Programming Assignment 3: Building an OWL Ontology

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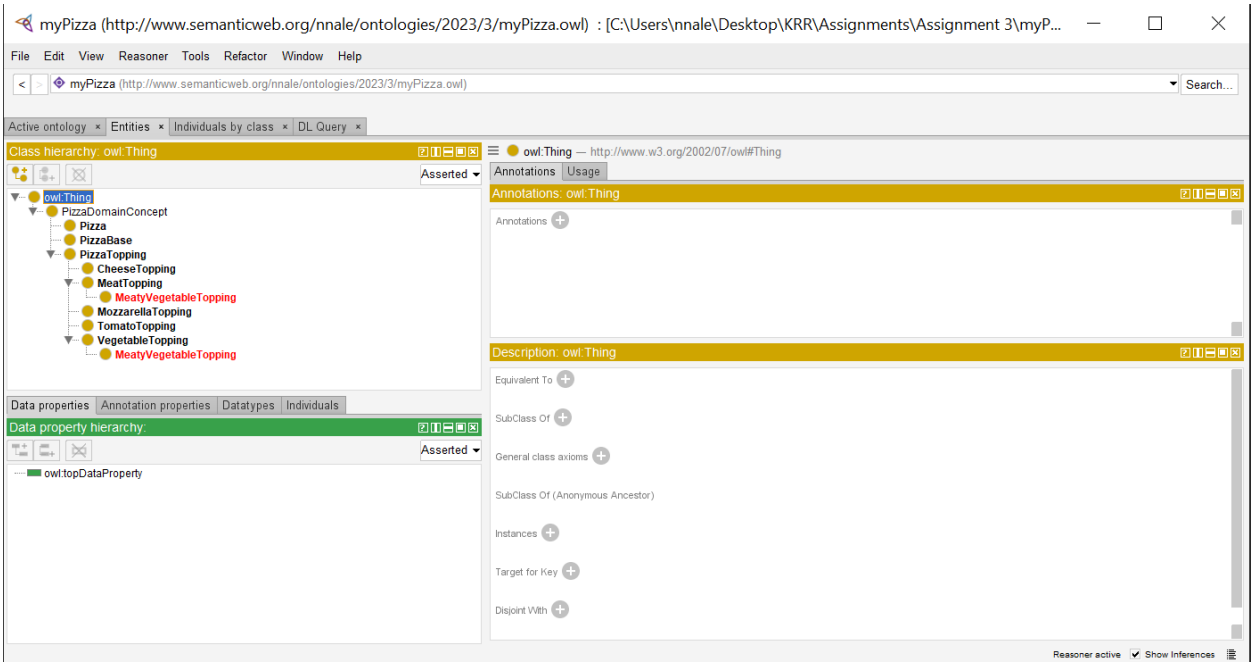
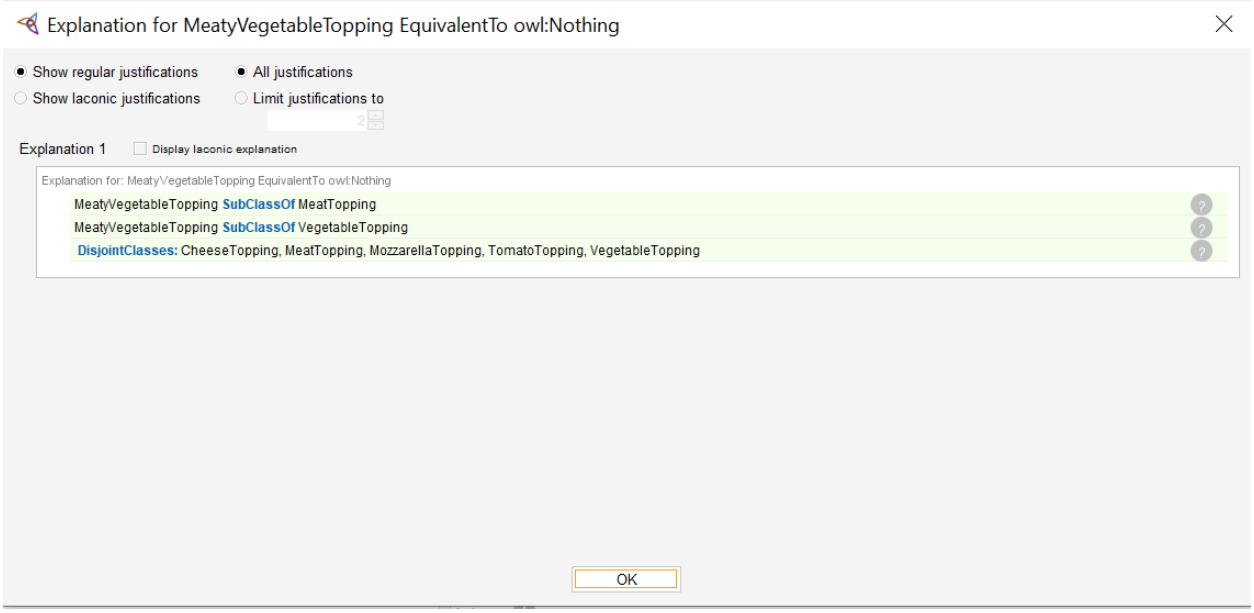
Q1. Do any of your classes come out as inconsistent?

