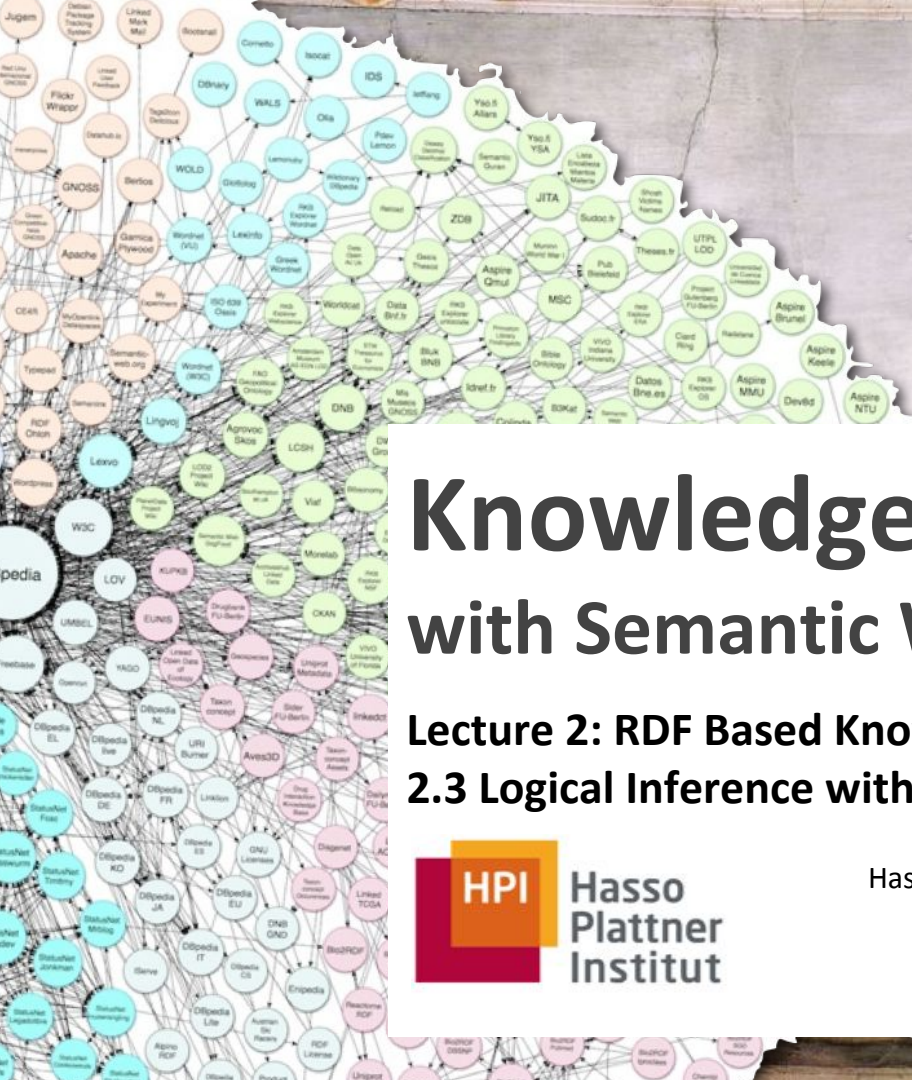


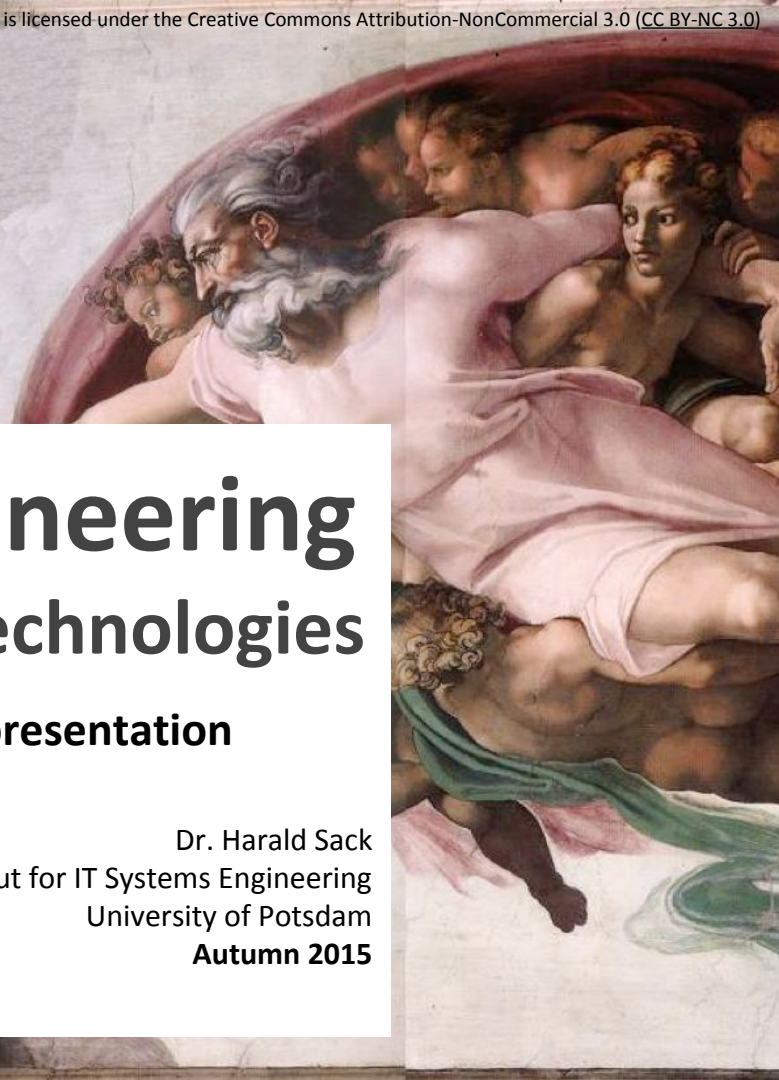


Knowledge Engineering with Semantic Web Technologies

