RDF - Contenedores

Content

- RDF W3C Overview
- The basis of RDF
  - Internationalized Resource Identifier
  - Literals
  - Blank Nodes
- More features of RDF
- RDF Serialisations
  - Turtle
- RDF Vocabularies
- RDF on the Web
- RDF subleties

Why IRIs (URIs)?

- IRIs naturally have a "global" scope, unique throughout the web.
  - Contrasts to, e.g., keys in rel. DB which are unique within a table.

  - Helps to avoid name clashes.

  - Example: merging two product catalogues.
    - http://www.abc-company.com/category/item/123
    - http://www.xyz-company.com/product/123

Why triples?

- Any information format can be transformed to triples.
- Examples:
  - Tabular (spreadsheets, DBs): row column cell
  - Trees (XML): parent path child
- Relationships are made explicit and elements in their own right.
  - The predicate, i.e., the relationship, is an element in the triple.
  - Unlike DB columns and binary predicates.
  - Can be described in RDF.

Why graphs?

- A single, but highly versatile, format.
  - Everything is on the same format: triples!
  - Since RDF graphs are just sets of triples, basic set operations are well-defined.
- Merging RDF graphs? Just take their union!
  - With tabular data, table dimensions must match.
  - With trees, a node can only have one parent.
  - Note that graphs need not be connected.
- Extending an RDF graph? Just add more triples!
  - Need not redefine the database table, or to restructure the XML schema.

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Some more features of RDF

- Types of resources
- Containers
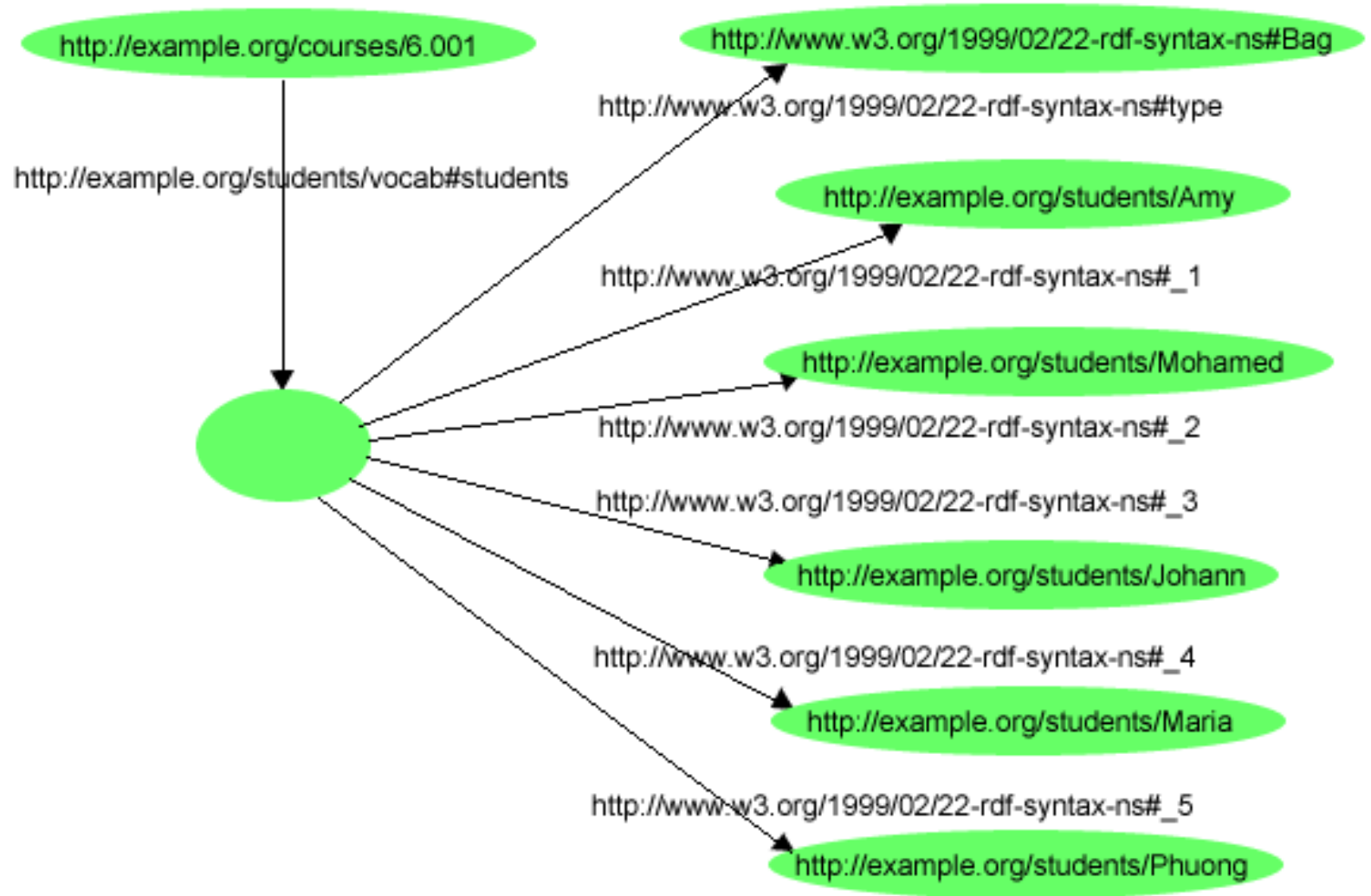- Collections
- Reification

