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## Übungen zur Vorlesung

### Semantic Web

WS 2011/2012

Übung 1 – RDF(S)

## Lösung

### Aufgabe 1:

Die RDF Daten in Abbildung 1 und deren Visualisierung in Abbildung 2 ist eine mögliche und sinnvolle Ontologie für die gegebenen RDF Daten der Aufgabenstellung. Varianten dieser Ontologie können ebenfalls sinnvoll sein. Der LUBM Benchmark [Guo, Pan and Heflin, 2005] enthält eine OWL Ontologie für diesen Anwendungsbereich.

```
# prefix declarations
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@prefix ub: <http://www.lehigh.edu/~zhp2/2004/0401/univ-bench.owl#> .
# classes and subclass relationships
ub:Person rdf:type rdfs:Class.
ub:Student rdf:type rdfs:Class.
ub:Student rdfs:subClassOf ub:Person.
ub:GraduateStudent rdf:type rdfs:Class.
ub:GraduateStudent rdfs:subClassOf ub:Student.
ub:UndergraduateStudent rdf:type rdfs:Class.
ub:UndergraduateStudent rdfs:subClassOf ub:Student.
ub:Lecturer rdf:type rdfs:Class.
ub:Lecturer rdfs:subClassOf ub:Person.
ub:Professor rdf:type rdfs:Class.
ub:Professor rdfs:subClassOf ub:Lecturer.
ub:FullProfessor rdf:type rdfs:Class.
ub:FullProfessor rdfs:subClassOf ub:Professor.
ub:AssociateProfessor rdf:type rdfs:Class.
ub:AssociateProfessor rdfs:subClassOf ub:Professor.
ub:AssistantProfessor rdf:type rdfs:Class.
ub:AssistantProfessor rdfs:subClassOf ub:Professor.
ub:Publication rdf:type rdfs:Class.
ub:Organization rdf:type rdfs:Class.
ub:University rdf:type rdfs:Class.
ub:University rdfs:subClassOf ub:Organization.
ub:Department rdf:type rdfs:Class.
ub:Department rdfs:subClassOf ub:Organization.
ub:Course rdf:type rdfs:Class.
# properties, range and domain restrictions as well as subproperty relationships
ub:personStringProperty rdf:type rdfs:Property.
ub:personStringProperty rdfs:domain ub:Person.
ub:personStringProperty rdfs:range xsd:string.
ub:name rdf:type rdfs:Property.
ub:name rdfs:subPropertyOf ub:personStringProperty.
ub:emailAdress rdf:type rdfs:Property.
ub:emailAdress rdfs:subPropertyOf ub:personStringProperty.
ub:telephone rdf:type rdfs:Property.
ub:telephone rdfs:subPropertyOf ub:personStringProperty.
ub:worksFor rdf:type rdfs:Property.
ub:worksFor rdfs:domain ub:Person.
ub:worksFor rdfs:range ub:Organization.
ub:publicationAuthor rdf:type rdfs:Property.
ub:publicationAuthor rdfs:domain ub:Publication.
ub:publicationAuthor rdfs:range ub:Person.
```

ub:takesCourse rdf:type rdfs:Property.  
ub:takesCourse rdfs:domain ub:Student.  
ub:takesCourse rdfs:range ub:Course.  
ub:subOrganizationOf rdf:type rdfs:Property.  
ub:subOrganizationOf rdfs:domain ub:Organization.  
ub:subOrganizationOf rdfs:range ub:Organization.  
ub:memberOf rdf:type rdfs:Property.  
ub:memberOf rdfs:domain ub:Person.  
ub:memberOf rdfs:range ub:Organization.  
ub:undergraduateDegreeFrom rdf:type rdfs:Property.  
ub:undergraduateDegreeFrom rdfs:domain ub:Student.  
ub:undergraduateDegreeFrom rdfs:range ub:University.  
ub:teacherOf rdf:type rdfs:Property.  
ub:teacherOf rdfs:domain ub:Lecturer.  
ub:teacherOf rdfs:range ub:Course.  
ub:advisor rdf:type rdfs:Property.  
ub:advisor rdfs:domain ub:Student.  
ub:advisor rdfs:range ub:Professor.