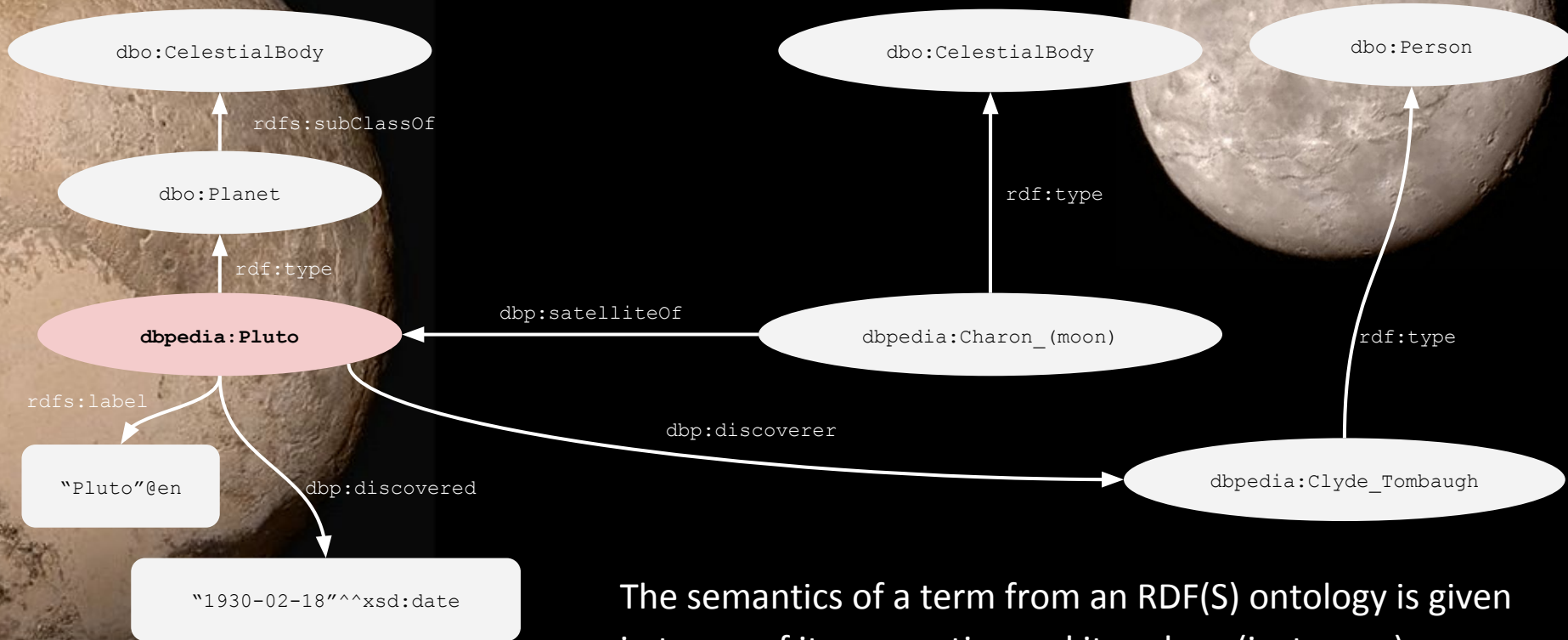
Lecture 2: RDF Based Knowledge Representation 2.3 Logical Inference with RDFS



