

The One Piece Ontology

-Protégé Application

KIRAN TEJA KOLLI

INFO 6540 Data Management

Instructor: Elvira Mitraka

Date: 5th April, 2018

DALHOUSIE UNIVERSITY

The One Piece Ontology-Protégé Application

The protégé software is open source platform that provides a user community with tools to build domains and knowledge-based models with ontologies. The software is used to build different ontologies with adding various attributes. It describes the classes created and its relations by object properties. This software helps the user to create an ontology with different classes and with multiple object properties. Each class created can be defined using an annotation called “rdfs:Comment”.

The Basic properties are set before starting the creation of Ontology. The URI is changed and it is set to specified structure so that the terms and classes created will have a specific ID.

The Annotation properties also need to be created separately that are required for our Ontology.

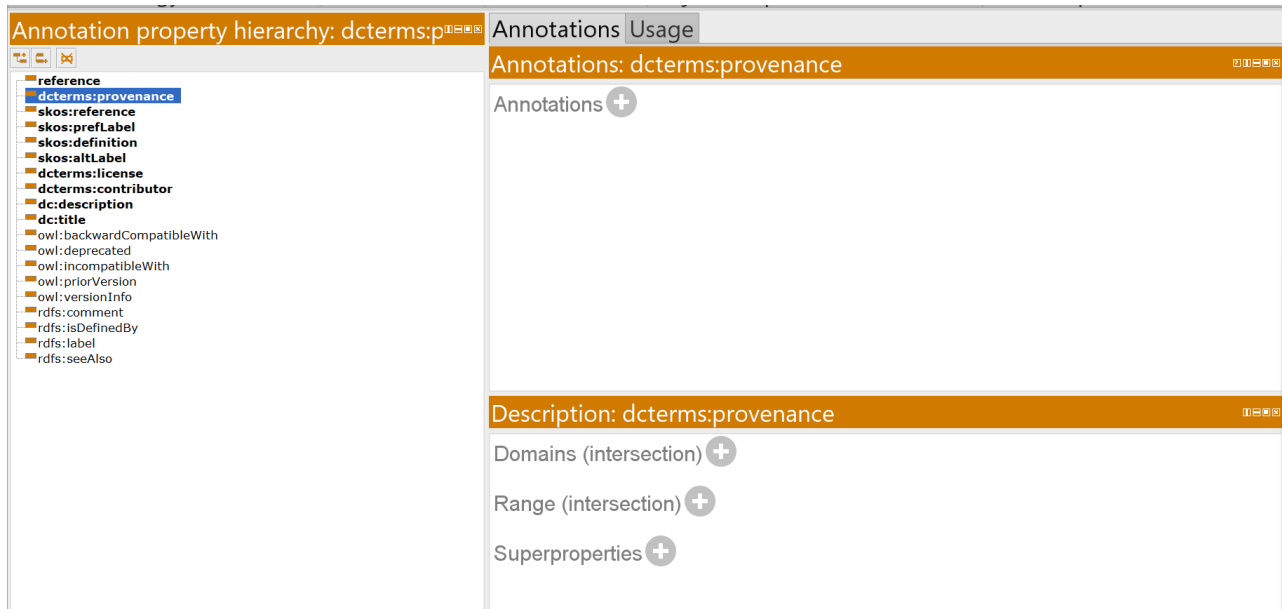


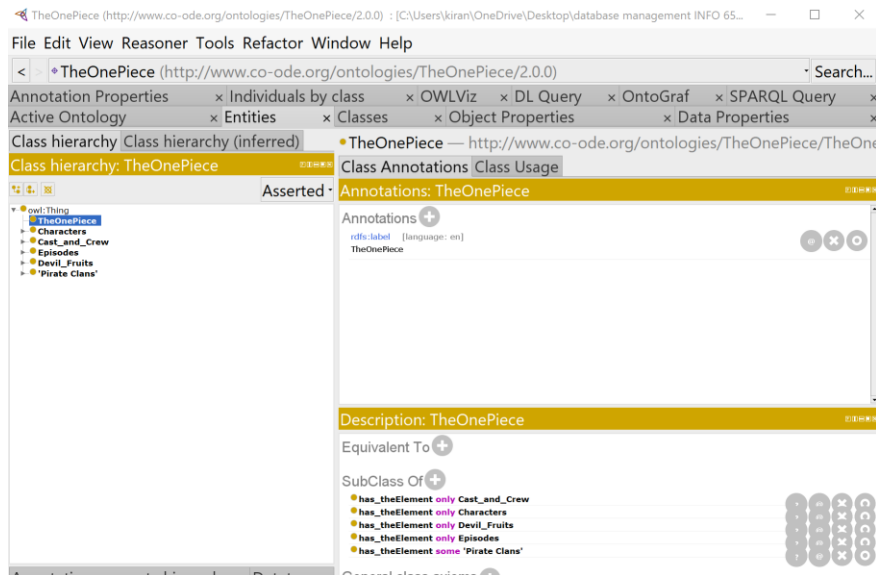
Figure : List of Annotation Properties created

In this report, the creation of “One Piece” ontology is discussed and relation between each class is described. The One Piece ontology states the different classes that are created under the parent class- One Piece. The Annotation properties are set to the sub classes for the parent class are:

1. Characters.
2. Cast and Crew.
3. Devil fruits.
4. Episodes
5. Pirate Clans

The figure 1.a shows the main class-“OnePiece and the 5 sub classes.

