Overview of RDF Data Model

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Short history of RDF

Around 1997 - PICS, Dublin core, Meta Content Framework

1997 1st Working draft https://www.w3.org/TR/WD-rdf-syntax-971002

RDF/XML

1999 1st W3c Rec https://www.w3.org/TR/1999/REC-rdf-syntax-19990222/

First applications RSS, EARL

2004 - RDF Revised https://www.w3.org/TR/2004/REC-rdf-concepts-20040210/

Emergence of SPARQL, Turtle, Linked Data

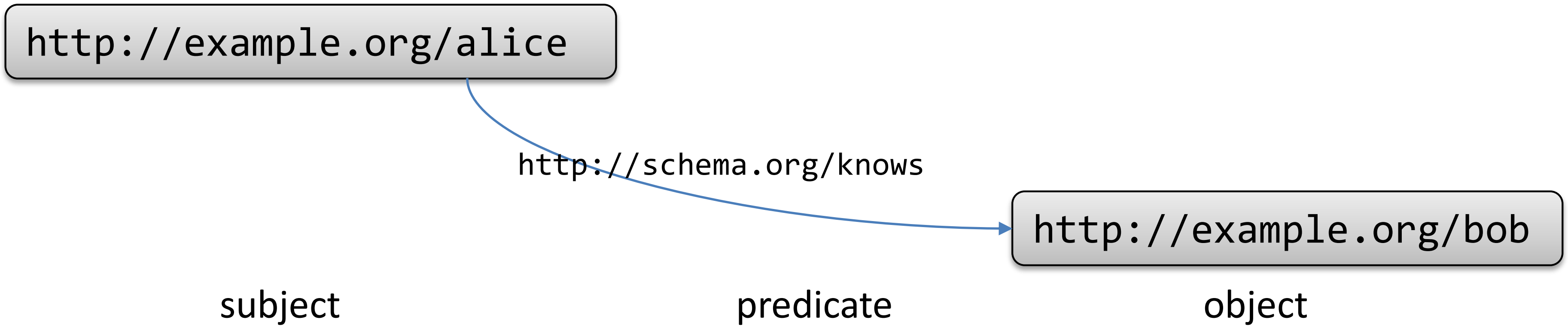
2014 - RDF 1.1 https://www.w3.org/TR/rdf11-concepts/

RDF Data Model

RDF Graph = set of triples

A triple = (subject, predicate, object)

Example:



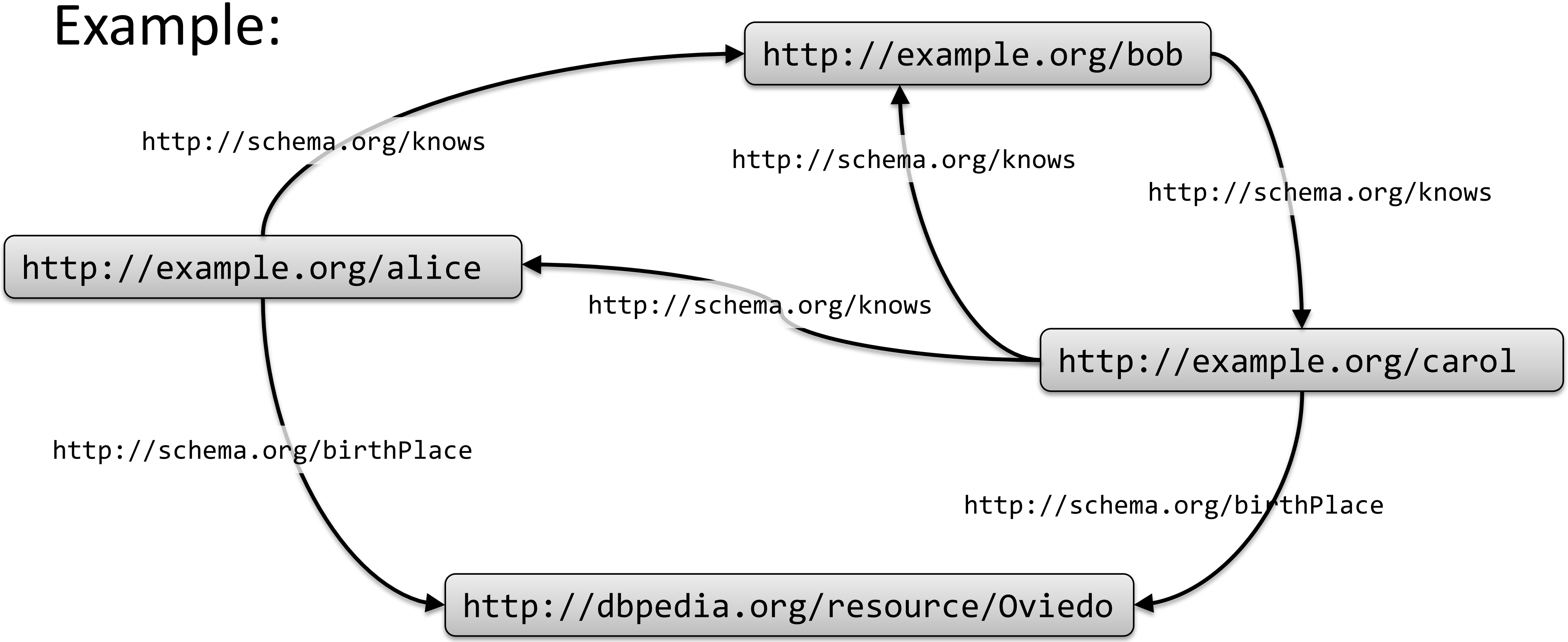
N-Triples representation

```
<http://example.org/alice> <http://xmlns.com/foaf/0.1/knows> <http://example.org/bob> .
```

