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Representing RDF

XML vs RDF

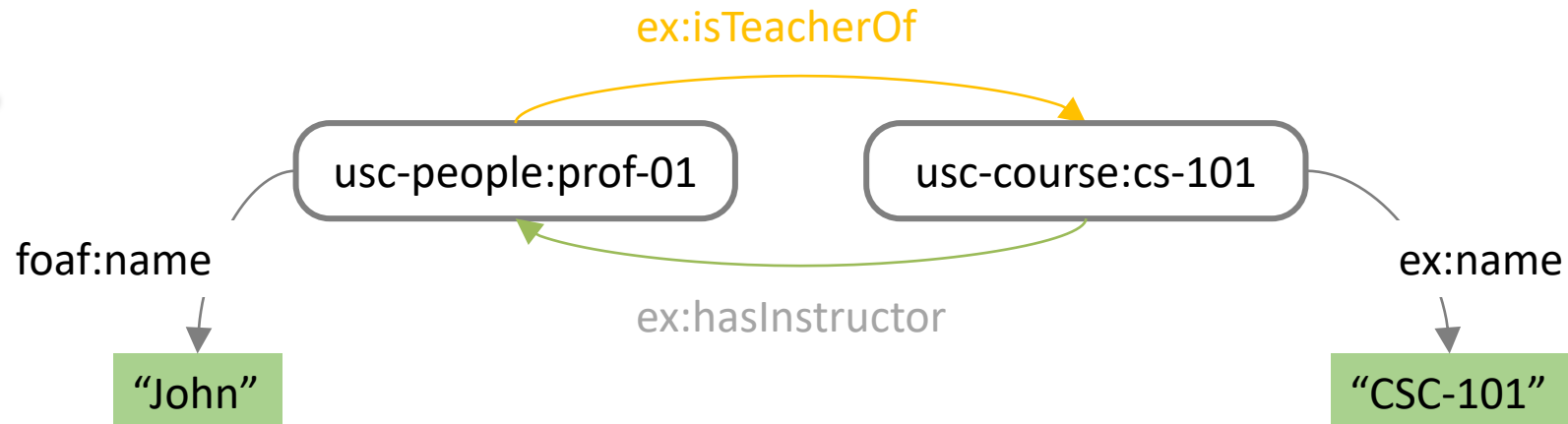
John is an instructor for CS101

XML

```
<instructor name="John">  
  <teaches>CS 101</teaches>  
</instructor>
```

```
<course name="CS101">  
  <instructor> John </instructor>  
</course>
```

RDF



RDF Syntaxes

XML

Leverages XML tools
Hard for humans to read

N3, Turtle

Terse RDF Triple Language
Human readable format
Works with software too

N-Triples

Subset of turtle, supports streaming
Standard for large RDF dumps

RDFa

Allows embedding RDF in HTML pages

JSON-LD

RDF in JSON



XML Syntax

```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/">

  <rdf:Description rdf:about="http://szekelys.com/family#pedro">
    <foaf:firstName>Pedro</foaf:firstName>
    <foaf:homepage rdf:resource="http://isi.edu/~szekely"/>
  </rdf:Description>

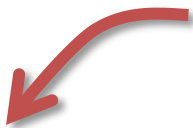
</rdf:RDF>
```

Pedro's homepage is "http://isi.edu/~szekely"



XML Syntax

It's an XML document



```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/">

  <rdf:Description rdf:about="http://szekelys.com/family#pedro">
    <foaf:firstName>Pedro</foaf:firstName>
    <foaf:homepage rdf:resource="http://isi.edu/~szekely"/>
  </rdf:Description>

</rdf:RDF>
```

Pedro's homepage is "http://isi.edu/~szekely"



XML Syntax

Here comes some RDF

```
<?xml version="1.0"?>  
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"   
        xmlns:foaf="http://xmlns.com/foaf/0.1/">  
  
  <rdf:Description rdf:about="http://szekelys.com/family#pedro">  
    <foaf:firstName>Pedro</foaf:firstName>  
    <foaf:homepage rdf:resource="http://isi.edu/~szekely"/>  
  </rdf:Description>  
  
</rdf:RDF>
```

Pedro's homepage is "http://isi.edu/~szekely"



XML Syntax

Namespace declarations

```
<?xml version="1.0"?>  
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"   
  xmlns:foaf="http://xmlns.com/foaf/0.1/">  
  
  <rdf:Description rdf:about="http://szekelys.com/family#pedro">  
    <foaf:firstName>Pedro</foaf:firstName>  
    <foaf:homepage rdf:resource="http://isi.edu/~szekely"/>  
  </rdf:Description>  
  
</rdf:RDF>
```

Pedro's homepage is "http://isi.edu/~szekely"



