**Problem domain:** Semantic Web

**Tool:** Protégé 4.3.2 (Mac OS X version)

**Manual:** There is the approach to build the ontology.

**Step 1: Determine the scope of the ontology**

A) Answer these four questions to determine the domain and scope of the ontology. These will help to limit the scope of the model.

1. What is the domain that the ontology will cover?
   - Semantic web, we want to use this ontology to get the concept and paper concerned on the semantic web.

2. For what we are going to use this ontology?
   - To understand the concept of "semantic web".
   - To get the information of the conference.
   - To search a list of concepts in their program.
   - To get useful paper doing the research on semantic web.

3. For what types of questions the information in the ontology should provide answers?
   - Concepts about the semantic web
   - Papers concerned on semantic web

4. Who will use and maintain the ontology?
   - The person who wants to know the concept of the semantic web

B) Sketch a list of Competent questions, it will serve as the litmus test. I prepared mainly 4 questions.

   - What is the concept of "semantic web"?
   - What are the related conferences of "semantic web"?
   - Can it show the list of concepts in their programs?
   - Can it call the papers about the "semantic web"?

**Step 2: Reuse existing ontologies.**

It is a good idea, however, “semantic web” itself is a new concept, there is few knowledge base on this field.
Step3: Enumerate important terms in the ontology.

According to the concept map of “Semantic Web Programming”, I extract some terms as following:

![Concept Map](image)

Figure1: concept map

- semantic web
- conferences
- concept
- papers
- origin
- components
- features
- SW tools
- ISWC
- WWW
- ESWC

Step4: Define the classes and the class hierarchy.
There are several design approaches to develop the class. I use the top-down

Figure 2: Screenshot of classes

way to design from the terms set collected on step 3. The structure I build is
the figure 1.
**Step 5: Define the properties of the classes-slots**

For example, the conferences have several individual members, WWW, ISWC, ESWC. They are all equivalent to each other.

Figure 3: the equivalent class

![Figure 3: the equivalent class](image)

Figure 4: the equivalent class includes individuals

![Figure 4: the equivalent class includes individuals](image)
Figure 5: the relationship between each individual

This is also a special step, since everyone has their own understanding about the object, so they will add different property, including relationship to the class.

**Step 6: Using reasoned**
The most powerful tool in protégé is the Reasoner I have chosen Hermit 1.3.8 and it generated the logical relation automatically among the classes I built. If there are some errors when you define the class it does not work.

**Step 7: Check the relationship**
Protégé provides ontoGraf tool to visualize the relationship of the classes.

Figure 6: The tree structure of my ontology of “semantic web”

Conclusion:

If you are interested in my ontology, download it freely. Open it with protégé 4.3. It works.

The development of specific ontology has no correct or standard answer. So in the next time you could modify this OWL in your specific problem.

Notes:

I really want to use OWLViz which can show more details than OntoGraf, however it always shows the err alter, saying lack the dot application.

Reference:

1. Ontology development 101

   http://owl.cs.manchester.ac.uk/tutorials/protegeowltutorial/resources/ProtegeOWLTutorialP4_v1_3.pdf