

Ontology Development Report (Sri Lankan Temples)

When we create an ontology for a special purpose, we had better follow the seven steps mentioned in the Article (Ontology Development 101: A Guide to Creating Your First Ontology, by Natalya F. Noy and Deborah L. McGuinness, Stanford University, Stanford, CA, 94305)

We followed those steps and created the ontology.

Here, we stated how we did it step by step.

Step 1 :- Determine the Domain and Scope of the Ontology

Representation of kovils(Hindu Temple) in SriLanka is the domain of our ontology. We can use kovil related ontology for many purposes like suggesting temple tours, informing the national heritage department about kovils to save them,educating people in SriLanka about the kovils and suggesting civil engineers about the architecture, materials used,etc. From the above mentioned scopes we choose applications that educate students(subject on religion, history) and general public about the historical, religious facts about Kovils. We restricted our scope to some famous kovils in SriLanka.

We are going to use this ontology to provide people with information.

Our ontology will provide information as to who created the kovil?, when the kovil is founded? and when it is reconstructed?, in which district that kovil is located? What type of lord is worshipped in that kovil? , in which month is the annual festival held? What is the architecture, spring pond, temple tree of that kovil? and What are the specialities and special occasions of that kovil?. We tried our best to collect the necessary information.

This ontology can be used by people in SriLanka. Tourists may also use this ontology to get some knowledge about kovils and can find a good period to visit there. Further details about locations, tourist places around the kovil, etc. are not mentioned in this ontology as they are out of our scope.

Step 2 :- Consider reusing existing ontologies

We look at some ontologies in protege application. We didn't use any existing ontologies as we didn't find any ontologies related to kovils in SriLanka.

Step 3 :- Enumerate important terms in the ontology

Kovil, District, Vratham, Festival, Celebrates, Located_in , Creator, Founded, Reconstructed, Annual_Festival are some important terms in this ontology.

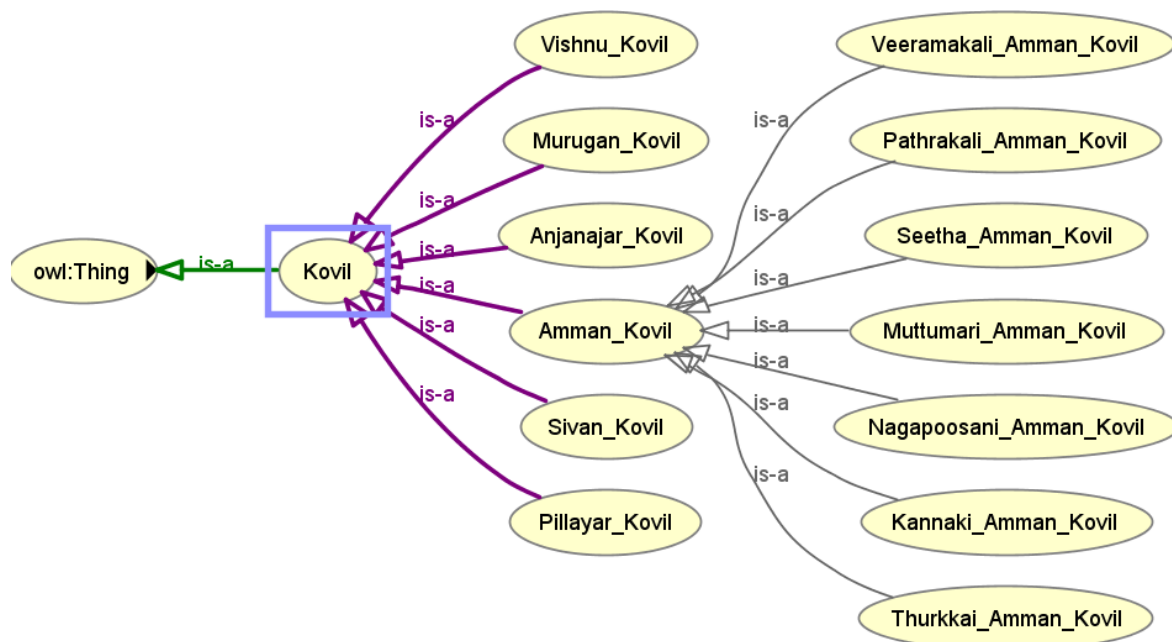
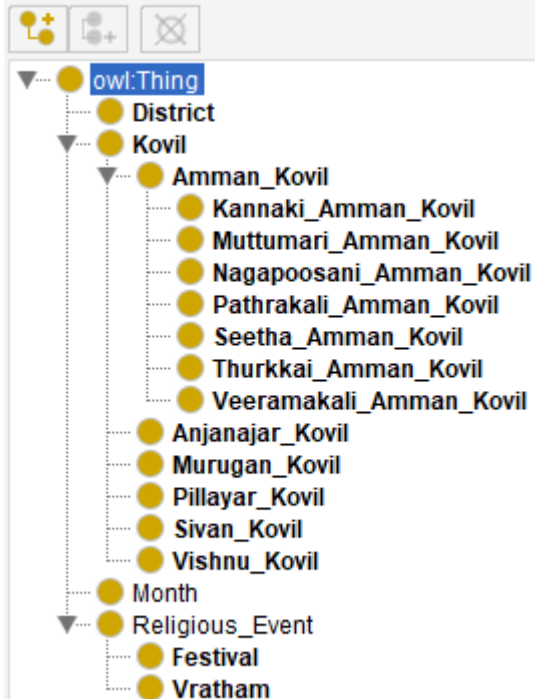
Thai pongal , Aadi pirappu, Karthikai Deepam are some of the festivals that are celebrated by Hindus.

