

OntoComP: A PROTÉGÉ Plugin for Completing OWL Ontologies

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- 1 detect
 - missing relations between classes, and
 - missing individuals
- 2 extend the ontology appropriately

OWL Ontology

EUmember \equiv Country $\sqcap \exists$ isMemberOf.{EU}
Mediterranean \equiv Country $\sqcap \exists$ hasBorderTo.{MediterraneanSea}
Asian \equiv Country $\sqcap \exists$ hasTerritoryIn.{Asia}
European \equiv ...

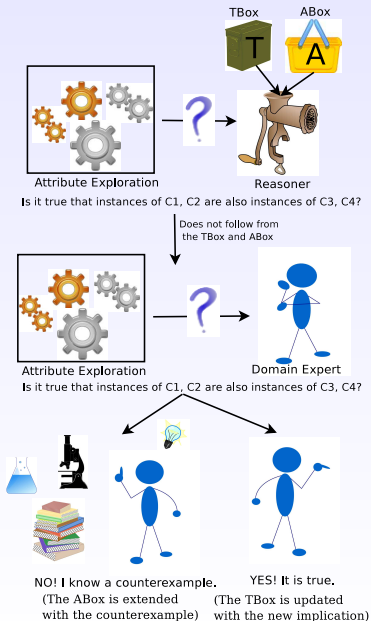
$\mathcal{A}_{countries}$	Asian	EUmember	European	Mediterranean
Russia	+	?	?	?
China	+	-	-	?
Montenegro	?	?	+	?
Germany	-	+	+	-
Italy	-	+	+	+

- All European countries are EU members?
- All EU members that have a border to the Mediterranean Sea have territories in Europe?

Ontology Completion

- a **knowledge acquisition** method for ontologies
- asks successive questions to a **domain expert**
- triggers discovery of new axioms, new individuals
- enriches the ontology
- guarantees the **minimum** number of questions
- the resultant ontology is **complete** w.r.t. application domain

Completion process



when a question is asked

- first check if it follows from the ontology
- if not ask the expert
- if the expert confirms, add a **new axiom** to the ontology
- if the expert has a **counterexample**, add it to the ontology

ONTOCOMP PROTÉGÉ 4 Plugin

The screenshot shows the Protege 4 OntoComp plugin interface. On the left, the 'Inferred class hierarchy' is displayed, showing a tree structure of classes: Thing, Country, Coastal, Mediterranean, EUmember, GermanSpeaking, Ocean, Organization, and Sea. The 'GermanSpeaking' class is highlighted. On the right, the 'Ontology Completion' dialog is open, showing a table of instances and a message box.

Context	Coastal	Mediterranean	EUmember	GermanSpeaking
Italy	+	+	+	-
Austria	-	-	+	?
India	+	-	-	-
Germany	+	-	+	+

Messages

No, this is not true in my application domain

Welcome to the **Ontology Completion Plugin**
Drag & drop class names from the class hierarchy into the context, hit start when you are ready

Are instances of **GermanSpeaking**
also instances of **EUmember, Coastal**?

- <http://ontocomp.googlecode.com>
- welcome to the demo to answer challenging questions about countries ;)