RDF – types of resources

- RDF has a special property for **is-a** relations: **rdf:type**

  - <http://www.polleres.net/foaf.rdf#me> **rdf:type** ex:Person.

  - <http://www.polleres.net/foaf.rdf#me> **is-a** ex:Person.

  - ex:Ucuenca **rdf:type** ex:Universidad .

  - ex:Ucuenca **is-a** ex:Universidad .

RDF Containers

- RDF provides 3 types of **Containers**

  - **rdf:Bag** Unordered list of resources or literals.
    - might be used to describe a group of part numbers in which the order of entry does not matter
  - **rdf:Sequence** Sequence, ordered list of resources or literals.
    - might be used to describe a group that must be maintained in alphabetical order
  - **rdf:Alt** Alternative, list of resources or literals that are alternatives for the (single) value.
    - might be used to describe alternative language translations for the title of a book
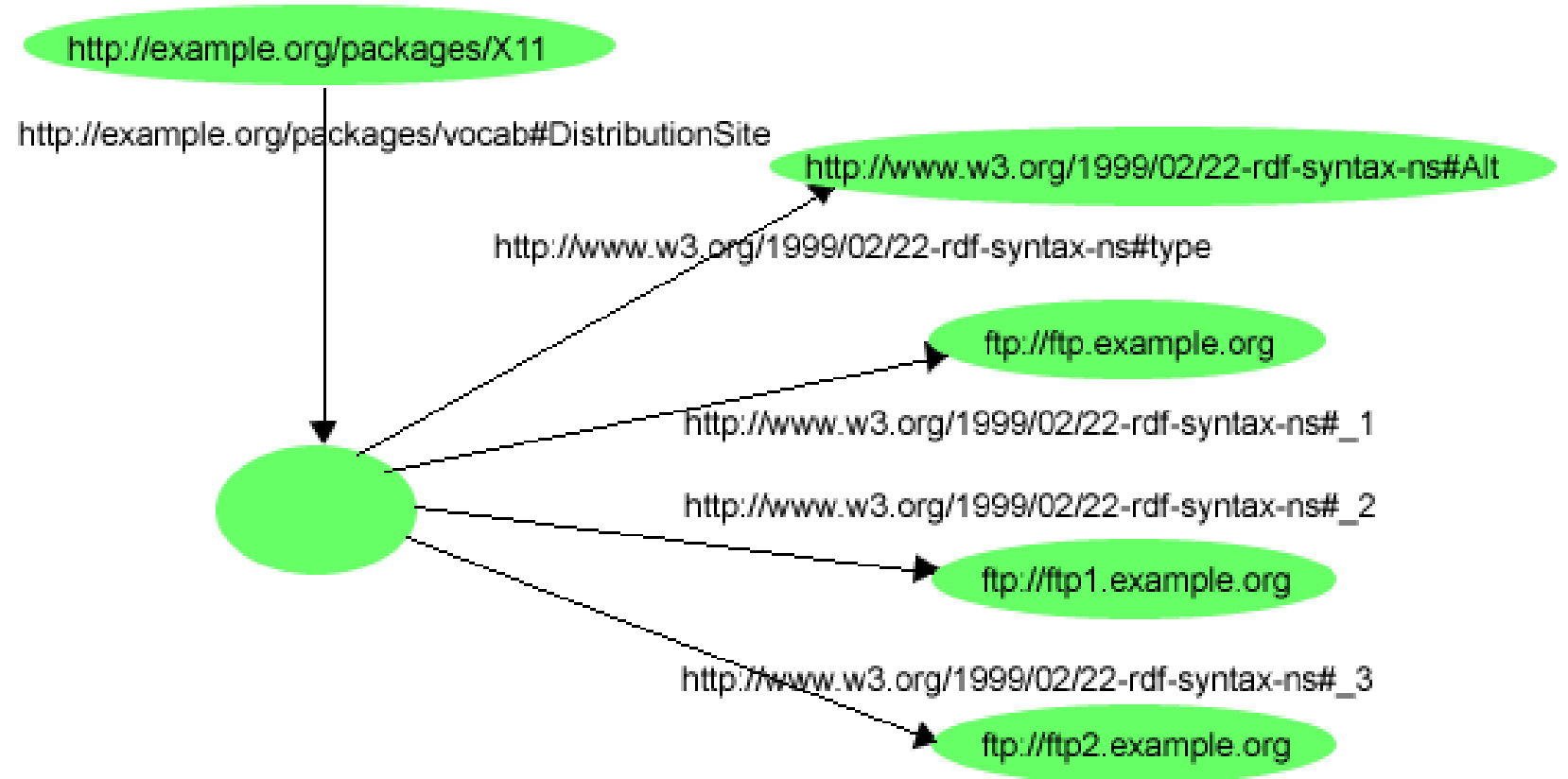
RDF Containers: example