RDF Graph

RDF Graph = set of triples

Example:



RDF Graph

N-triples representation

```
<http://example.org/alice> <http://schema.org/knows>      <http://example.org/bob> .
<http://example.org/bob>   <http://schema.org/knows>      <http://example.org/carol> .
<http://example.org/carol> <http://schema.org/knows>      <http://example.org/alice> .
<http://example.org/carol> <http://schema.org/knows>      <http://example.org/bob> .
<http://example.org/alice> <http://schema.org/birthPlace> <http://dbpedia.org/resource/Oviedo> .
<http://example.org/carol> <http://schema.org/birthPlace> <http://dbpedia.org/resource/Oviedo> .
```

Turtle Syntax

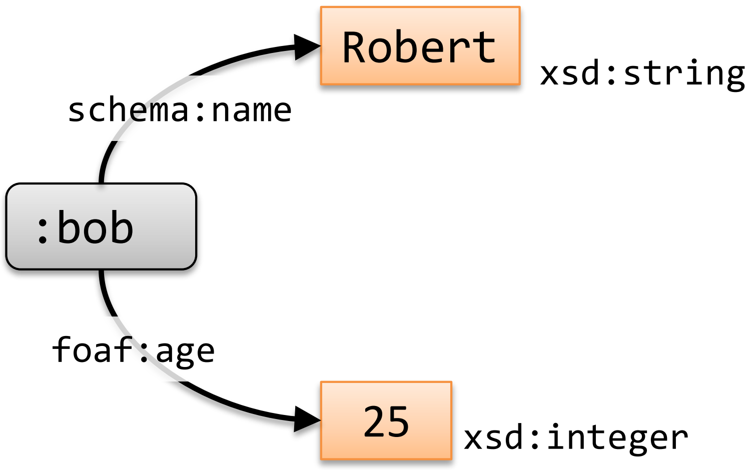
Some simplifications

- prefix declarations
- ; when triples share the subject
- , when triples share subject and object

```
prefix :       <http://example.org/>
prefix schema: <http://schema.org/>
prefix dbo:    <http://dbpedia.org/ontology/>
prefix dbr:    <http://dbpedia.org/resource/>

:alice  schema:birthPlace  dbr:Oviedo ;
        schema:knows      :bob .

:bob    schema:knows      :carol .

:carol  schema:birthPlace  dbr:Oviedo ;
        schema:knows      :alice ,
                          :bob .
```