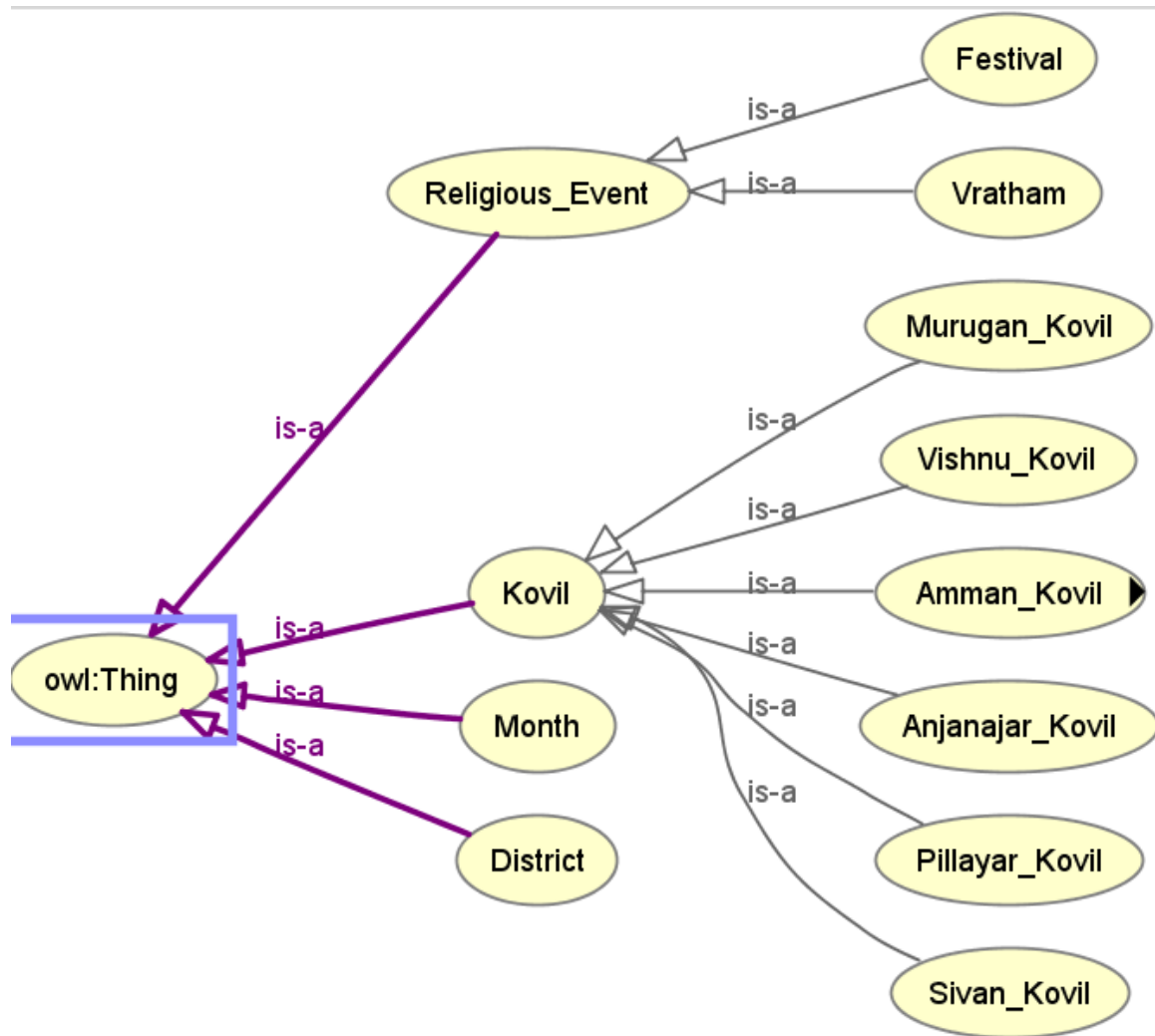
Maha Sivarathri, Skanda Sashti (Kanda Sasti), Panguni Uththaram, Navarathri (Nine nights), Thiruvathirai, Krishna jayanthi, Vimayaka Chathurthi, Gauri Vratham, Thai poosam, Aadi Pooram, Aadi Amavasai, Chitra Pournami are some of the fasts (Vratham) that adhere by Hindus.