The One Piece Ontology-Protégé Application



The first sub class is “characters” which has two Sub classes:1-Main Characters 2-Supporting Characters. This classes are created to differentiate the parent class called “characters”. The Main Characters class is created using the creation of class option in the Classes tab in Protégé. This class mainly describes about the special and main role members of One Piece series. One object property is created which is named as “is_voicedby”, this object property is defined as the relation between main animated character and the real person who gave his voice over. There is one more sub class created for each main character which holds the label of real time person. The relation between these both classes will be defined by using an object property. Using this object property, it states that the main characters voice over is given by the child class label.

The One Piece Ontology-Protégé Application

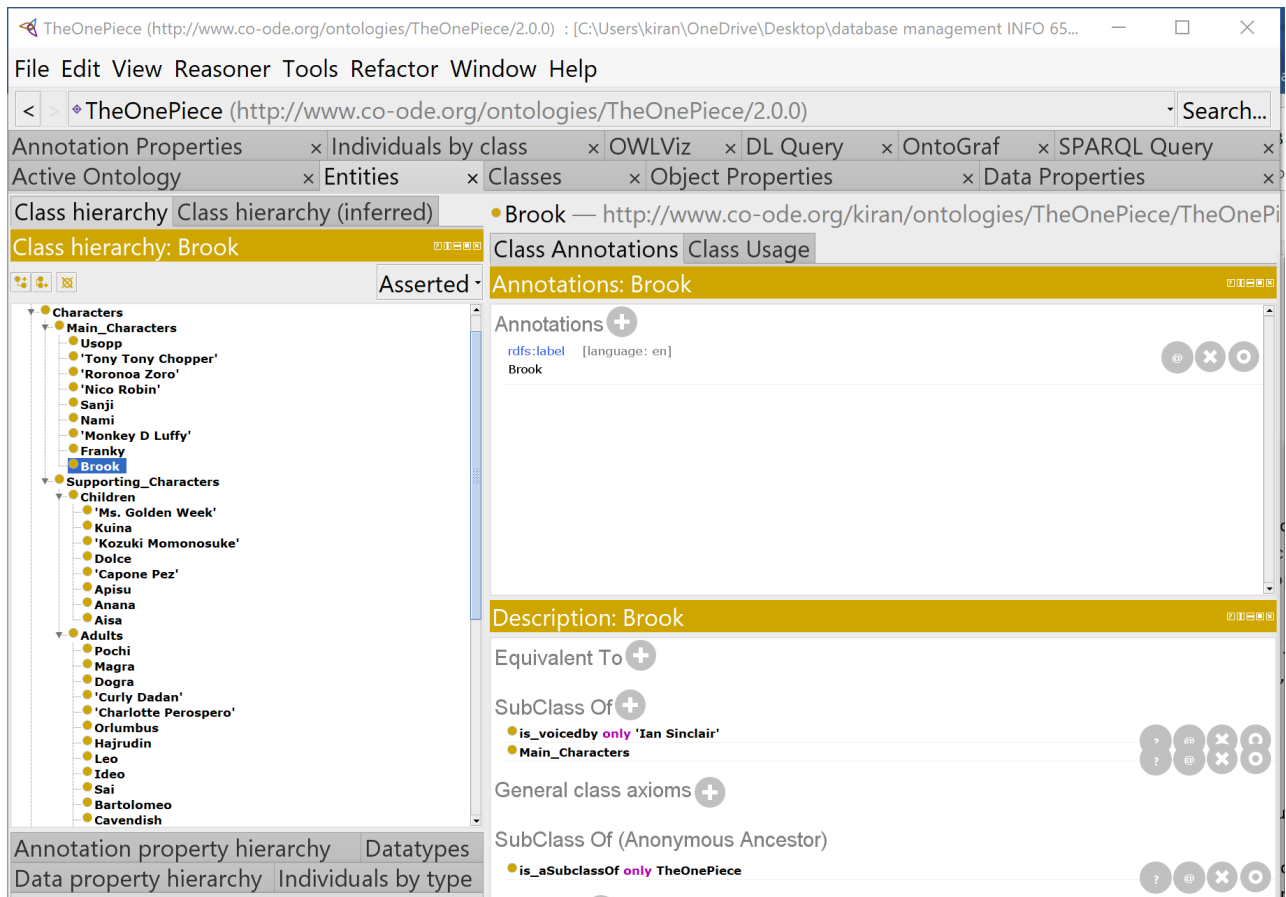


Figure: Relations between terms

In figure 2.a, Brook is one of the main character of the series and “Ian Sinclair” is the person who gave voice to the character in animated series. Similarly, Franky is the animated series and Patrick Seitz is the person who gave voice over to the character. This relation is defined by using object property that is named as “is_voicedBy”.

