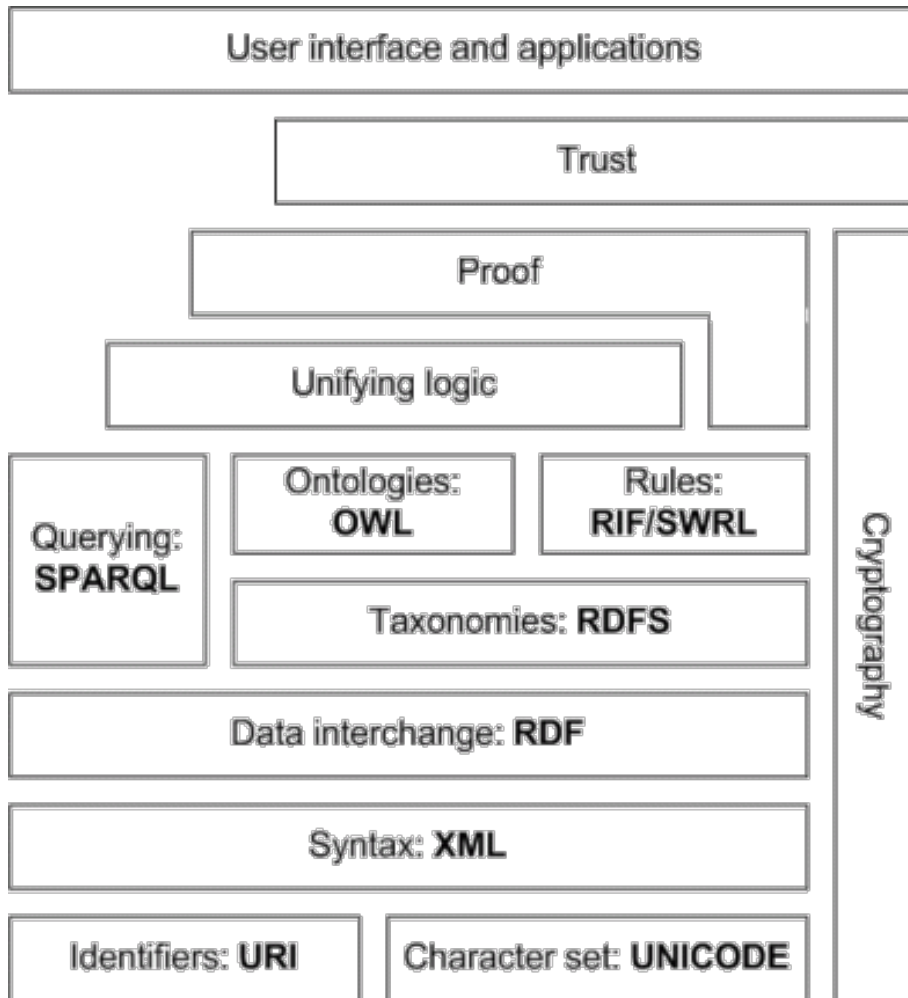# Semantic Web

Gabriel de Lima Rabelo

Current Web

- Web of documents
- Designed for humans

Web 3.0

- Web of data
- Linked data
- Designed for both humans and machines

"Linking Open Data cloud diagram, by Richard Cyganiak and Anja Jentzsch. http://lod-cloud.net/"

User interface and applications	
Trust	
Proof	Cryptography
Unifying logic	

Querying: **SPARQL**	Ontologies: **OWL**	Rules: **RIF/SWRL**
	Taxonomies: **RDFS**	

Data interchange: **RDF**

Syntax: **XML**

Identifiers: **URI**	Character set: **UNICODE**

- Unicode
- XML
- RDF
- OWL
- SPARQL

XML

- Extend the structure of a document

```
<PERSON>
 <NAME>JOHN</NAME>
 <ADDRESS>BROAD STREET</ADDRESS>
 <ZIPCODE>12341</ZIPCODE>
 <PHONE>555-555-5555</PHONE>
</PERSON>
```

Resource Description Framework

- Data model for describing "things" and their interrelations;
- Consists of statements about "things" (Web resources) in the form of subject-predicate-object expressions, also known as triples;
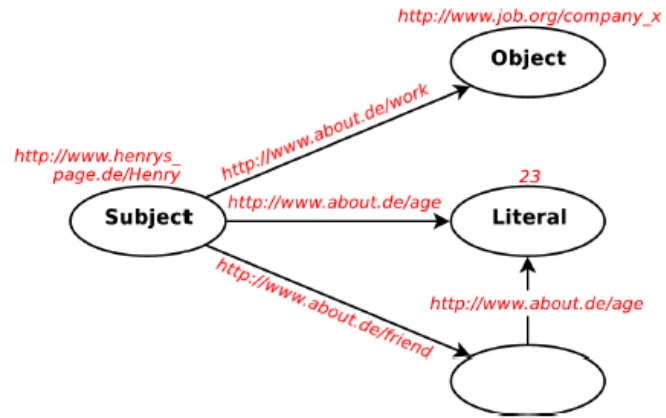
Subject   **Predicate**   **Object**

Gabriel   Studies   AI

```xml
<?xml version ="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
         xmlns:ab="http://www.about.com/"
         xml:base="http://www.henrys_page.com">
  <rdf:Description rdf:ID="Henry"
   ab:work="http://www.job.com/"
   ab:age="23">
    <ab:friend rdf:nodeID="s3fo" />
  </rdf:Description>

  <rdf:Description rdf:nodeID="s3fo"
   ab:age="23">
  </rdf:Description>
</rdf:RDF>
```