Literals

- Objects can also be literals
  - Literals contain a lexical form and a datatype
  - Typical datatypes: XML Schema primitive datatypes
    - If not specified, a literal has type `xsd:string`



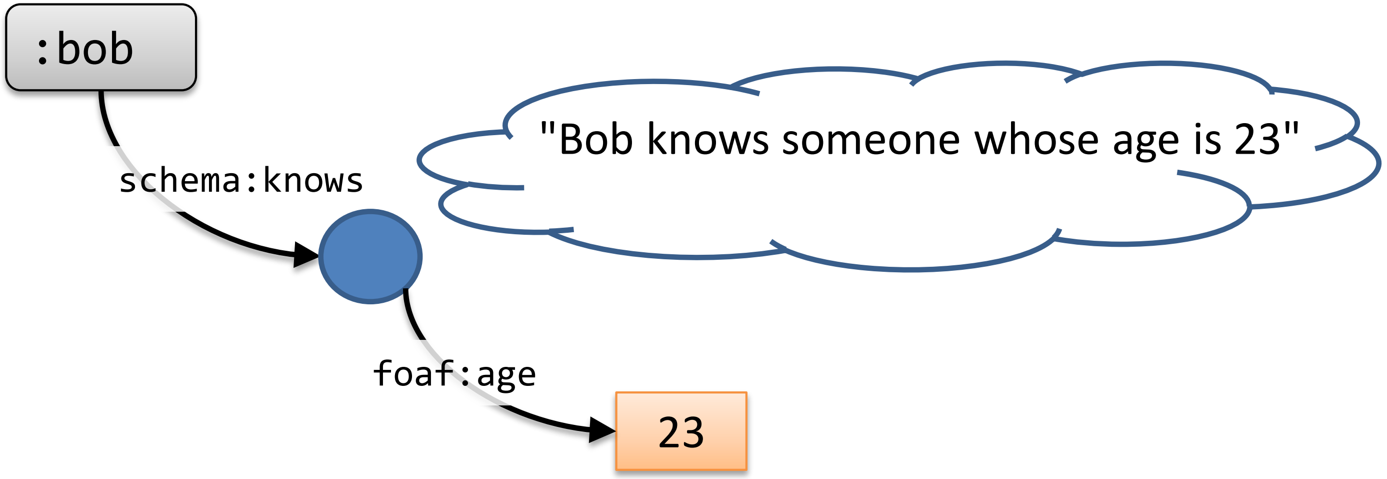
```
:bob schema:name "Robert" ;
     foaf:age   25 .
```

```
:bob schema:name "Robert"^^<xsd:string> ;
     foaf:age   25^^<xsd:integer>   .
```

Blank nodes

Subjects and objects can also be Blank nodes

Blank nodes can have local identifiers



```
:bob foaf:knows _:1 .
_:1  foaf:age 23  .
```

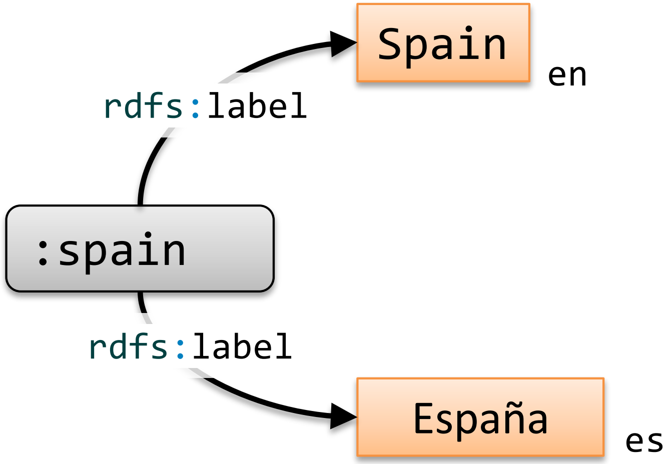
or

```
:bob foaf:knows [
           foaf:age 23
    ] .
```

Language tagged strings

String literals can be qualified by a language tag

- They have datatype rdfs:langString



```
:spain rdfs:label "Spain"@en ;
       rdfs:label "España"@es .
```