The reverse methodology states another object property that is “has_givenVoice_to”. This object property is also between the main character and person who gave voice over. But this time, the relation is given from the person to character i.e., ‘Ian Sinclair’ to ‘Brook’. It is represented as

‘Ian Sinclair’---(has given voice to)-> ‘Brook’. This is the second object property that is been used in the ontology.

The “Children” class is subclass of “Supporting characters”. The names such as Apisu, Kuina, Anana act as subclasses for the parent class-“Children” and also act as parent classes for the age groups.

Similarly the second domain created is about cast and crew class which is a subclass of One piece. This class involves the characters who worked for the animated series and who has directed the episodes. The Directors and Writers of the series are created as subclasses for this parent class. The figure 4.a states that Director and Series writing credits are sub classes. The following children classes are created with relations named as ‘is_writtenBy’ and ‘is_directedBy’. The object properties are used as connectors between the person name and episodes written by them. Similarly, the ‘is_directedBy’ property is used to relate the episodes directed by respective director.

The List of Object Properties used:

1. Is_aSubclassOf
2. has_theElement
3. has_eaten
4. has_wrote
5. has_directed
6. has_givenVoice_to
7. has_aMember
8. is_aMemberof
9. is_directedby
10. is_writtenby
11. is_usedby
12. is_voicedby

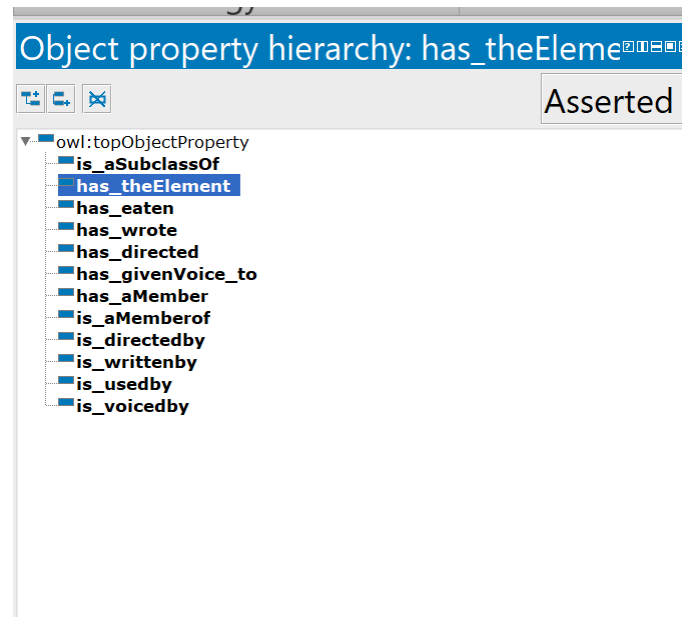


Figure: Object Properties

These object properties are used to relate between the classes and each object property has its own importance in relations. They are functional in few cases. The reverse properties are also defined using a different object property.

For every term, the subclass is defined with using the object properties and there after possess the actual connection between different classes. While defining the object properties, the domains and ranges are defined accordingly so that a perfect relation is maintained. In Figure 6.a, 'Awakened' is a category of Devil fruit, so it is created as subclass of "Devil fruit users". All the categories of Devil fruits are created and each one has its owner which is defined by an object property called "hasConsumedBy".

Gol-Gol Fruit ----→(is_usedBy) ----- →'Gild Tesoro'.

Similarly fruits in different categories are related with the owners respectively with the same object property.

All the object properties that are created to define a relation between classes are stated. Each object property has its own definition of relation and used to relate between a class and subclass.

A sample ontograph shows a relation between one set of class and subclass. The table expands shows all the relations between classes and subclasses that are created in the ontology. The tree structure will give multiple definitions and relations created between the classes and subclasses.

The OWL File will be saved and is exported to GITHUB.

