KRR: Units 8 Formative Activities
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Activity: Pizza Tutorial

This non-assessed activity allows you to check your understanding of the unit topic.

Work through a practical example by following Chapters 3 - 4 of A Practical Guide to Building OWL Ontologies Using Protégé 4 and CO-ODE Tools.

Create an ontology of pizza following the steps outlined in Exercises 2-6

Remember to record your answers to this activity in your e-portfolio.

Answer

This follows the steps outlined in the later version of the tutorial (Debellis, 2021).

I did this in Unit 7, and did not realise it was an assignment question, so many of the activities will show as completed.

Chapter 3 What are OWL Ontologies

TABLE 1 | Terminology from Debellis (2021)

Term	Description
OWL	W3C Web Ontology Language – semantic web language
DL	Description Logic – subset of First Order Logic (FOL)
Class	Class (Concept).
Property	Binary relation between individuals. Roles, relations (Slots)
Property restrictions	Role restrictions, axioms (Facets)
Individuals	Instances of classes (Instances)

Chapter 4 Building an OWL Ontology

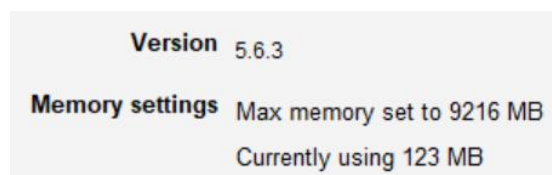### Exercise 1: Create a new OWL Ontology

Using Protégé 5.6.3.

Version 5.6.3

Memory settings Max memory set to 9216 MB

Currently using 123 MB

FIGURE 1 | Protege version

FIGURE 2 | Protege plugins

Not all of the plugins were installed at launch. Possibly Pellet, SPARQL (and snap-sparql), and SWRL were installed.

Exercise 2: Set the Preferences for New Entities and Rendering

New entities and renderer (set to) match tutorial.

Exercise 3: Add a Comment Annotation to Your Ontology

Exercise 4: Create classes: Pizza, PizzaTopping, and PizzaBase

Classes
• Main building blocks of OWL ontology • Edit using Entities • All classes are a subclass of owl:Thing • Select class you want to create the relationship to • Add the class (subclass, sibling, delete) • Classes are sometimes red if just added and haven't run reasoner • Class notation: CamelBack

Exercise 5: Install and Run the Pellet Reasoner

| Reasoner |
|---|
| • Reasoner verifies new classes have no inconsistencies
• Run the reasoner often
• (Also save often!)
• Using Pellet reasoner as currently has best support for SWRL rules
• If start reasoner doesn't behave, do Window > Refresh user interface
• Configure reasoner (check all the tick boxes to reason all inferences) |
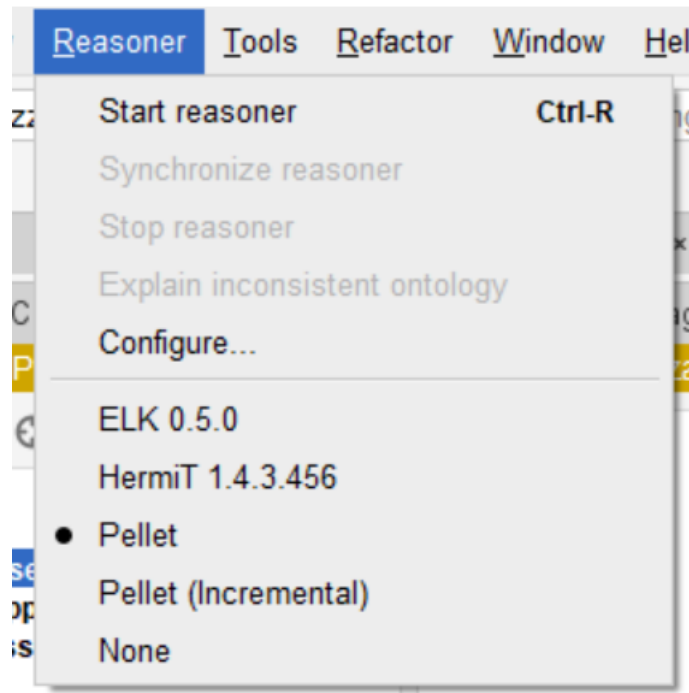
Exercise 6: Make Pizza, PizzaTopping, and PizzaBase disjoint from each other