Dr. Harald Sack
Hasso-Plattner-Institut for IT Systems Engineering
University of Potsdam
Autumn 2015

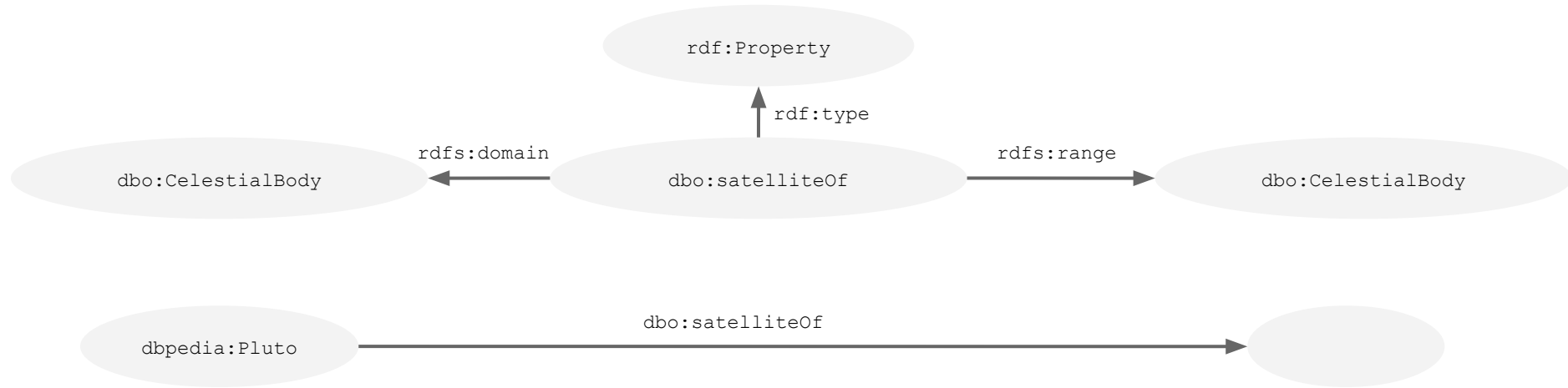


How much knowledge (semantics) is there?

