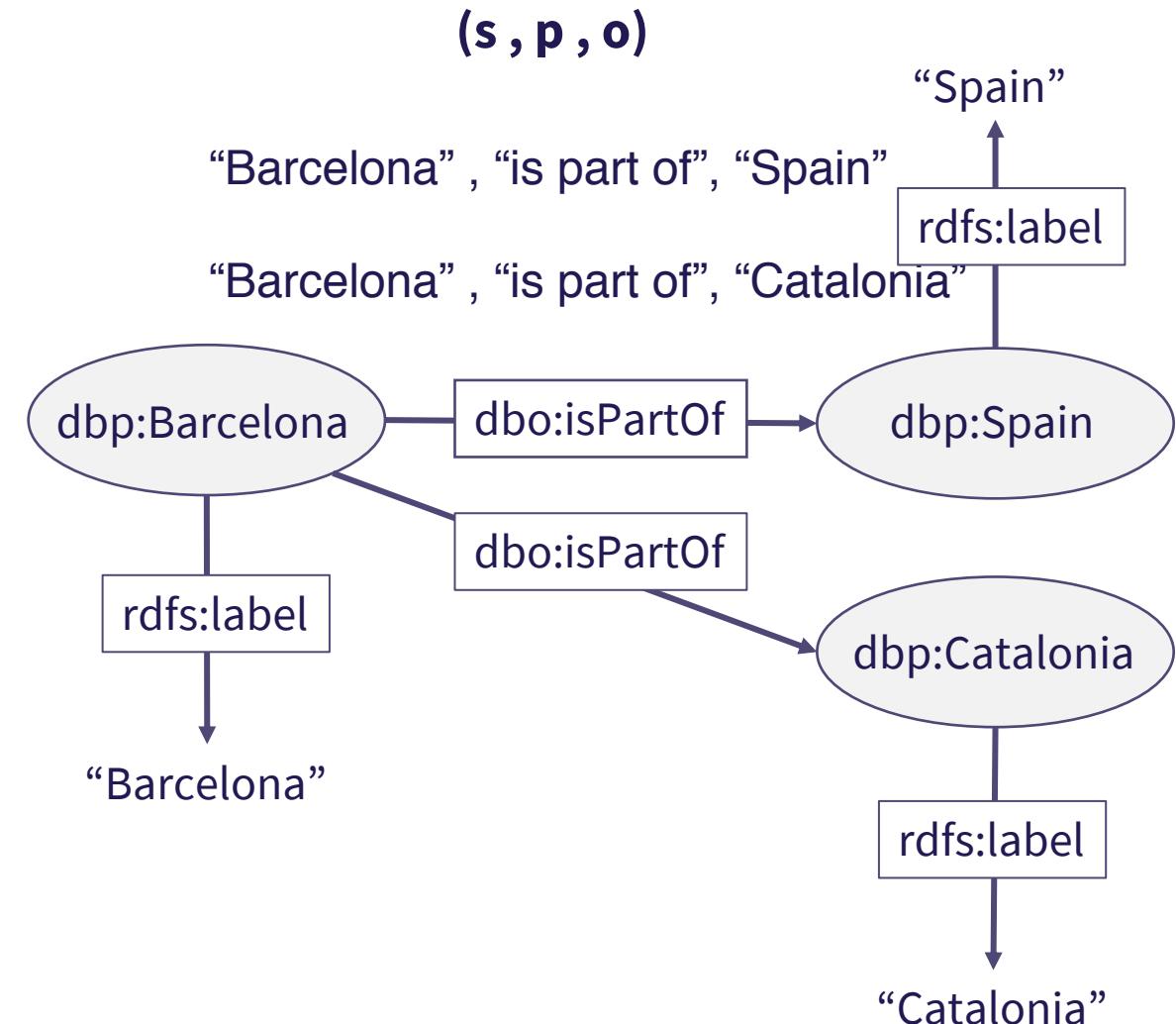
RDF Graphs

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PREFIX **dbo**: <<http://dbpedia.org/ontology/>>
PREFIX **dp**: <<http://dbpedia.org/page/>>
PREFIX **rdfs**: <<http://www.w3.org/2000/01/rdf-schema#>>

