Building your own ontology

1 The 6 Steps of Ontology development

1. **Specification**

   Reasons and aims of the ontology are assessed and determined.

2. **Conceptualisation**

   The structure, classes and properties are planned out.

3. **Formalisation**

   Those ideas are realised in a model, and the hierarchy of concepts is defined.

4. **Implementation**

   This requires the selecting of the language (e.g. RDFS, OWL), the editor software (e.g. Protégé), if applicable, and the reasoner (e.g. FaCT++).

5. **Evaluation**

   The ontology is tested against SPARQL queries or through an online validator (e.g. WC3 RDF validator)

6. **Documentation**

   Capture design decisions and the rationale are outlined for the benefit of other users

   Do not underestimate the importance of documentation. It can make the difference between someone choosing (or not!) to use your ontology. Insufficient documentation can lead to misuse, misunderstanding, and misinterpretation.

   It is much more useful to use synonyms and descriptions than to repeat the name of a class or property. For example, to describe a class Appellation as "this is the appellation of a thing" is less informative than "this class captures instances that are the names of entities such as people, places, things, and events".

1.1 Specification

1. What do you want your ontology to capture?
2. What are your aims?
3. What other data do you think you might want to link to?

1.2 Conceptualisation

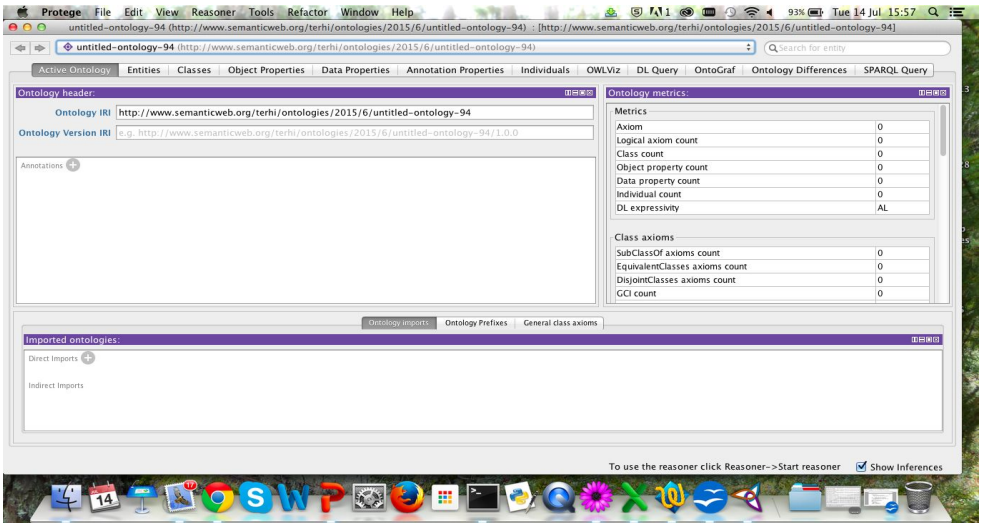
1. Determine entities in your data.
2. What are the relationships between the entities?
3. Should you express elements about the entities as relationship with other entities, or as characteristic of the entity? Think about whether to use properties (object or data) or predicates.

1.3 Formalisation

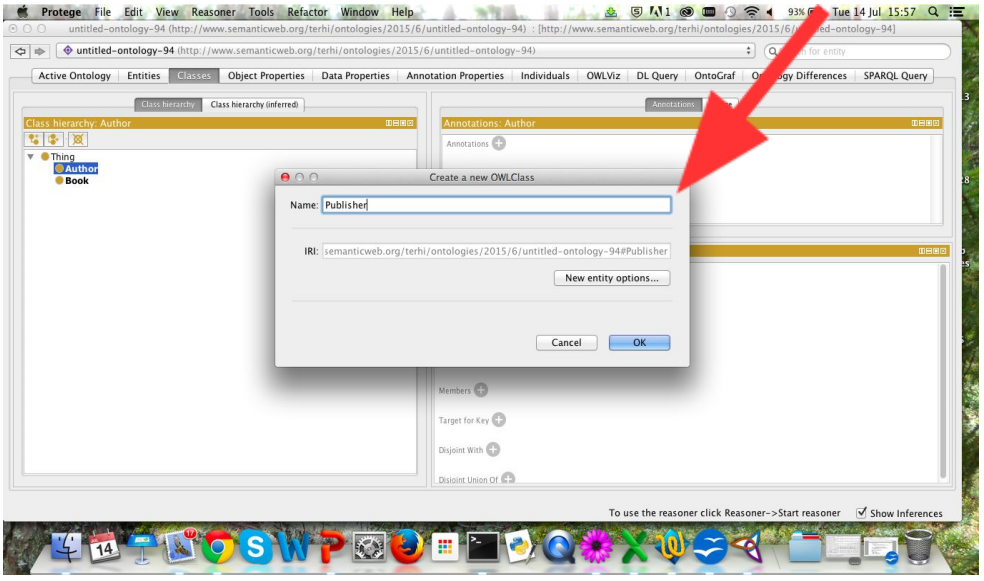
1. Grab a pen and a huge piece of paper.
2. Sketch out your ontological model.
3. Realise you've made some error and cross it all out.
4. Sketch again.
5. Realise another error, crumble sheet up in rage, and start again.
6. Marvel at your marvellous plan.