- Course 6.001 has the students Amy, Mohamed, Johann, Maria, and Phuong

- What containers?
  - rdf:Bag

RDF Containers: example

- The source code for X11 may be found at ftp.example.org, ftp1.example.org, or ftp2.example.org
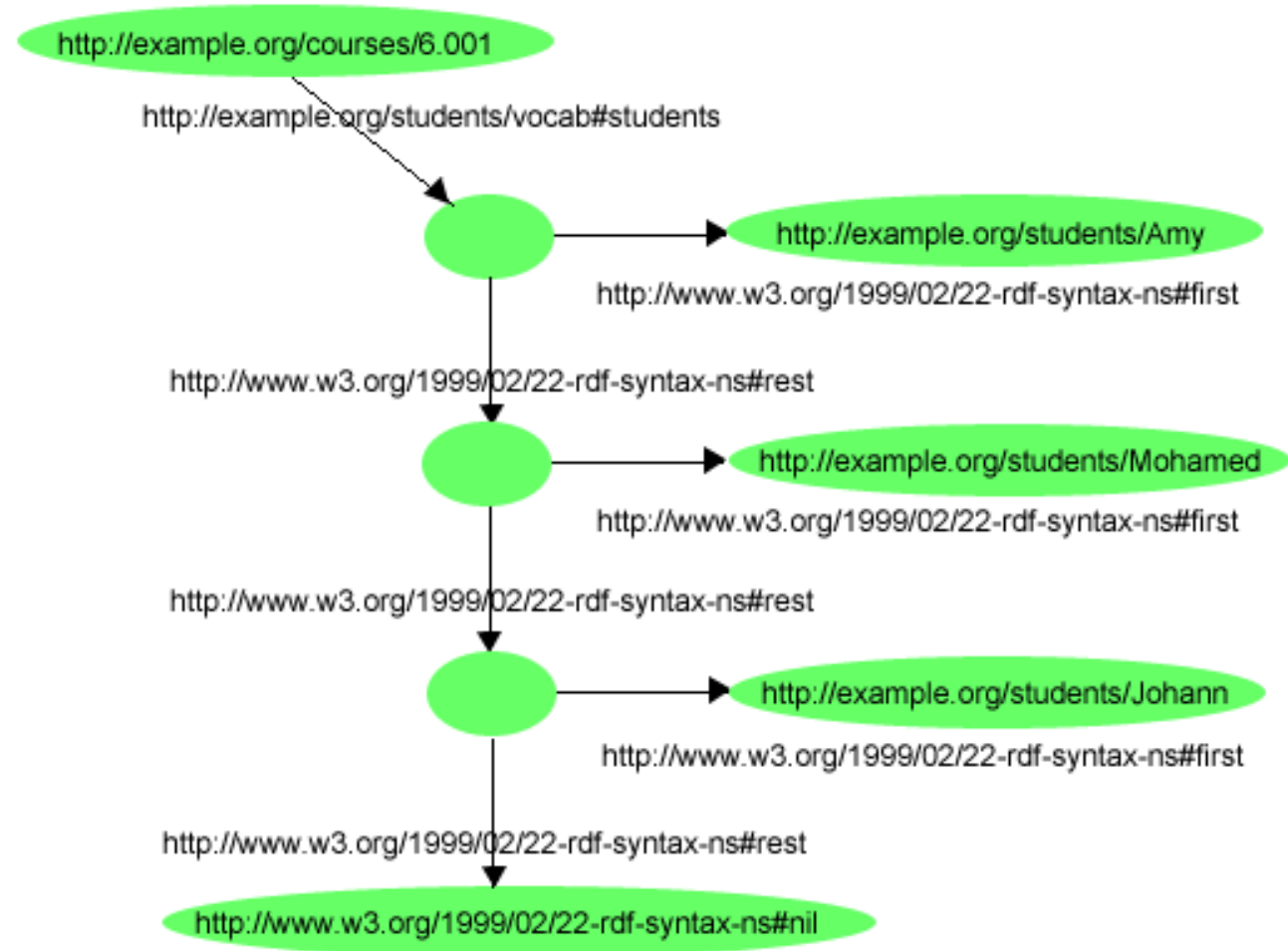- What containers?
  - rdf:Alt