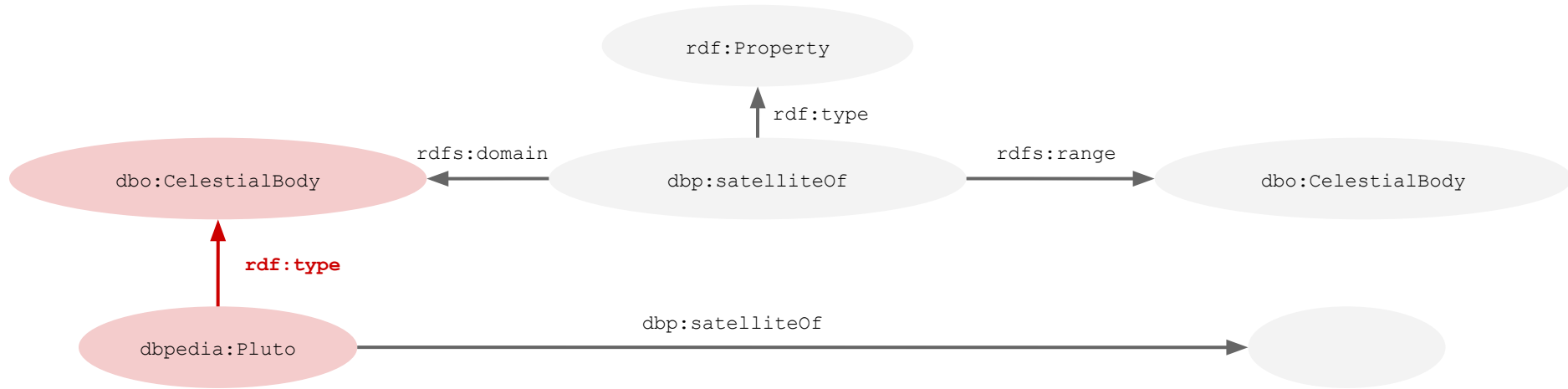


The semantics of a term from an RDF(S) ontology is given in terms of its properties and its values (instances)

Which Conclusions can we deduce with RDF(S)?

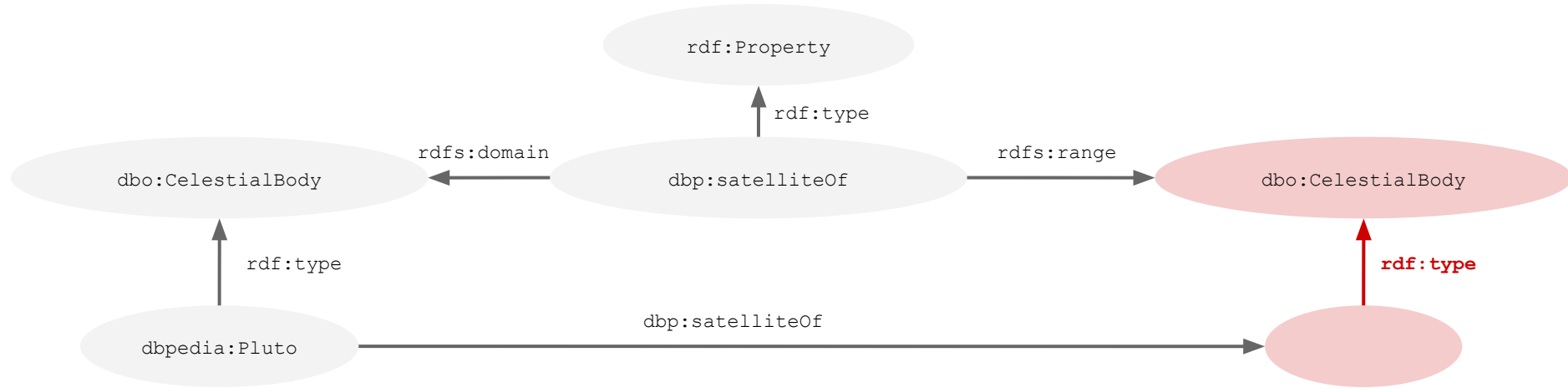


Which Conclusions can we deduce with RDF(S)?