XML Syntax

Subject

```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/">

  <rdf:Description rdf:about="http://szekelys.com/family#pedro">
    <foaf:firstName>Pedro</foaf:firstName>
    <foaf:homepage rdf:resource="http://isi.edu/~szekely"/>
  </rdf:Description>

</rdf:RDF>
```

Pedro's homepage is "http://isi.edu/~szekely"



XML Syntax

Predicate

```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/">

  <rdf:Description rdf:about="http://szekelys.com/family#pedro">
    <foaf:firstName>Pedro</foaf:firstName>
    <foaf:homepage rdf:resource="http://isi.edu/~szekely"/>
  </rdf:Description>

</rdf:RDF>
```

Pedro's homepage is "http://isi.edu/~szekely"



XML Syntax

Value

```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/">

  <rdf:Description rdf:about="http://szekelys.com/family#pedro">
    <foaf:firstName>Pedro</foaf:firstName>
    <foaf:homepage rdf:resource="http://isi.edu/~szekely"/>
  </rdf:Description>

</rdf:RDF>
```

Pedro's homepage is "http://isi.edu/~szekely"



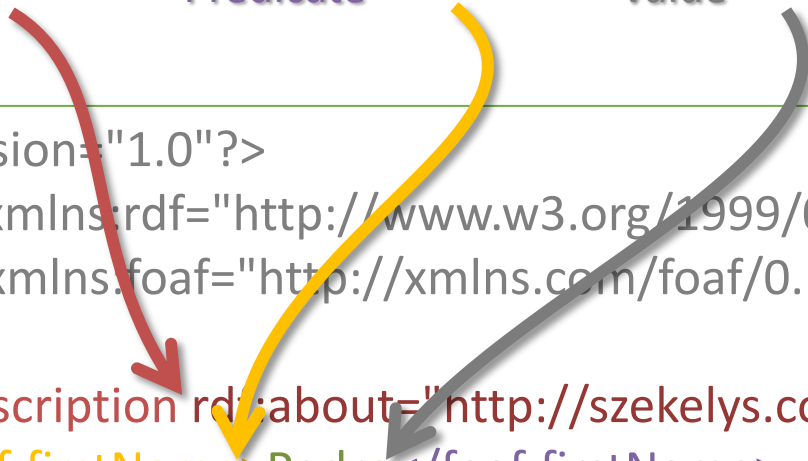
XML Syntax

Subject Predicate Value

```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/">

  <rdf:Description rdf:about="http://szekelys.com/family#pedro">
    <foaf:firstName>Pedro</foaf:firstName>
    <foaf:homepage rdf:resource="http://isi.edu/~szekely"/>
  </rdf:Description>

</rdf:RDF>
```



Pedro's homepage is "http://isi.edu/~szekely"



XML Syntax



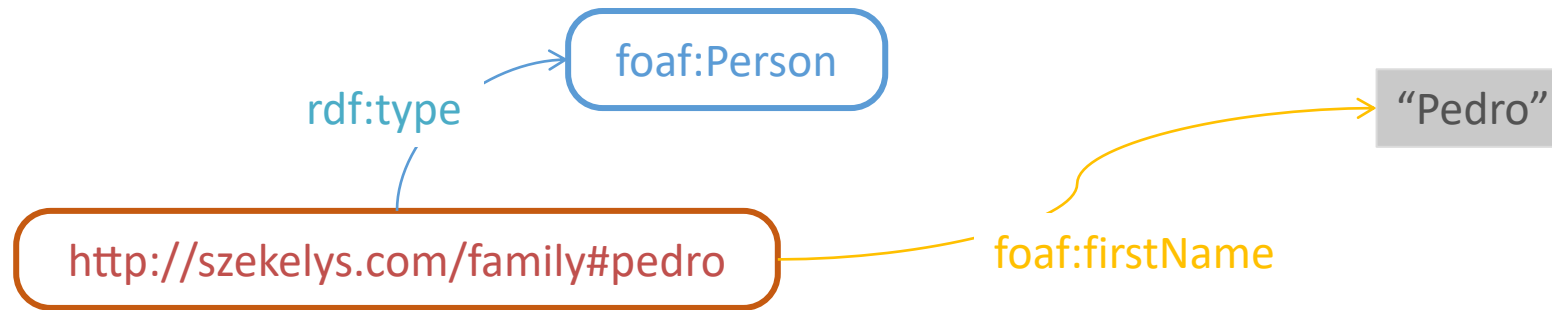
```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/">

  <rdf:Description rdf:about="http://szekelys.com/family#pedro">
    <foaf:firstName>Pedro</foaf:firstName>
    <foaf:homepage rdf:resource="http://isi.edu/~szekely"/>
  </rdf:Description>

</rdf:RDF>
```



