RDF Schema

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RDF and RDF Schema

- Consider the RDF document
  - ex:Karina rdf:type ex:AssistantProfessor .
  - ex:Mauricio rdf:type ex:Professor .
  - ex:SemanticWeb rdf:type ex:Module .
  - ex:SemanticWeb ex:isTaughtBy ex:Karina .
- How can we collect all academicStaff members?
- We need statements not only about individual objects (such as Karina, Mauricio) but also about classes of objects (such as academic staff, etc.)

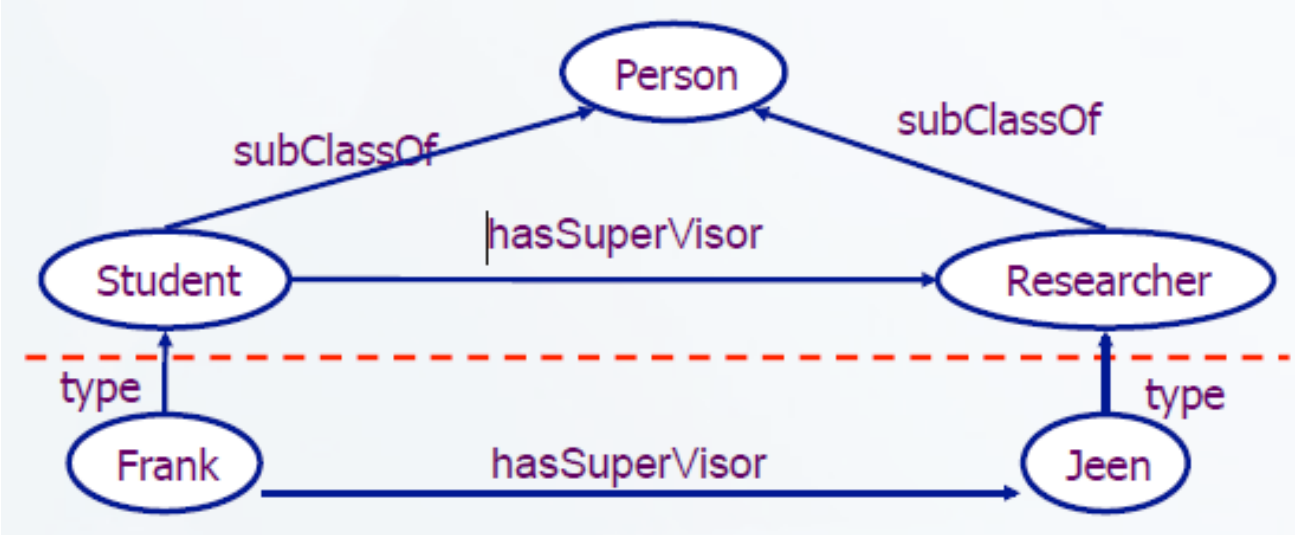
RDF Schema

- RDF Schema ‘semantically extends’ RDF to enable us to talk about classes of resources, and the properties that will be used with them.

- Classes in RDF Schema is much like classes in object oriented programming languages. This allows resources to be defined as instances of classes, and subclasses of classes.

RDF Schema: the language

- rdf:type, which relates resource to its class (the resource is declared to be an instance of that class)
- **rdfs:subClassOf**, allows to declare hierarchies of classes
    - all instances of a class are instances of its superclass
    - note that a class may be a subclass of more than one class



RDF Schema: the language

- **rdfs:subPropertyOf**, which relates a property to one of its superproperties

- **rdfs:domain** of an rdf:predicate declares the class of the *subject* in a triple.

- **rdfs:range** of an rdf:predicate declares the class or datatype of the *object* in a triple.

RDF Schema Sample

```
...
<rdfs:Class rdf:ID="Course"/>

<rdfs:Class ID="Student">
<rdfs:subClassOf rdf:resource="foaf:Person"/>
</rdfs:Class>

<rdf:Property rdf:ID="Name">
 <rdfs:domain rdf:resource="foaf:Person"/>
 <rdfs:range rdf:resource="xsd:String"/>
</rdf:Property>

<rdf:Property rdf:ID="hasParent">
 <rdfs:domain rdf:resource="foaf:Person"/>
 <rdfs:range rdf:resource="foaf:Person"/>
</rdf:Property>

</rdf:Property>
<rdf:Property rdf:ID="hasFather">
 <rdfs:subPropertyOf rdf:resource="#hasParent"/>
</rdf:Property>
```

