OWL
Web Ontology Language

OWL - Web Ontology Language

- Familie von Sprachen zur Wissensrepräsentation;
  keine Programmiersprache, sondern deklarative Sprache, um “Logik auszudrücken”

- Akronym:
  “*Why not be inconsistent in at least one aspect of a language which is all about consistency*?”

- W3C Standard / OWL2 keine

- Syntax (Bild rechts)

https://en.wikipedia.org/wiki/Web_Ontology_Language

OWL2 Functional Syntax

```
Ontology(<http://example.org/tea.owl>
  Declaration( Class( :Tea ) )
)
```

OWL2 XML Syntax

```
<Ontology ontologyIRI="http://example.org/tea.owl" ...>
  <Prefix name="owl" IRI="http://www.w3.org/2002/07/owl#"/>
  <Declaration>
    <Class IRI="Tea"/>
  </Declaration>
</Ontology>
```

Manchester Syntax

```
Ontology: <http://example.org/tea.owl>
Class: Tea
```

RDF/XML syntax

```
<rdf:RDF ...>
    <owl:Ontology rdf:about=""/>
    <owl:Class rdf:about="#Tea"/>
</rdf:RDF>
```

RDF/Turtle

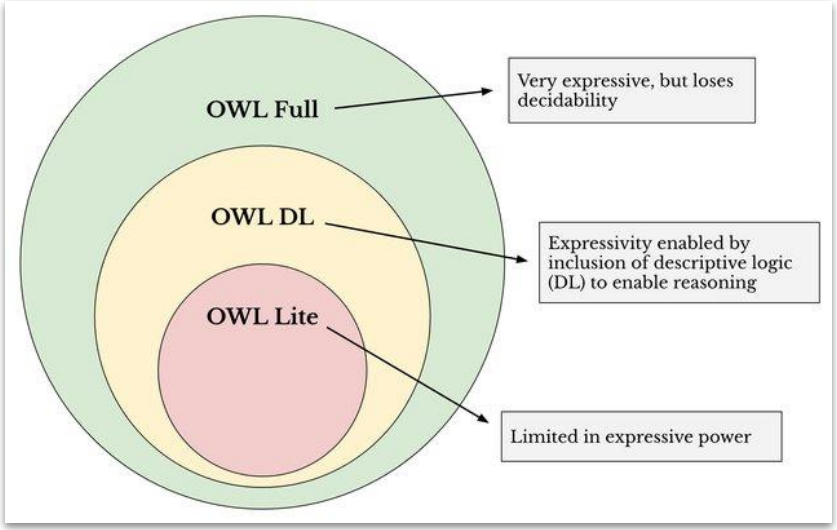
```
<http://example.org/tea.owl> rdf:type owl:Ontology .
:Tea  rdf:type            owl:Class .
```

- Formale Semantik ~ Beschreibungslogik
- **OWL verwendet die *Open world assumption***

  “[The closed] world assumption implies that everything we don’t know is false, while the open world assumption states that everything we don’t know is undefined.”

- Subsprachen:
  OWL Lite / OWL DL / OWL Full

- OWL Full ist eine semantische Erweiterung von RDF/RDFs.



https://www.w3.org/TR/owl2-overview/
https://www.w3.org/TR/2012/REC-owl2-primer-20121211/

```
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#" xmlns:owl="http://www.w3.org/2002/07/owl#" xmlns="http://localhost:8080/OwlBuergerInformation.owl#" xml:base="http://localhost:8080/OwlBuergerInformation.owl">
    <owl:Ontology rdf:about="" />
    <owl:Class rdf:ID="Gender" />
    <owl:Class rdf:ID="Person" />
    <owl:Class rdf:ID="Woman">
        <rdfs:subClassOf rdf:resource="#Person" />
        <owl:equivalentClass>
            <owl:Restriction>
                <owl:onProperty rdf:resource="#gender" />
                <owl:hasValue rdf:resource="#female" rdf:type="#Gender" />
            </owl:Restriction>
        </owl:equivalentClass>
    </owl:Class>
    <owl:ObjectProperty rdf:ID="gender" rdf:type="http://www.w3.org/2002/07/owl#FunctionalProperty">
      <rdfs:range rdf:resource="#Gender" />
      <rdfs:domain rdf:resource="#Person" />
    </owl:ObjectProperty>
    <owl:DatatypeProperty rdf:ID="name" rdf:type="http://www.w3.org/2002/07/owl#FunctionalProperty">
      <rdfs:range rdf:resource="http://www.w3.org/2001/XMLSchema#string" />
      <rdfs:domain rdf:resource="#Person" />
    </owl:DatatypeProperty>
    <owl:DatatypeProperty rdf:ID="firstname" rdf:type="http://www.w3.org/2002/07/owl#FunctionalProperty">
      <rdfs:range rdf:resource="http://www.w3.org/2001/XMLSchema#string" />
      <rdfs:domain rdf:resource="#Person" />
    </owl:DatatypeProperty>
    <Person rdf:ID="STilgner" firstname="Susanne" name="Tilgner">
     <Gender rdf:resource="#female" />
    </Person>
</rdf:RDF>
```