5



RDF Graphs

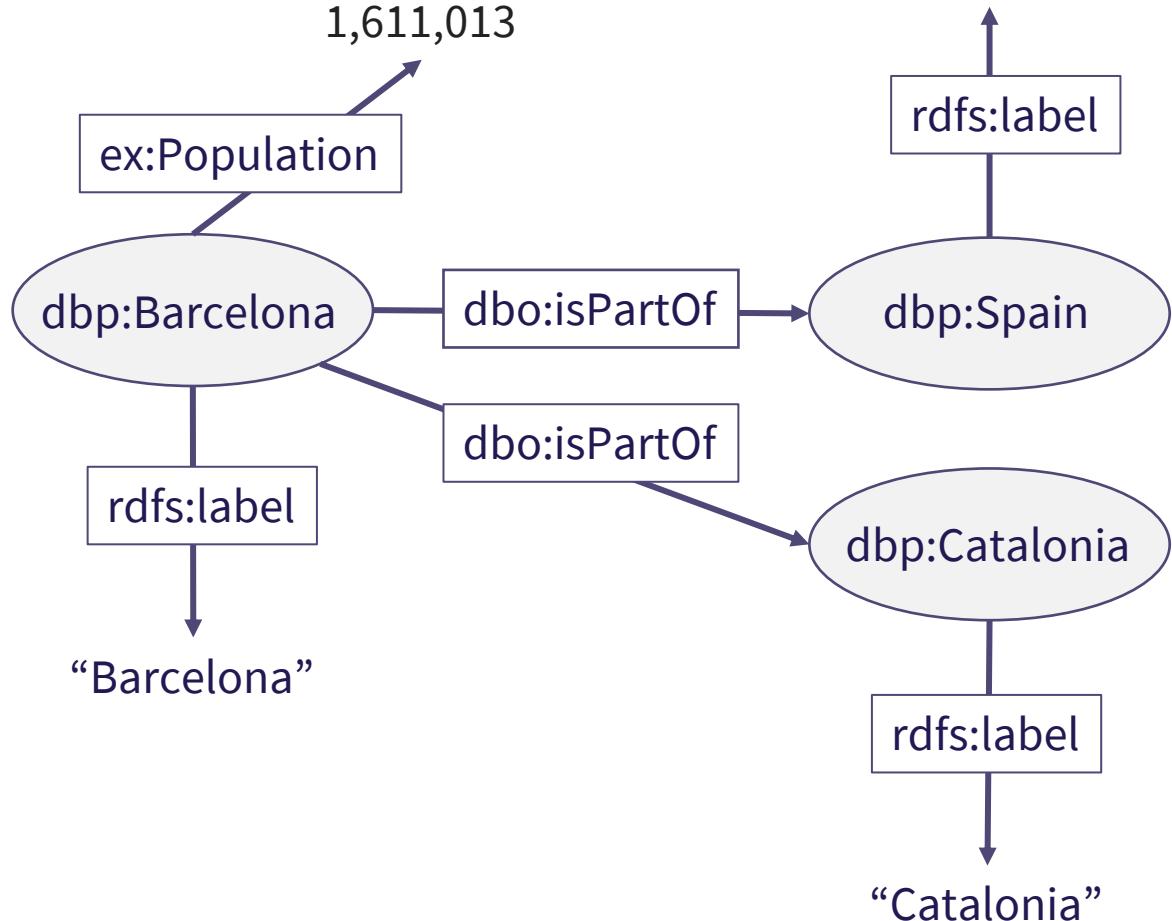
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PREFIX **rdfs**: <<http://www.w3.org/2000/01/rdf-schema#>>
PREFIX **ex**: <<http://www.example.com/>>

6

This was for 2011!