Some more RDF(S)

- **rdfs:label** is used to indicate a resource that might provide additional information about the subject resource
  - ex:Town **rdfs:label** “Town”

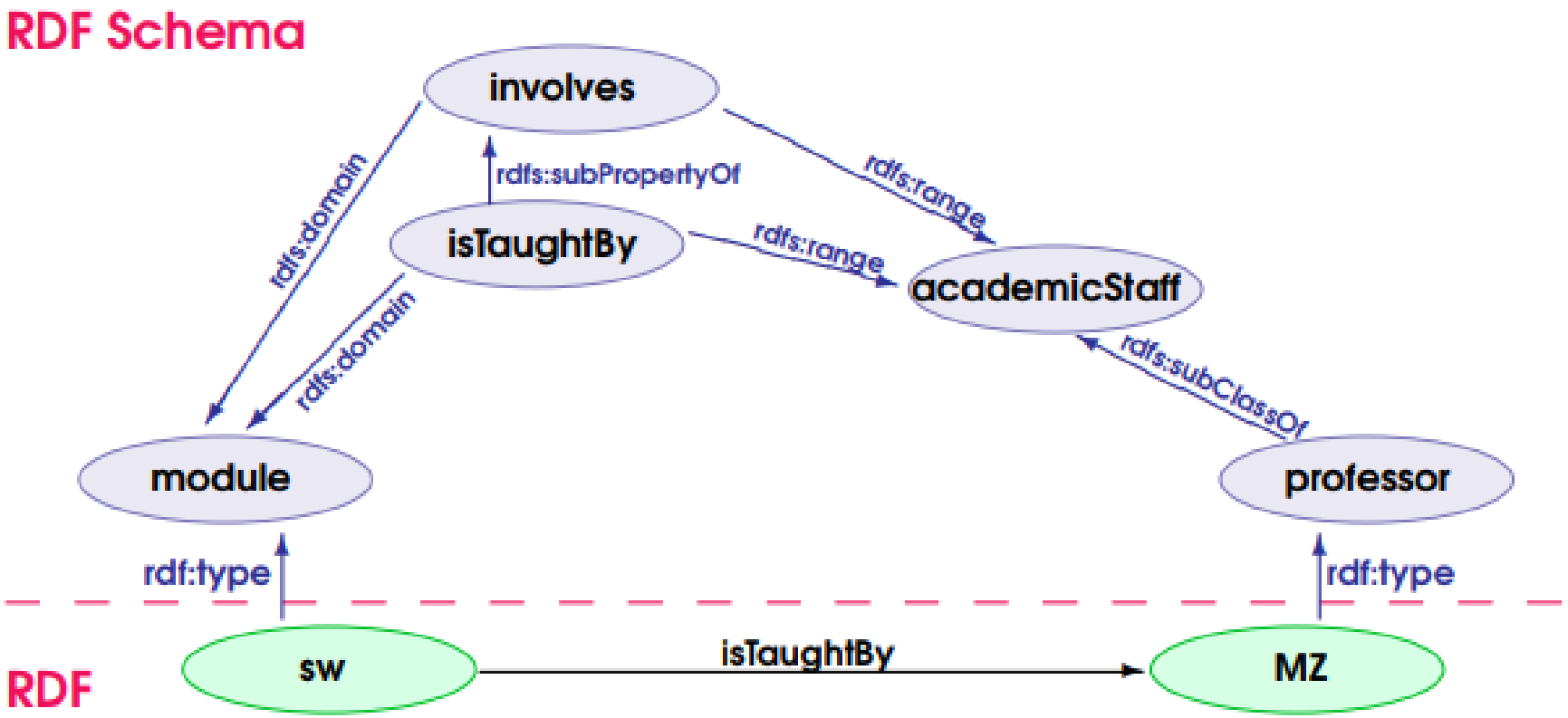
- **rdfs:comment** may be used to provide a human-readable description of a resource.
  - – ex:Town **rdfs:comment** “A town is smaller than a city”

- **rdfs:seeAlso** is used to indicate a resource that might provide additional information about the subject resource
  - – ex:Town **rdfs:seeAlso** ex:City

Example

- professors are academic_staff_members
- modules are taught by academic staff members only
- Is taught by is a subproperty of involves
- Semantic Web is a module and Michael Zang is a proffesor

RDF vs. RDFS layers



What ‘implicit knowledge’ is missing in the picture

Práctica 9

Preguntas?