Draft Copy of my Ontology;

Owl: Thing

- Domain
 - One piece
 -
 - Characters
 - 'Main Characters'
 - Brook
 - Franky
 - 'Monkey D. Luffy'
 - Nami
 - 'Nico Robin'
 - 'Roronoa Zoro / Zolo'
 - Sanji
 - 'Tony Tony Chopper'
 - Usopp
 - Support Characters
 - Adults
 - 'Gild Tesoro'
 - 'Charlotte Katakuri'
 - 'Donquixote Doflamingo'
 - 'Portgas D. Ace'
 - 'Marshall D. Teach'
 - Sabo
 - 'Ceaser Clown'
 - Borsalino
 - Sakazuki
 - 'Charlotte Oven'
 - 'Charlotte Perospero'
 - 'Charlotte Daifuku'
 - Sengoku
 - Pekoms
 - Du Fled
 - Stussy
 - Drug Peclo

- Morgans
 - Giberson
 - Umit
 - Cavendish
 - Bartolomeo
 - Sai
 - Ideo
 - Leo
 - Hajrudin
 - Orlumbus
 - Children
 - Aisa
 - Anana
 - Apisu
 - 'Capone Pez'
 - 'Dolce, Dragée'
 - 'Kozuki Momonosuke'
 - Kuina
 - 'Ms. Golden Week'
- Devil Fruits
 - 'Awakened Devil Fruits'
 - 'Gol-Gol Fruit'
 - 'Mochi-Mochi Fruit'
 - 'String-String Fruit'
 - 'Logia Devil Fruits'
 - Flame-FlameFruit
 - Dark-DarkFruit
 - Flare-FlareFruit
 - Gas-GasFruit
 - Glint-GlintFruit
 - Magma-MagmaFruit
 - Tremor-TremorFruit
 - 'Paramecia Devil Fruits'
 - Gum-Gum
 - 'Heat-Heat Fruit'
 - 'Lick-Lick Fruit'
 - 'Mochi-Mochi Fruit'
 - 'Puff-Puff Fruit'
 - 'Zoan Devil Fruits'
 - 'Human-Human Fruit'
 - 'Human-Human Fruit Daibutsu'
 - 'Man-Made Devil Fruit'
 - 'Turtle-Turtle Fruit'
- Cast & Crew
 -

- Directors
 - 'Hiroaki Miyamoto'
 - 'Junji Shimizu'
 - 'Kônosuke Uda'
 - 'Mamoru Hosoda'
 - 'Munehisa Sakai'
- Writers
 - 'Andrew Rye'
 - 'Bonny Clinkenbeard'
 - 'Brandon Potter'
 - 'Eiichiro Oda'
 - 'Eric Vale'
 - 'Hirohiko Uesaka'
 - 'Jin Tanaka'
 - 'John Burgmeier'
 - 'Junki Takegami'
 - 'Katelyn Barr'
 - 'Kelli Howard'
 - 'Matt Chaney'
 - 'Michiru Shimada'
 - 'Mike McFarland'
 - 'Ryôta Yamaguchi'
 - 'Sean Teague'
 - 'Sean Whitley'
 - 'Spencer Prokop'
 - 'Suminori Takegami'
 - 'Yoshiyuki Suga'
- Episodes
 - '2 episodes, 2008-2013'
 - '113 episodes, 1999-2002'
 - '(7 episodes, 1999-2003)'
 - '(13 episodes, 1999-2003)'
 - '(14 episodes, 1999-2003)'
 - '(28 episodes, 1999-2004)'
 - '(565 episodes, 1999-2012)'
 - '(7 episodes, 2000-2003)'
 - '(43 episodes, 2001-2003)'
 - '(10 episodes, 2001-2003)'
 - '(32 episodes, 2001-2010)'
 - '(1 episode, 2002)'
 - '1 episode, 2002'
 - '(1 episode, 2003)'
 - '(6 episodes, 2003)'
 - '(2 episodes, 2003)'

The One Piece Ontology-Protégé Application

- '(2 episodes, 2003)'
- '(1 episode, 2003'
- '(15 episodes, 2003-2004)'
- '1 episode, 2004'
- '130 episodes, 2005-2008'
- '(14 episodes, 2009-2010)'
- '(19 episodes, 2009-2010)'
- '(4 episodes, 2011)'
- '(41 episodes, 2002-2010)'
- Organisations
 - Underworld (Du Feld, Stussy, Drug peclo, Morgans, Giberson, Umit)
 - Straw hat Grand fleet(Cavendish, Bartolomeo, Sai,Ideo,Leo, Hajrudin)
 - Dadan Family-(Curly dadan, dogra, Magra, portgas D Ace, Monkey D luffy, Sabo, pochi)

Learning outcome:

Ontology has given me the knowledge of creating a relation between two objects and defining them. Each class is created under which multiple subclasses can be fixtured. Using of annotation properties has given my ontology with a unique identifier and separate URI. The tutorial of protégé is very helpful and can give a clear picture of the application and will guide the user to create a basic ontology with multiple attributes. The database will make the user to search for terms easily and search the relations accordingly.

Figure 6.a