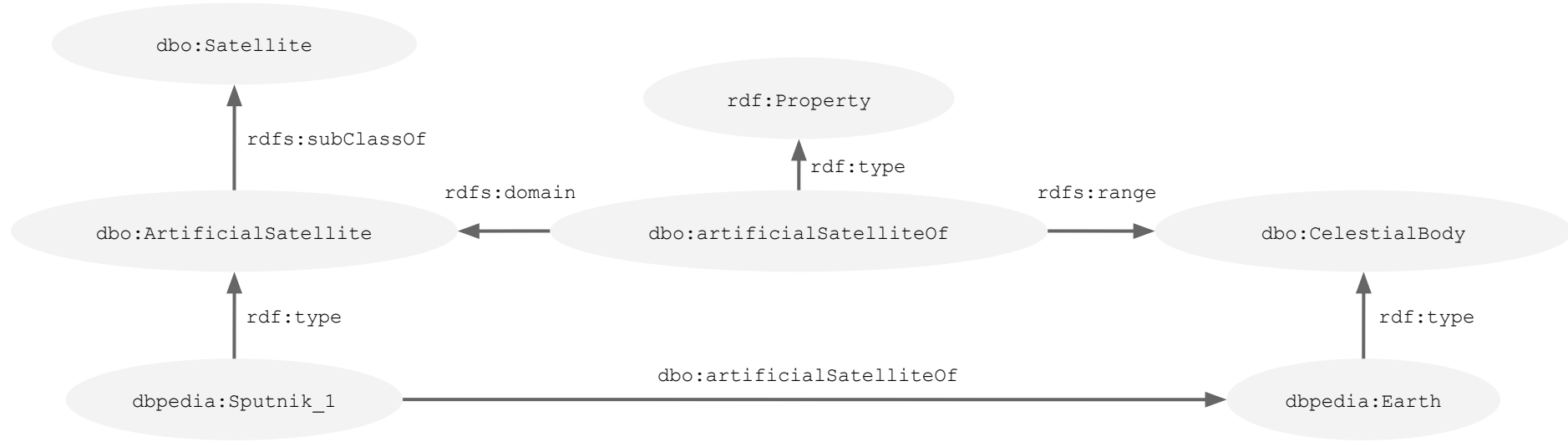
- Deduction of entity **class membership** from the **domain** of one of its properties

Which Conclusions can we deduce with RDF(S)?

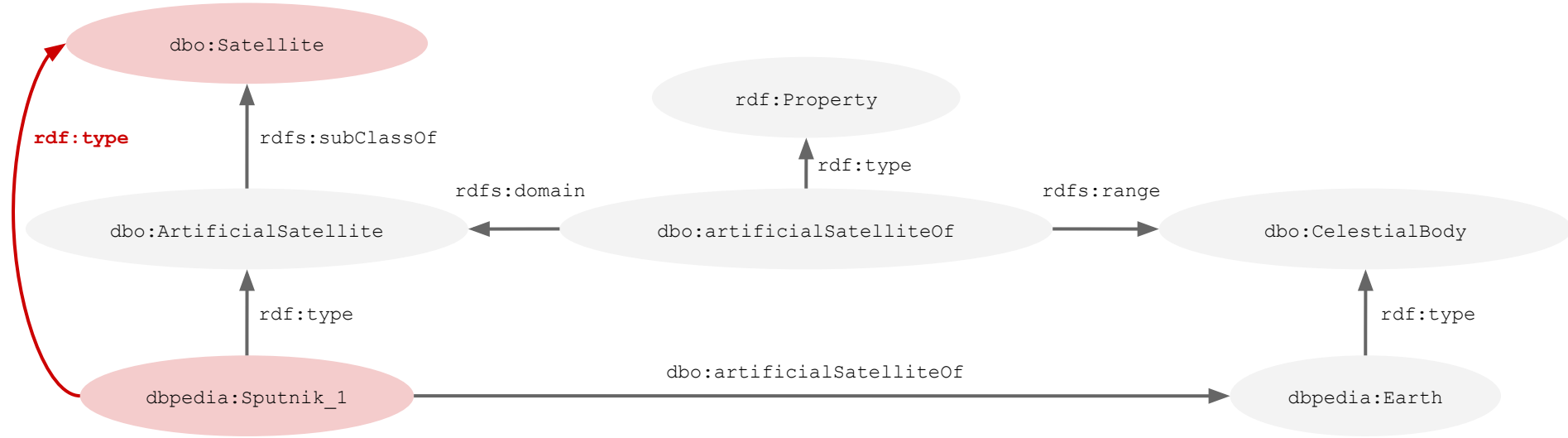


- Deduction of entity **class membership** from the **range** of one of its properties

Which Conclusions can we deduce with RDF(S)?