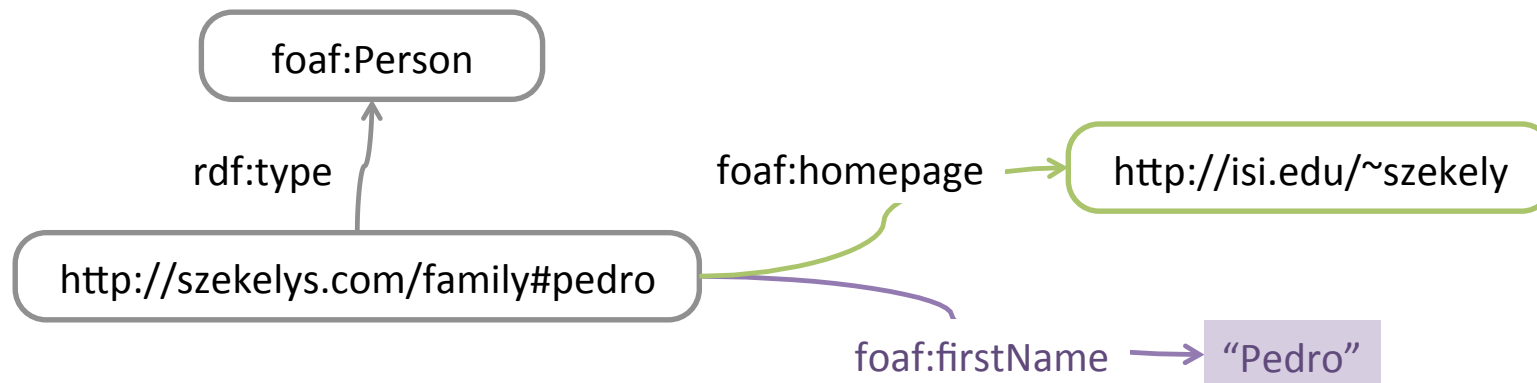
XML Syntax



```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/">

  <foaf:Person rdf:about="http://szekelys.com/family#pedro">
    <foaf:firstName>Pedro</foaf:firstName>
    <foaf:homepage rdf:resource="http://isi.edu/~szekely"/>
  </foaf:Person>

</rdf:RDF>
```



```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/">
  <foaf:Person rdf:about="http://szekelys.com/family#pedro">
    <foaf:firstName>Pedro</foaf:firstName>
    <foaf:homepage rdf:resource="http://isi.edu/~szekely"/>
  </foaf:Person>
</rdf:RDF>
```

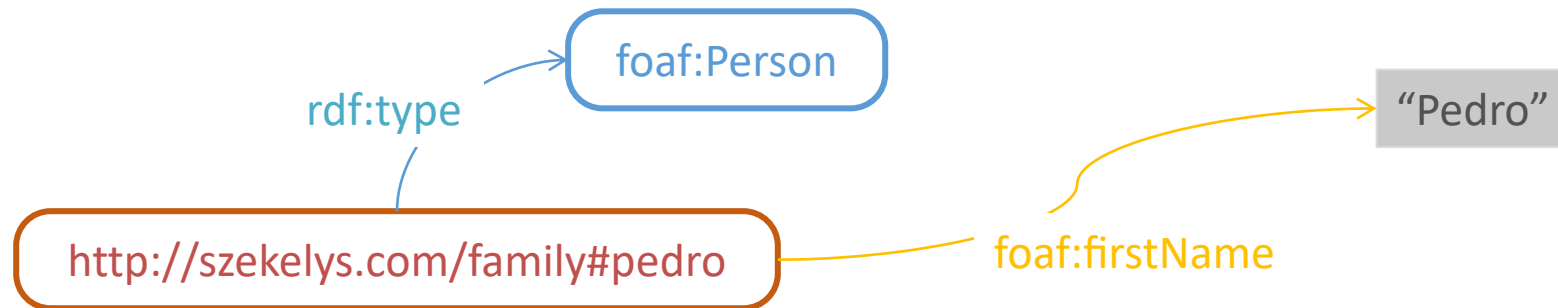
```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf=...
  xmlns:foaf=...
  <foaf:Person rdf:about=
    "http://szekelys.com/family#pedro">
    <foaf:firstName>Pedro</foaf:firstName>
  </foaf:Person>
</rdf:RDF>
```

+

```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf=...
  xmlns:foaf=...
  <foaf:Person rdf:about=
    "http://szekelys.com/family#pedro">
    <foaf:homepage rdf:resource="http://isi.edu/~szekely"/>
  </foaf:Person>
</rdf:RDF>
```



N3 and Turtle Syntaxes



```
@prefix rdf:    <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .  
@prefix foaf:   <http://xmlns.com/foaf/0.1/> .  
  
<http://szekelys.com/family#pedro> foaf:firstName "Pedro" .  
<http://szekelys.com/family#pedro> rdf:type    foaf:Person .
```

Each triple ends with a dot