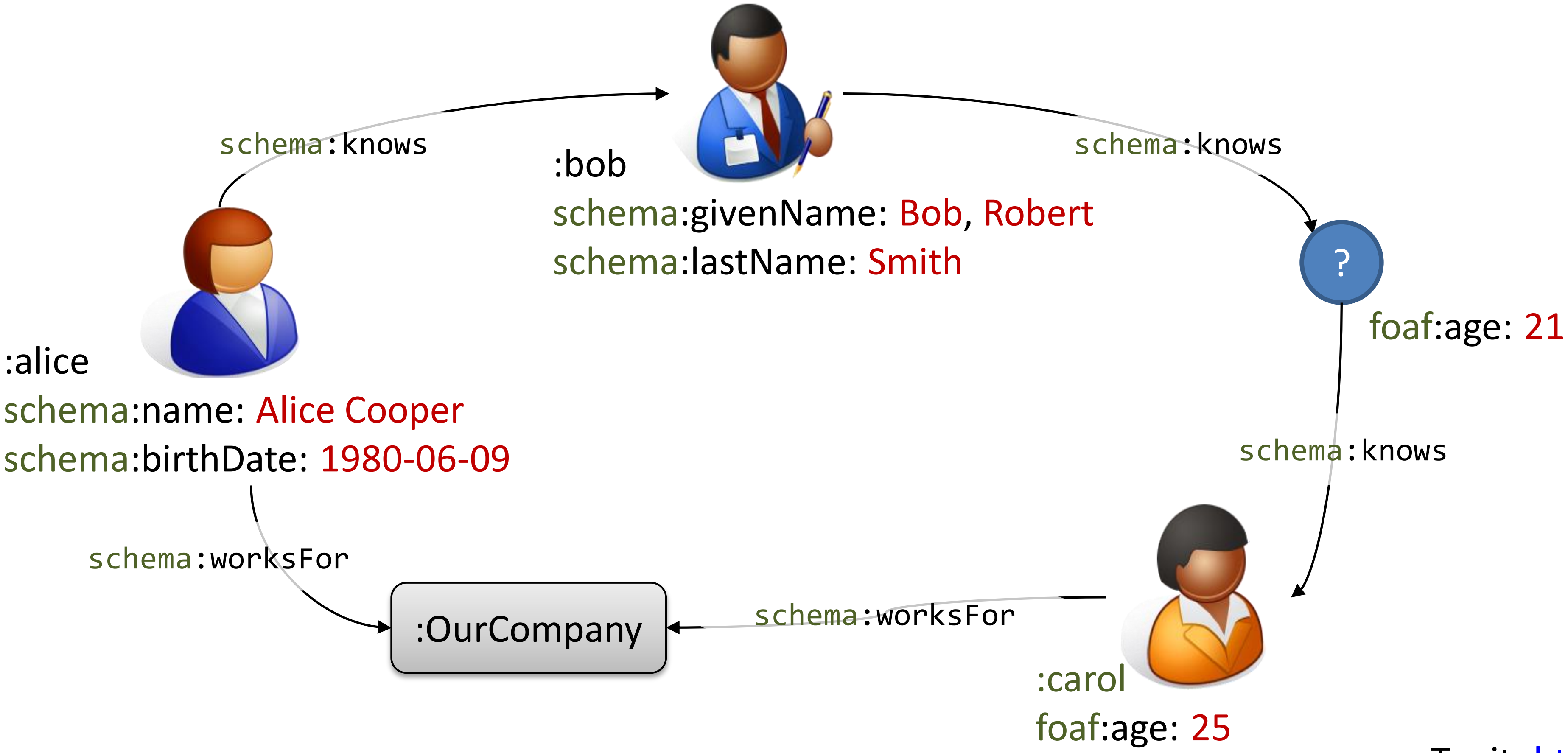
...and that's all?

Yes, the RDF Data model is simple

Simple
is
better

Exercise

Define the following information in RDF



Try it: http://goo.gl/Ve66q1

Continue with RDF Validation tutorial

http://www.slideshare.net/jelabra/rdf-validation-tutorial