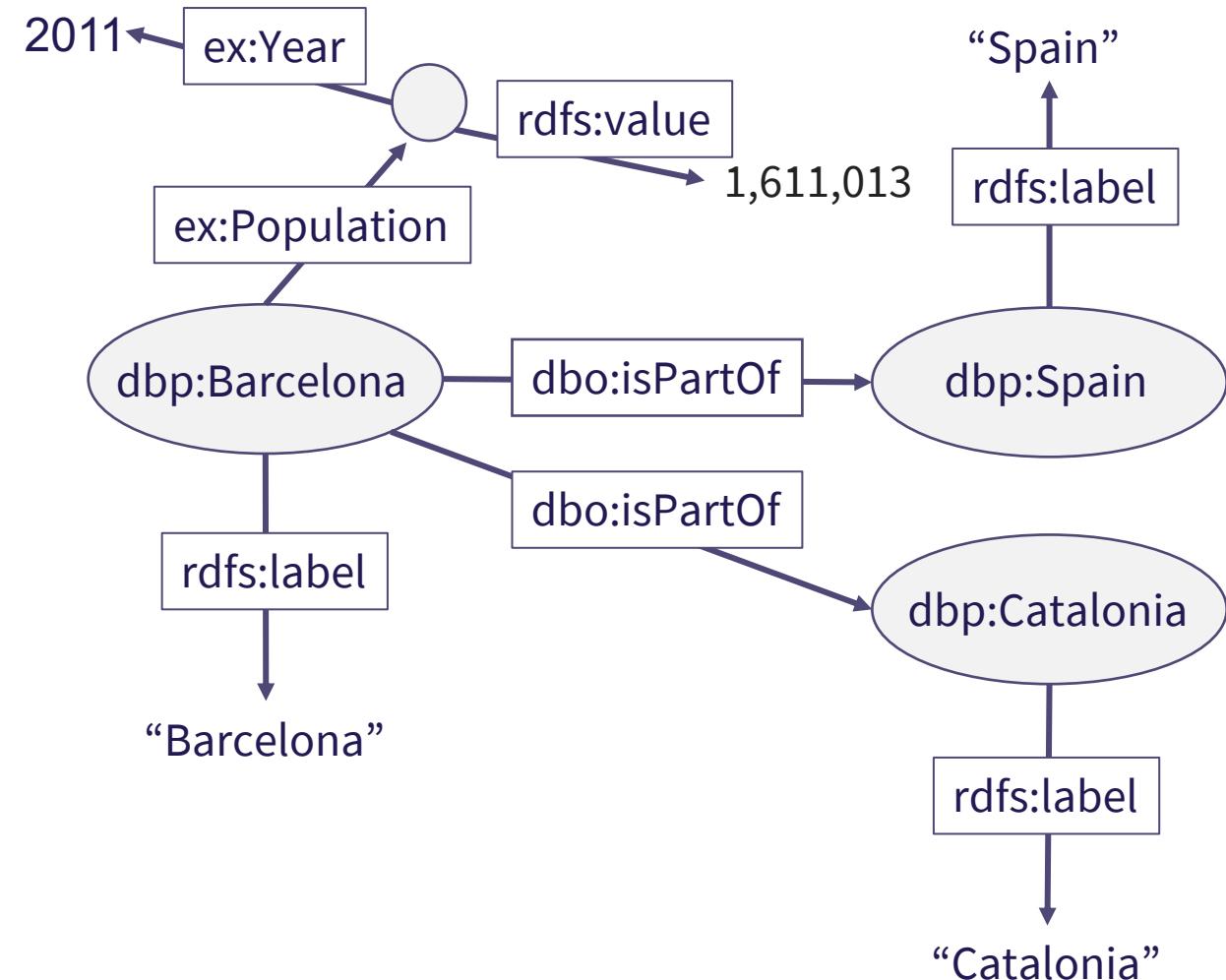


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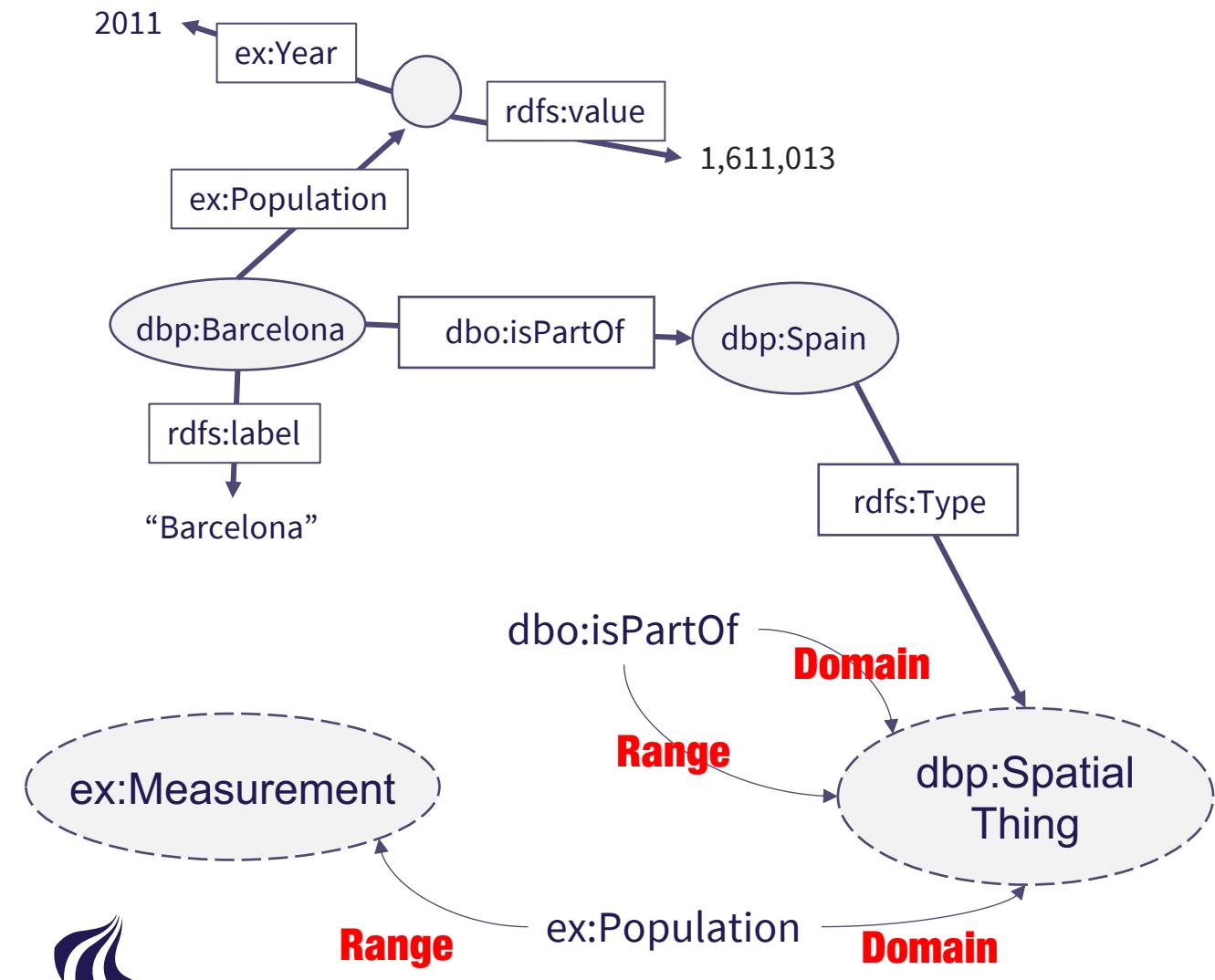


RDF Graphs

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- **RDFS: RDF Schema**, specifies concepts, properties and relationships between them
- Define:Classes & Properties with Domain/Range
- Each URI should have a **Type**

PREFIX **dbo**: <<http://dbpedia.org/ontology/>>
PREFIX **bp**: <<http://dbpedia.org/page/>>
PREFIX **rdfs**: <<http://www.w3.org/2000/01/rdf-schema#>>
PREFIX **ex**: <<http://www.example.com/>>



```
@prefix dbo: <http://dbpedia.org/ontology/> .
@prefix dbp: <http://dbpedia.org/page/> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix ex: <http://www.example.com/> .
```

```
dbp:Barcelona a dbp:SpatialThing ;
    dbo:isPartOf dbp:Spain ;
    ex:Population [rdfs:value 1,611,013;
        ex:Year 2011 ];
    rdfs:label "Barcelona" .
```

SELECT ?x ?xName

WHERE {

```
?x a dbp:SpatialThing;
    dbo:isPartOf ?y;
    rdfs:label ?xName.

?y rdfs:label "Spain".
```

}



Blank Nodes

Storing Formats

Terse RDF Triple Language (Turtle) is a syntax and file format for expressing data in the Resource Description Framework (RDF) data model.

Turtle syntax is similar to that of [SPARQL](#), an [RDF query language](#).

```
[  
  { "@id": "_:b0",  
    "http://www.w3.org/2000/01/rdf-schema#value": [  
      { "@value": 1611013 }  
    ],  
    "http://www.example.com/Year": [  
      { "@value": 2011 }  
    ]  
  },  
  {  
    "@id": "http://dbpedia.org/page/Barcelona",  
    "@type": [ "http://dbpedia.org/page/SpatialThing" ],  
    "http://dbpedia.org/ontology/isPartOf": [  
      { "@id": "http://dbpedia.org/page/Spain" }  
    ],  
    "http://www.example.com/Population": [  
      { "@id": "_:b0" }  
    ],  
    "http://www.w3.org/2000/01/rdf-schema#label": [  
      { "@value": "Barcelona" }  
    ]  
  },  
  { "@id": "http://dbpedia.org/page/Spain" },  
  { "@id": "http://dbpedia.org/page/SpatialThing" }  
]
```

JSON-LD