1.4 Implementation

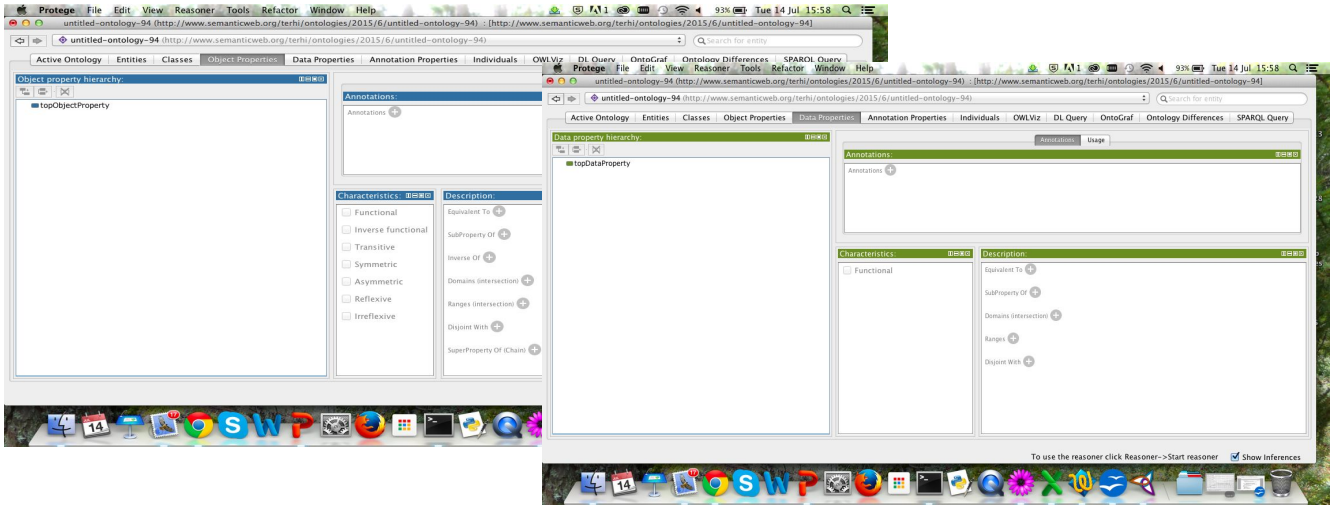
1. Power up Protégé



2. Insert classes

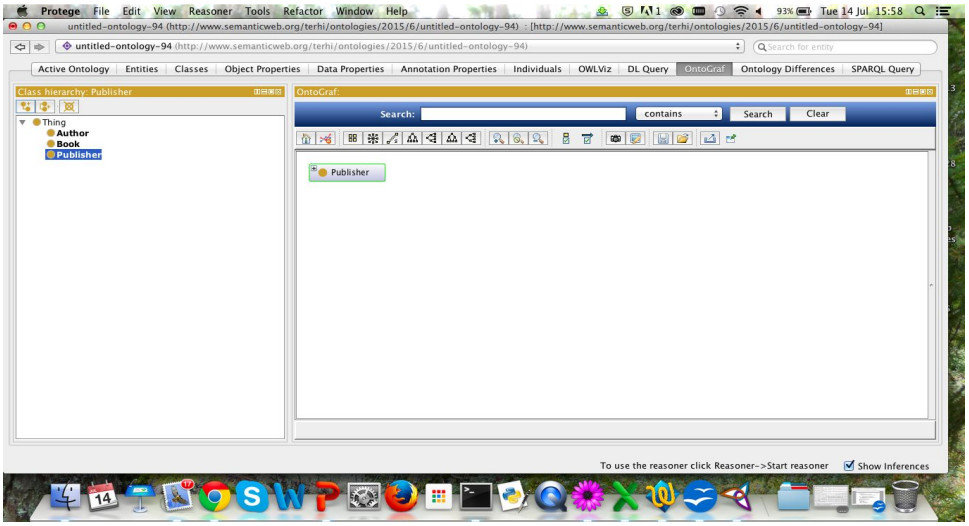


3. And properties, considering directionality, and one-to-many relationships



4. And individuals, if you like. This means putting content into your classes, for example, “Smith” into a class of surnames, names, or something similar.

5. You can also check out the structure



1.5 Evaluation

1. Run the reasoners over the ontology. You can find these under the Reasoner tab at the top of the screen.

1.6 Documentation

1. Write description for your classes and properties. Use synonyms and descriptions rather than repeating the names of the classes and properties.

1.7 Present and Report

1. Present your ontological model as part of the assessment and final write up. Explain what you wanted to capture, the reasons behind your design decisions, and any challenges or interesting issues that you came across during the design process.

----- End of exercises -----