

# OWL

## Modeling example - an African Wildlife Ontology

Maciej Janik

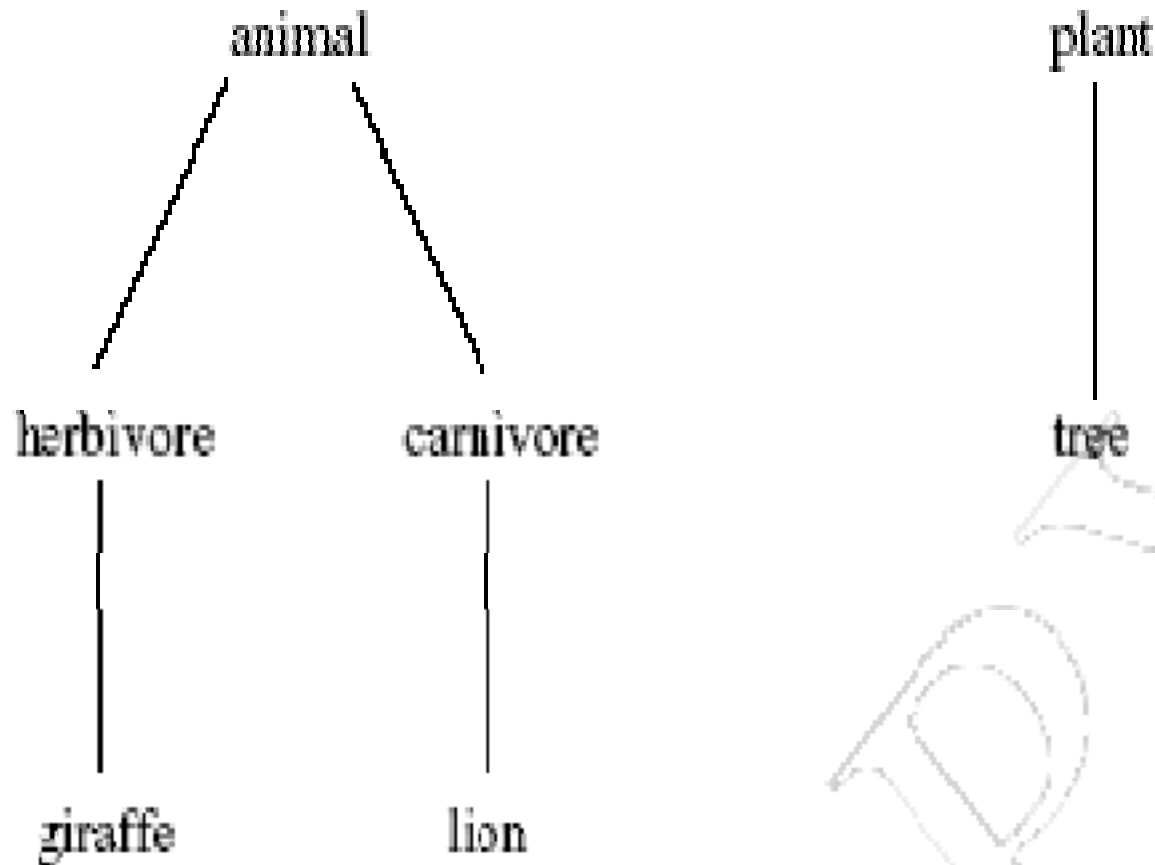
credit:

**Grigoris Antoniou and Frank van Harmelen**

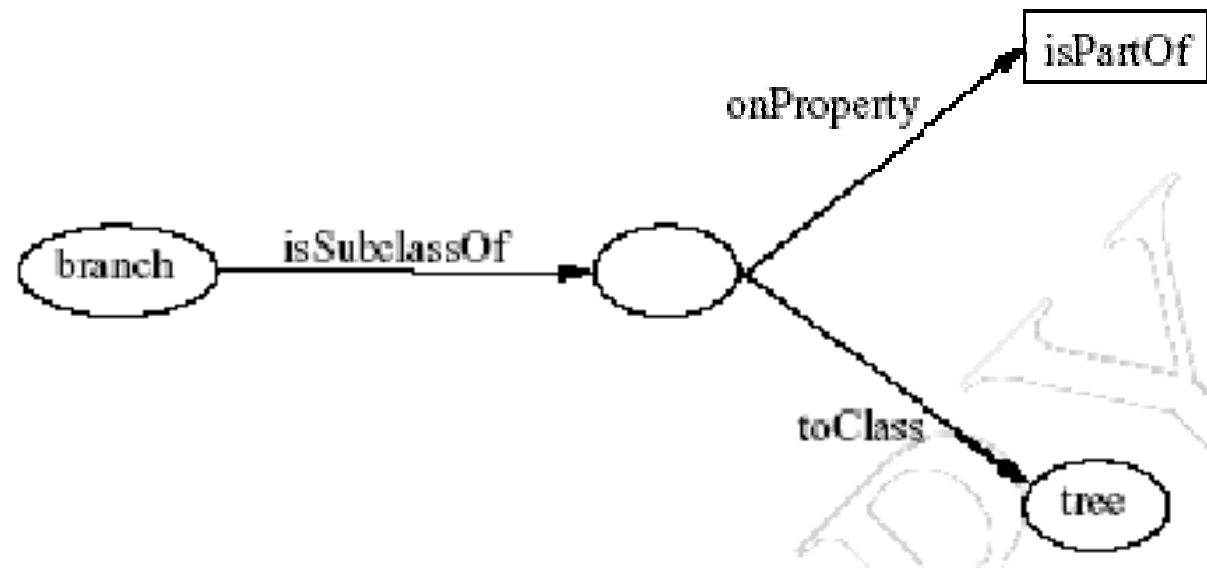
Semantic Web

2009-07-03





## Branches are parts of trees



```
<owl:TransitiveProperty rdf:ID="is-part-of" />
```

```
<owl:ObjectProperty rdf:ID="eats">  
  <rdfs:domain rdf:resource="#animal" />  
</owl:ObjectProperty>
```

```
<owl:ObjectProperty rdf:ID="eaten-by">  
  <owl:inverseOf rdf:resource="#eats" />  
</owl:ObjectProperty>
```

```
<owl:Class rdf:ID="plant">
  <rdfs:comment>Plants form a class disjoint
  from animals. </rdfs:comment>
  <owl:disjointWith rdf:resource="#animal"/>
</owl:Class>
```

```
<owl:Class rdf:ID="tree">
  <rdfs:comment>Trees are a type of plant.
  </rdfs:comment>
  <rdfs:subClassOf rdf:resource="#plant"/>
</owl:Class>
```

```
<owl:Class rdf:ID="branch">
  <rdfs:comment>Branches are parts of trees.
</rdfs:comment>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="#is-part-of"/>
      <owl:allValuesFrom rdf:resource="#tree"/>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>
```

```
<owl:Class rdf:ID="leaf">
  <rdfs:comment>Leaves are parts of branches.
</rdfs:comment>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="#is-part-of"/>
      <owl:allValuesFrom rdf:resource="#branch"/>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>
```

```
<owl:Class rdf:ID="carnivore">
  <rdfs:comment>Carnivores are exactly those animals
  that eat animals.</rdfs:comment>
  <owl:intersectionOf rdf:parsetype="Collection">
  <owl:Class rdf:about="#animal" />
    <owl:Restriction>
      <owl:onProperty rdf:resource="#eats" />
      <owl:someValuesFrom
        rdf:resource="#animal" />
    </owl:Restriction>
  </owl:intersectionOf>
</owl:Class>
```

```
<owl:Class rdf:ID="herbivore">
  <rdfs:comment>
    Herbivores are exactly those animals
    that eat only plants or parts of plants.
  </rdfs:comment>
  <owl:intersectionOf rdf:parsetype="Collection">
    <owl:Class rdf:about="#animal"/>
    <owl:Restriction>
      <owl:onProperty rdf:resource="#eats"/>
      <owl:allValuesFrom>
        <owl:unionOf rdf:parsetype="Collection">
          <owl:Class rdf:about="#plant"/>
          <owl:Restriction>
            <owl:onProperty rdf:resource="#is-part-of"/>
            <owl:allValuesFrom rdf:resource="#plant"/>
          </owl:Restriction>
        </owl:unionOf>
      </owl:allValuesFrom>
    </owl:Restriction>
  </owl:intersectionOf>
</owl:Class>
```

```
<owl:Class rdf:ID="giraffe">
  <rdfs:comment>Giraffes are herbivores, and they
  eat only leaves.</rdfs:comment>
  <rdfs:subClassOf rdf:type="#herbivore"/>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="#eats"/>
      <owl:allValuesFrom rdf:resource="#leaf"/>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>
```

```
<owl:Class rdf:ID="lion">
  <rdfs:comment>Lions are animals that eat
  only herbivores.</rdfs:comment>
  <rdfs:subClassOf rdf:type="#carnivore"/>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="#eats"/>
      <owl:allValuesFrom rdf:resource="#herbivore"/>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>
```

```
<owl:Class rdf:ID="tasty-plant">
  <rdfs:comment>Tasty plants are plants that are eaten both by
  herbivores and carnivores </rdfs:comment>
  <rdfs:subClassOf rdf:resource="#plant"/>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="#eaten-by"/>
      <owl:someValuesFrom>
        <owl:Class rdf:about="#herbivore"/>
      </owl:someValuesFrom>
    </owl:Restriction>
  </rdfs:subClassOf>
  <rdfs:subClassOf>
    <owl:Restriction>
      <owl:onProperty rdf:resource="#eaten-by"/>
      <owl:someValuesFrom>
        <owl:Class rdf:about="#carnivore"/>
      </owl:someValuesFrom>
    </owl:Restriction>
  </rdfs:subClassOf>
</owl:Class>
```