**Abbildung 1: Mögliche Ontologie für die RDF Daten aus der Aufgabenstellung**

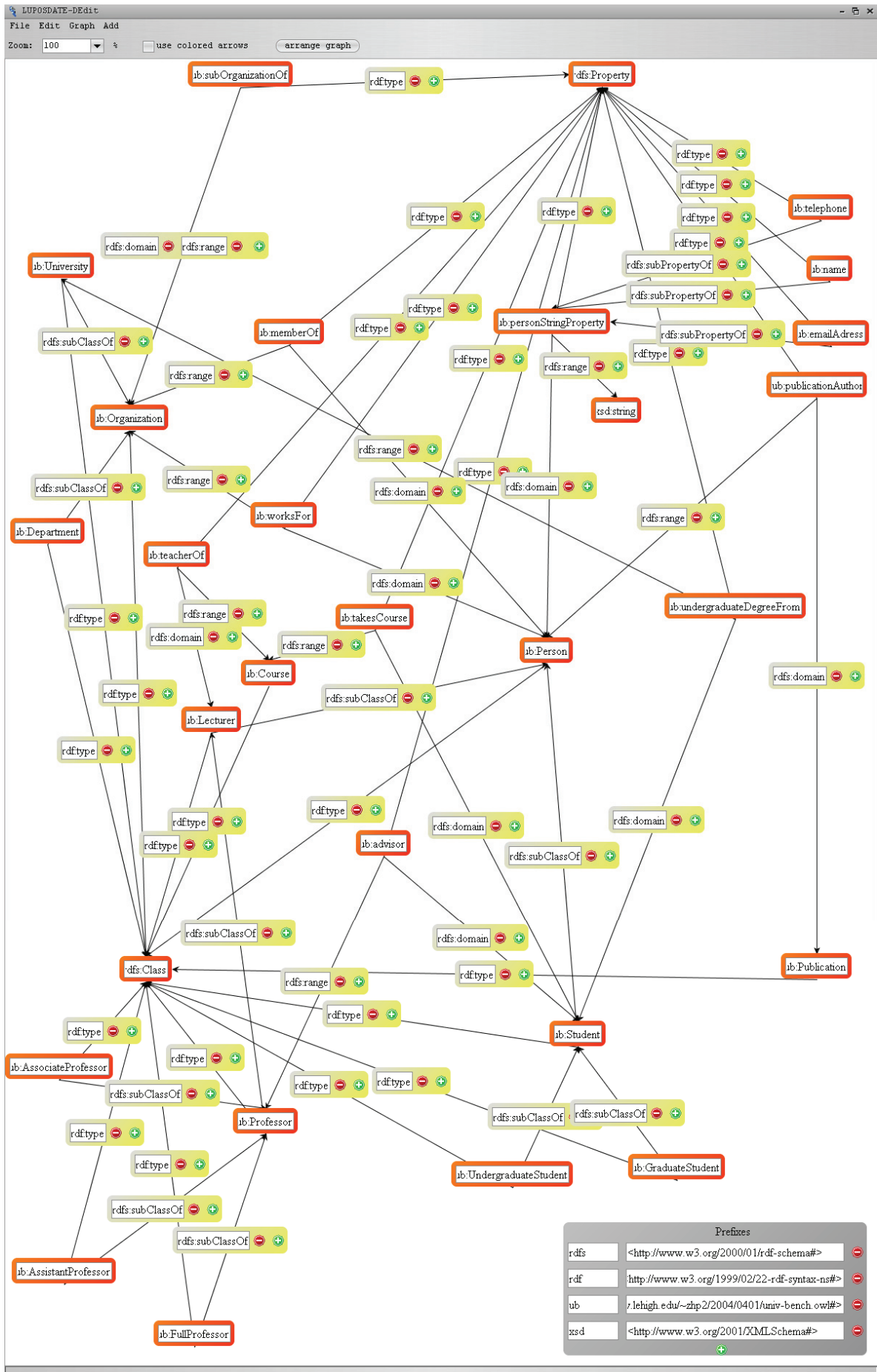


Abbildung 2: Visualisierung der Ontologie aus Abbildung 1