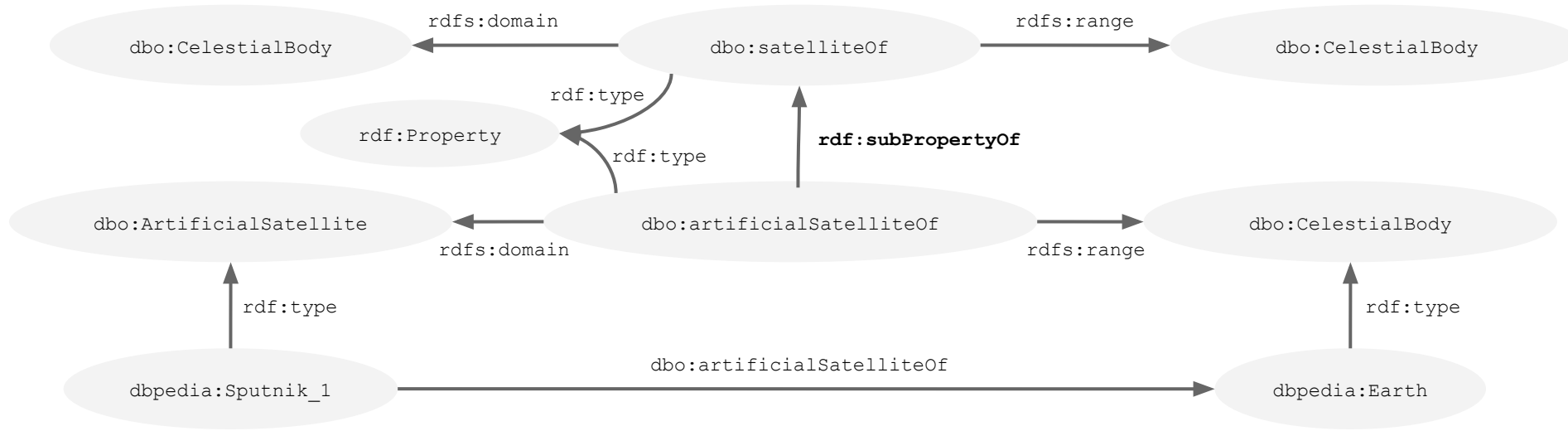


Which Conclusions can we deduce with RDF(S)?

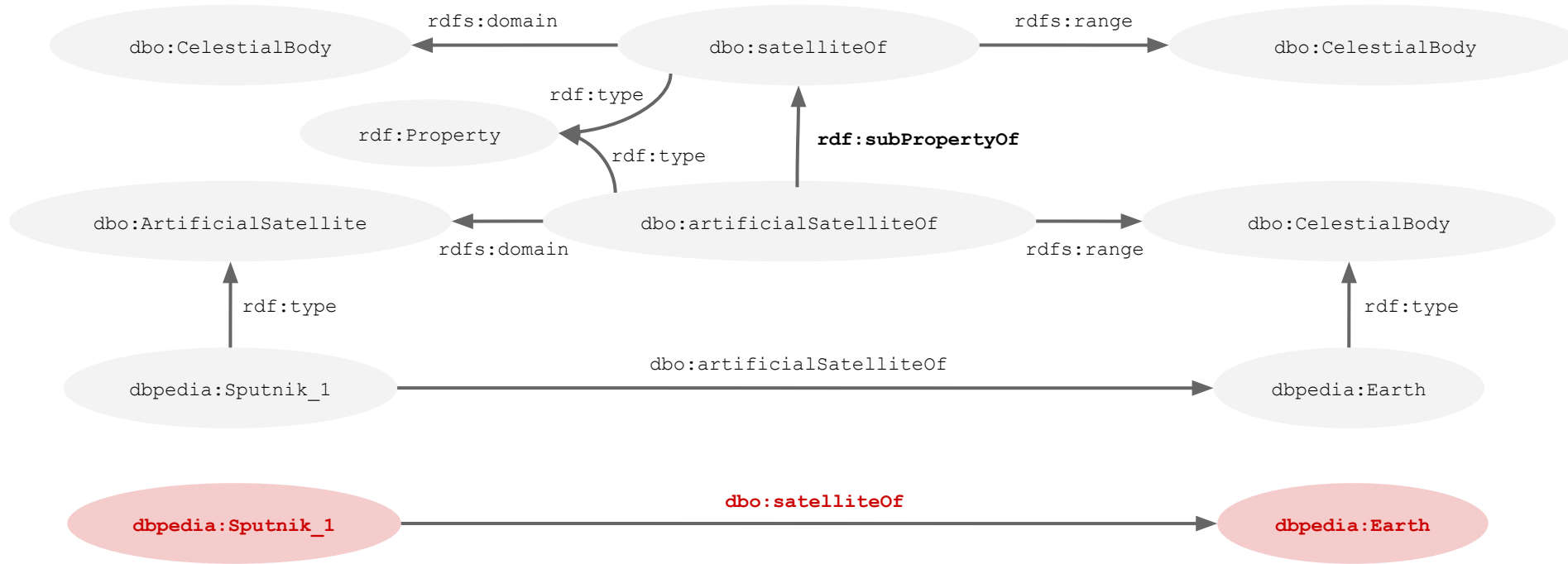


- Deduction of entity **superclass membership** from a **class hierarchy**.

