Ontologies and Vocabularies

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Overview

- Presenting information with precision
- RDF
- Basic principals of ontology
- Vocabularies for objects and properties

Presenting information with precision

- We want our data to be used by others
  - Individuals and agents
- Being precise about metadata requires shared names for properties
  - If we don't agree what to call things, we cannot compare them
- Being precise requires transformation tools
  - Eg Degrees/seconds to decimal degrees to UTF
- Being precise requires property name resolution
  - We can call things by different names if we agree on the essence

RDF

- RDF (Resource Description Framework) is a strategy for representing shared data
  - Every object (resource) is identified
  - Every property is identified
- RDF represents information as triples
  - (resource, property, value)
  - (resource, property, resource)
- Sample biodiversity triples
  - (,,)
  - (,,)
- RDF enables the semantic web
  - Common, simple structure (triples)
  - Sharing of resources and properties
  - Standards for semantic structures

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Basic principals of ontology

- An ontology is a set of concepts with names and relationships
- Inference is possible
  - (A, owl:sameAs, B)
  - (B, dwc:scientificName, ‘quercus’)
  - Therefore (A, dwc:scientificName, ‘quercus’)
- Synonyms are included (as above)

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Vocabularies for objects and properties

- DarwinCore is a set of properties
- Others of interest to use
  - FOAF: friend of a friend (foaf:firstName)
  - Dublin Core Terms: common properties of digital objects (dcterms:title)
  - OWL: ontology language (owl:sameAs)
  - RDF: common terms for structure (rdf:type)
- Be careful: 'foaf', 'dcterms', etc. are not part of the specification.