Step 4 :- Define the classes and the class hierarchy

We use a top down approach to define the classes.

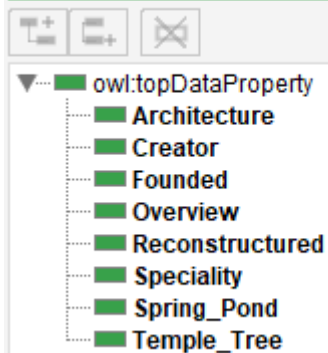
Class hierarchy: owl:Thing

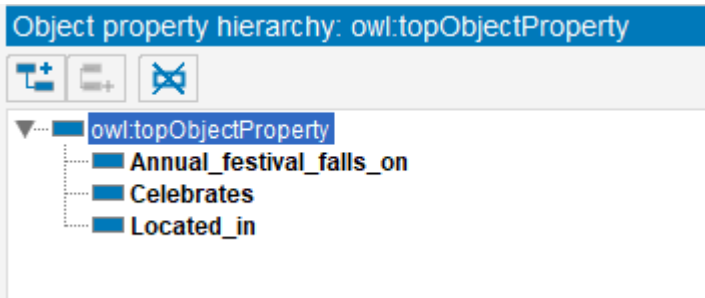




Step 5 :- Define properties of classes - slots

Data property hierarchy:





Step 6 :- Define facets of the slots

All the Data properties we define have String as the value type.

In object property “Celebrates” has “Kovil” as domain and “Religious_events” as range.

“Annual_festival_falls_on” has “Kovil” as domain and “Month” as range. Similarly,

“Located_in” has “Kovil” as domain and “District” as range.

The screenshot shows the Protege interface with the 'Architecture' data property selected. The left pane shows the hierarchy: owl:topDataProperty > Architecture. The right pane is divided into 'Characteristics: Architecture' and 'Description: Architecture'. In the 'Characteristics' pane, the 'Functional' checkbox is checked. In the 'Description' pane, the 'Equivalent To' field is empty, 'SubProperty Of' is empty, 'Domain (Intersection)' is set to 'Kovil', and 'Ranges' is set to 'xsd:string'.