RDF Collection

- Similar to RDF containers, but resolves collection as a list structure

- This list structure is constructed using a predefined *collection vocabulary*
  - rdf:list
  - rdf:first
  - rdf:rest
  - rdf:nil

RDF Collection example

- The students in course 6.001 are Amy, Mohamed, and Johann

Reification

- Latin res ("Thing"), facere ("make")
  - an Explication
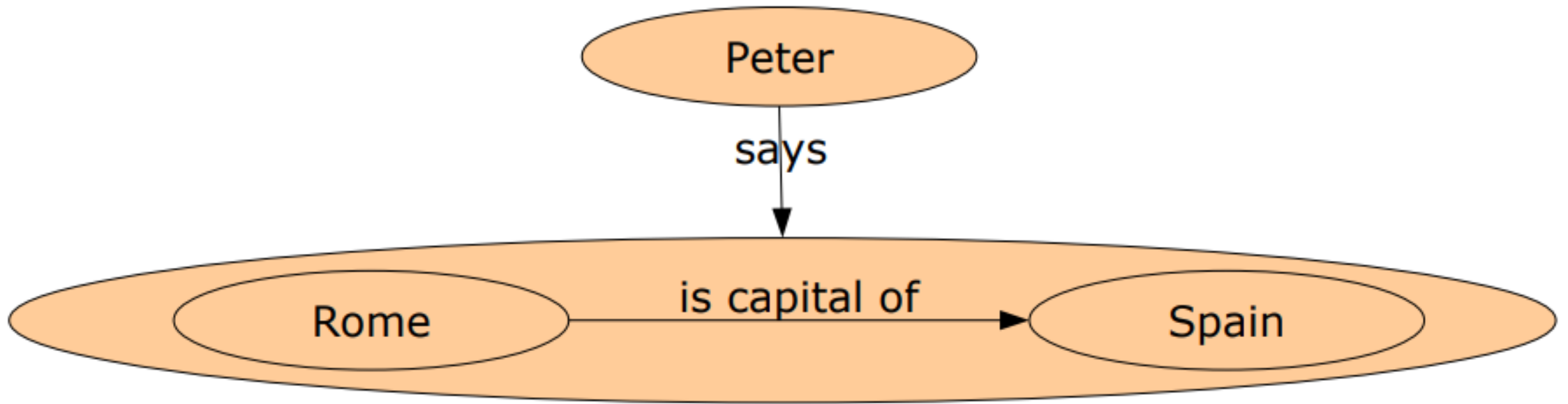
- In rdf statement about statements