Which Conclusions can we deduce with RDF(S)?



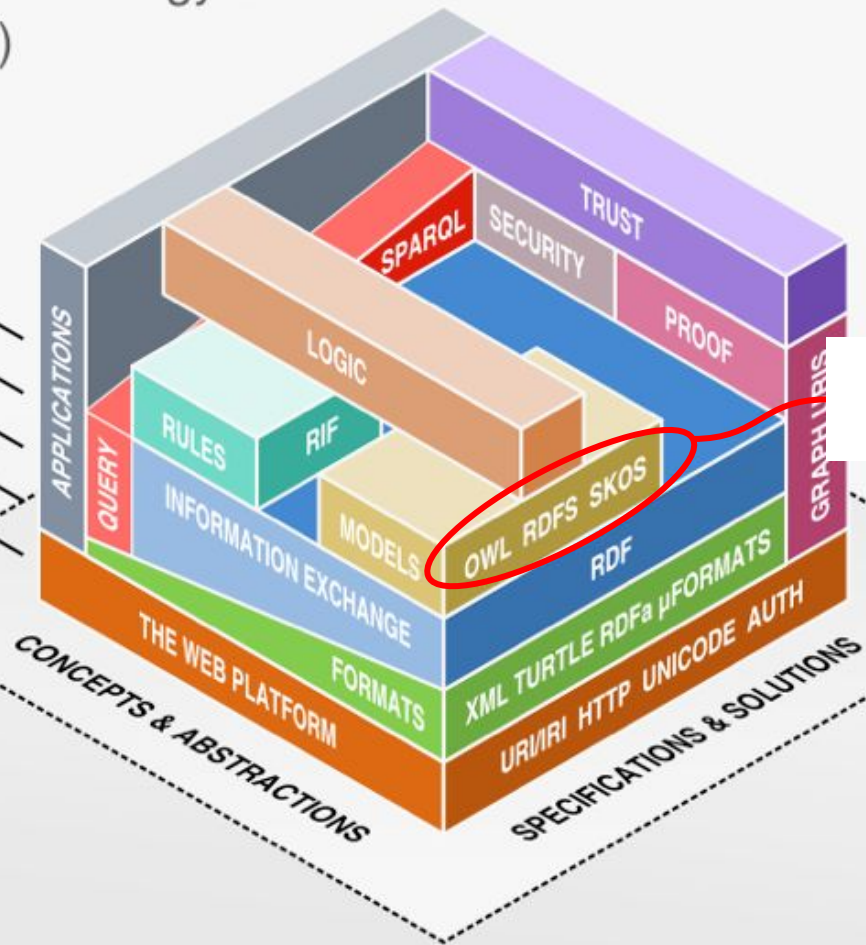
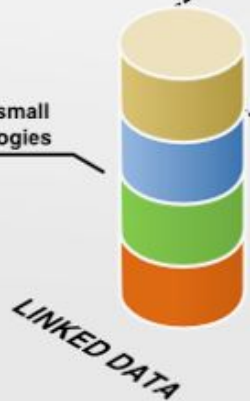
Which Conclusions can we deduce with RDF(S)?



- Deduction of **new facts** from **subproperty** relationships

The Semantic Web Technology Stack (not a piece of cake...)

- Most apps use only a subset of the stack
- Querying allows fine-grained data access
- Standardized information exchange is key
- Formats are necessary, but not too important
- The Semantic Web is based on the Web
- Linked Data uses a small selection of technologies



RDF Schema

SPARQL



Next: 04 - How to query RDF(S)? - SPARQL

OpenHPI - Course Knowledge Engineering with Semantic Web Technologies

Lecture 2: RDF Based Knowledge Representation