The OWL Ontology Language

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# OWL is an RDF-based language

:Dubin2007 a owl:NamedIndividual , :Appointment ;  
 :appointed\_position :Research\_Associate\_Professor ;  
 :appointee :David\_Dubin ;  
 :appointing\_organization :GSLIS ;  
 :start\_date "09/01/2007"^^xsd:string .

<owl:NamedIndividual rdf:about="http://example.com/Dubin2007">  
 <rdf:type rdf:resource="http://example.com/Appointment"/>  
 <appointed\_position rdf:resource="http://example.com/Research\_Associate\_Professor"/>  
 <appointee rdf:resource="http://example.com/David\_Dubin"/>  
 <appointing\_organization rdf:resource="http://example.com/GSLIS"/>  
 <start\_date rdf:datatype="http://www.w3.org/2001/XMLSchema#string">09/01/2007</start\_date>  
</owl:NamedIndividual>

# Protege instance view

![Protege graph](data:application/eps;base64,)

Protege graph

# Classes stand in hierarchical relationships

:Appointment a owl:Class ;  
 rdfs:subClassOf event:Event ;  
 skos:definition """A period of time during which an   
 agent occupies a professional role or post.""" .

. . .

# Classes stand in hierarchical relationships

![Comparison to UML](data:application/eps;base64,)

Comparison to UML

# Classes stand in non-hierarchical relationships

event:Event a owl:Class ;  
 owl:disjointWith foaf:Person .

. . .

# Object properties obtain between resources

:appointing\_organization a owl:ObjectProperty ;  
 rdfs:subPropertyOf event:agent ;  
 owl:inverseOf :organization\_appoints ;  
 rdfs:domain :Appointment ;  
 rdfs:range org:Organization ;  
 rdfs:label "appointing organization"@en .

. . .

# Data Properties connect resources and data structures

:start\_date a owl:DatatypeProperty ;  
 rdfs:domain event:Event ;  
 rdfs:range xsd:string ;  
 rdfs:label "start date" .  
  
:Dubin2007 a owl:NamedIndividual , :Appointment ;  
 :appointed\_position :Research\_Associate\_Professor ;  
 :appointee :David\_Dubin ;  
 :appointing\_organization :GSLIS ;  
 :start\_date "09/01/2007"^^xsd:string .

. . .

# Complex classes

:Material\_Resource a owl:Class ;  
 owl:equivalentClass [ a owl:Class ;  
 owl:intersectionOf ( :Resource :PhysicalObject ) ] .

. . .

. . .

:Teaching\_Resource a owl:Class ;  
 owl:equivalentClass [ a owl:Restriction ;  
 owl:hasValue :Teaching ;  
 owl:onProperty :supports ] .

. . .

# Complex classes

:Faculty\_Member a owl:Class ;  
 rdfs:subClassOf foaf:Person ;  
 owl:equivalentClass [ a owl:Restriction ;  
 owl:onProperty :has\_appointment ;  
 owl:someValuesFrom :Faculty\_Appointment ] .  
  
:Faculty\_Appointment a owl:Class ;  
 rdfs:subClassOf :Appointment ;  
 owl:equivalentClass [ a owl:Restriction ;  
 owl:onProperty :appointed\_position ;  
 owl:someValuesFrom :Faculty\_Position ] .

. . .