Disjoint With
- In the right hand box under Description: ClassName   - Press the +. Or if it's been done before, the far right edit button   - OWL classes are NOT disjoint be default. They are assumed to overlap. This is because multiple inheritance is permitted as it can be useful.   - Must explicitly make disjoint.   - May be better to make disjoint later as not always clear at outset
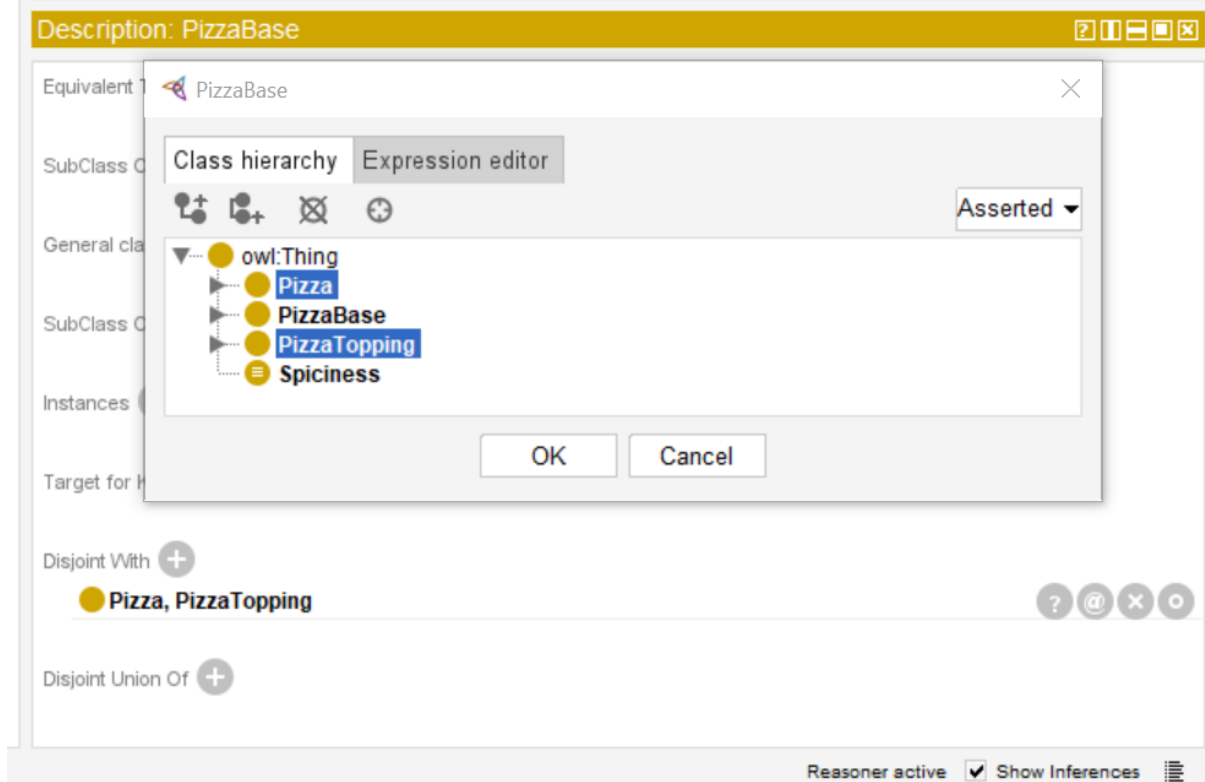
References

Debellis, M. (2021) *A Practical Guide to Building OWL Ontologies Using Protégé 5.5 and Plugins*. Available at:
https://www.researchgate.net/publication/351037551_A_Practical_Guide_to_Building_OWL_Ontologies_Using_Protege_55_and_Plugins [Accessed 15 December 2023].