  "Peter says that Rome is the capital of Spain."
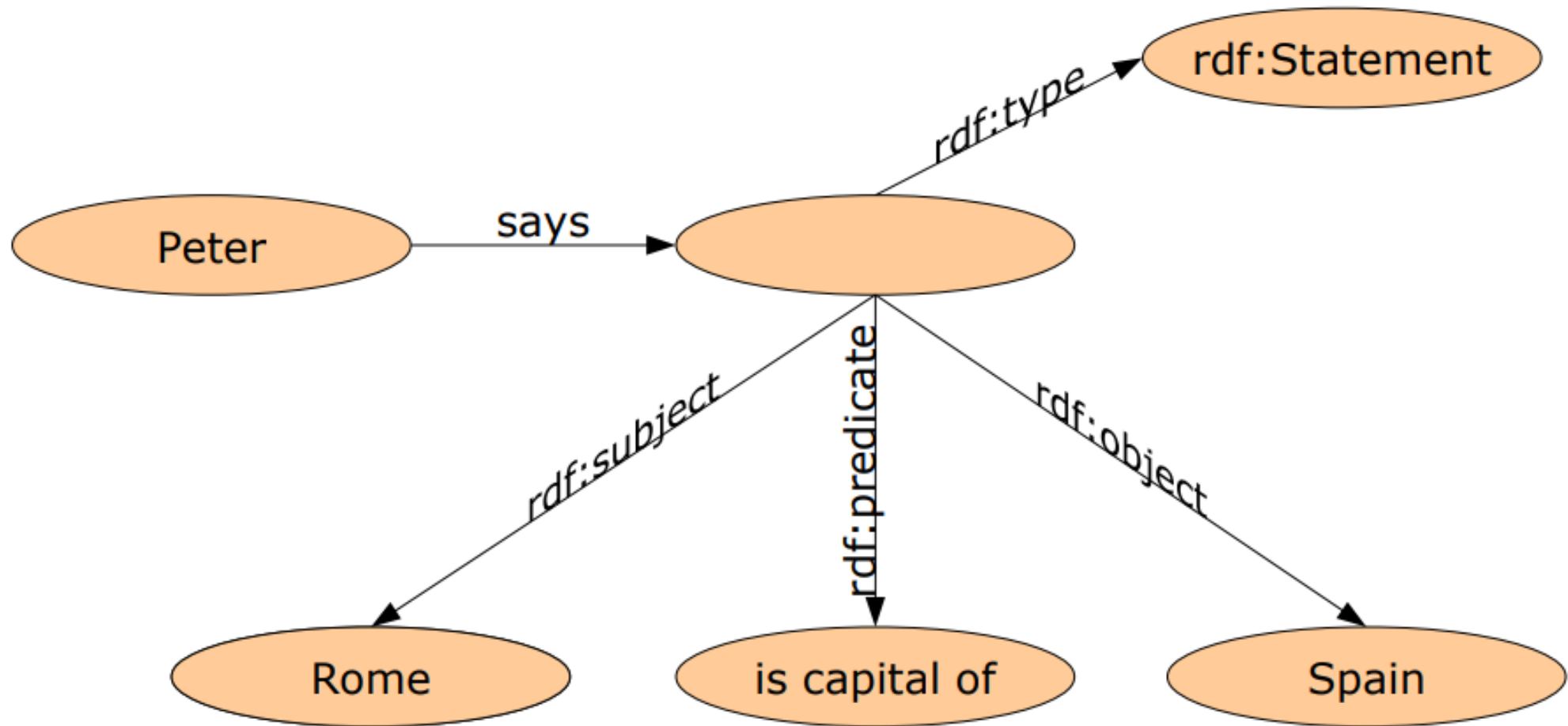 Implementation:
    - RDF Statements are considered resources themselves
    - Can be subject or object of other statements
  - Reification can have multiple levels
    - "Peter says that Wikipedia states that Rome is the capital of Spain."

Reification in RDF

- "Peter says that Rome is the capital of Spain."

Implementing Reification as Standard RDF

Práctica 7