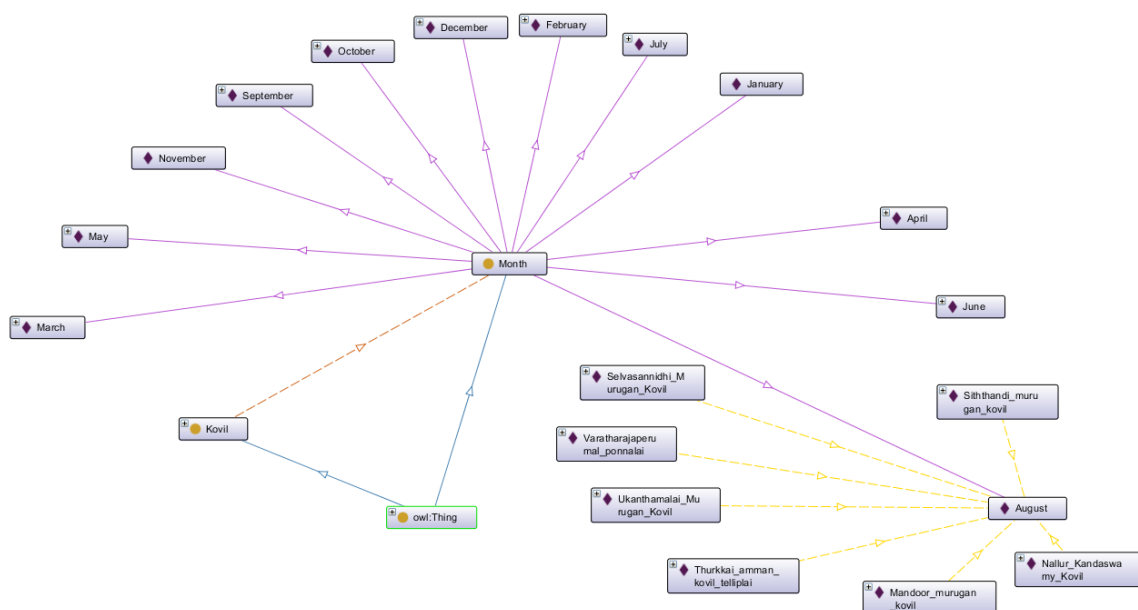
The screenshot shows the Protege interface with the 'Celebrates' object property selected. The left pane shows the hierarchy: owl:topObjectProperty > Annual_festival_falls_on > Celebrates. The right pane is divided into 'Characteristics: Celebrates' and 'Description: Celebrates'. In the 'Characteristics' pane, the 'Transitive' checkbox is checked, while 'Functional', 'Inverse functional', 'Symmetric', 'Asymmetric', 'Reflexive', and 'Irreflexive' are unchecked. In the 'Description' pane, the 'Equivalent To' field is empty, 'SubProperty Of' is empty, 'Inverse Of' is empty, 'Domain (Intersection)' is set to 'Kovil', and 'Ranges (Intersection)' is set to 'Religious_Event'.

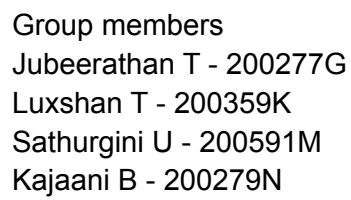
Step 7 :- Create instances

The screenshot shows the Protégé ontology editor interface. On the left, the 'Class hierarchy' pane displays a tree structure starting from 'owl:Thing', branching into 'District', 'Kovil', and 'Murugan_Kovil'. The 'Murugan_Kovil' class is highlighted. Below this, the 'Direct instances' pane lists several instances of 'Murugan_Kovil', including 'Kanthaswamy_kovil_inuvil', 'Kataragama_Temple', 'Korisikunaran_kovil_peradeniya', 'Mandoor_murugan_kovil', 'Mandisaperam_Kanthaswamy_kovil', 'Nalur_Kandaswamy_Kovil', 'Old_Kathiresan_kovil', 'Selvasannidhi_Murugan_Kovil', 'Siththandi_murugan_kovil', 'Thanthamalai_murugan_Kovil', and 'Ukanthamalai_Murugan_Kovil'. The 'Siththandi_murugan_kovil' instance is selected. The main workspace shows the 'Annotations' and 'Usage' tabs. The 'Annotations' tab is active, displaying 'Description: Siththandi_murugan_kovil' and 'Property assertions: Siththandi_murugan_kovil'. The 'Property assertions' pane lists several assertions, including 'Celebrates: Skanda_Sashti', 'Celebrates: Karthikai_Deepam', 'Annual_festival_falls_on: August', 'Celebrates: Vinayaka_Chaturthi', and 'Celebrates: Thai_Pongal'. The 'Data property assertions' pane lists 'Founded: "18th Century"' and 'Creator: "Sikandi"'.

We stick to singular, capitalization and use underscore for creating classes. We named object properties in a way that helps users to understand underlying meaning. We didn't use any abbreviation. We limit our scope to provide basic information only. We didn't specify the locations, tourist places, resorts near the kovils etc.

By using our ontology one can search kovils by the district they located, the main lord of the kovil, month when annual festival falls, or by special religious events.





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