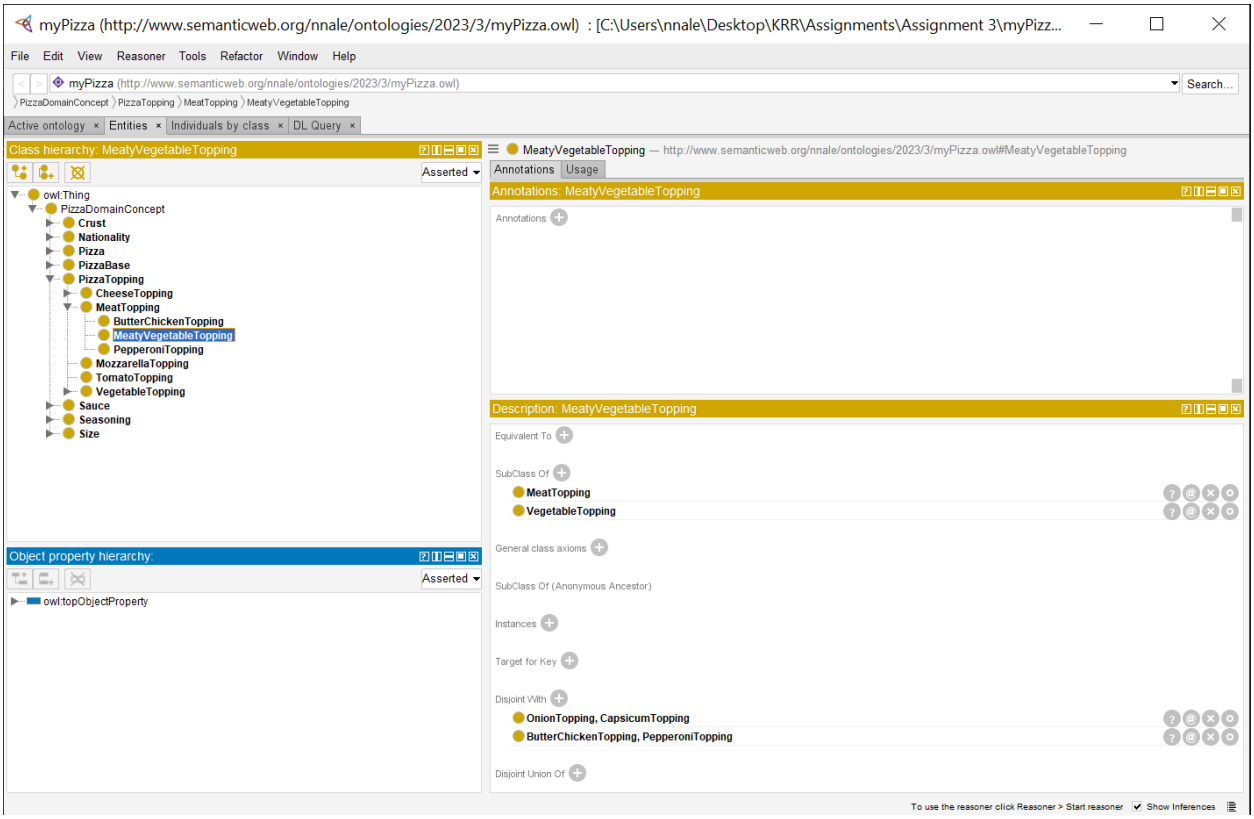
Ans: Yes, 2 of the classes came out as inconsistent when we added disjoints. When we introduced the topping MeatyVegetableTopping and assigned it to both MeatTopping and VegetableTopping categories, we observed inconsistency in the classes. This is because the same topping cannot be assigned to two different topping categories.



Explanation of inconsistency: The introduction of MeatyVegetableTopping as a subclass of both MeatTopping and VegetableTopping resulted in an inconsistency when we attempted to make the latter two classes disjoint from each other. This is because, by making MeatyVegetableTopping disjoint from both MeatTopping and VegetableTopping it would also be disjoint from itself, which is not logically possible and leads to inconsistency.



Resolution: To resolve the inconsistency caused by the introduction of MeatyVegetableTopping we can modify the class hierarchy by making MeatTopping and VegetableTopping not disjoint with each other but only disjoint with other types of toppings.



Q6. First query of your own choice.

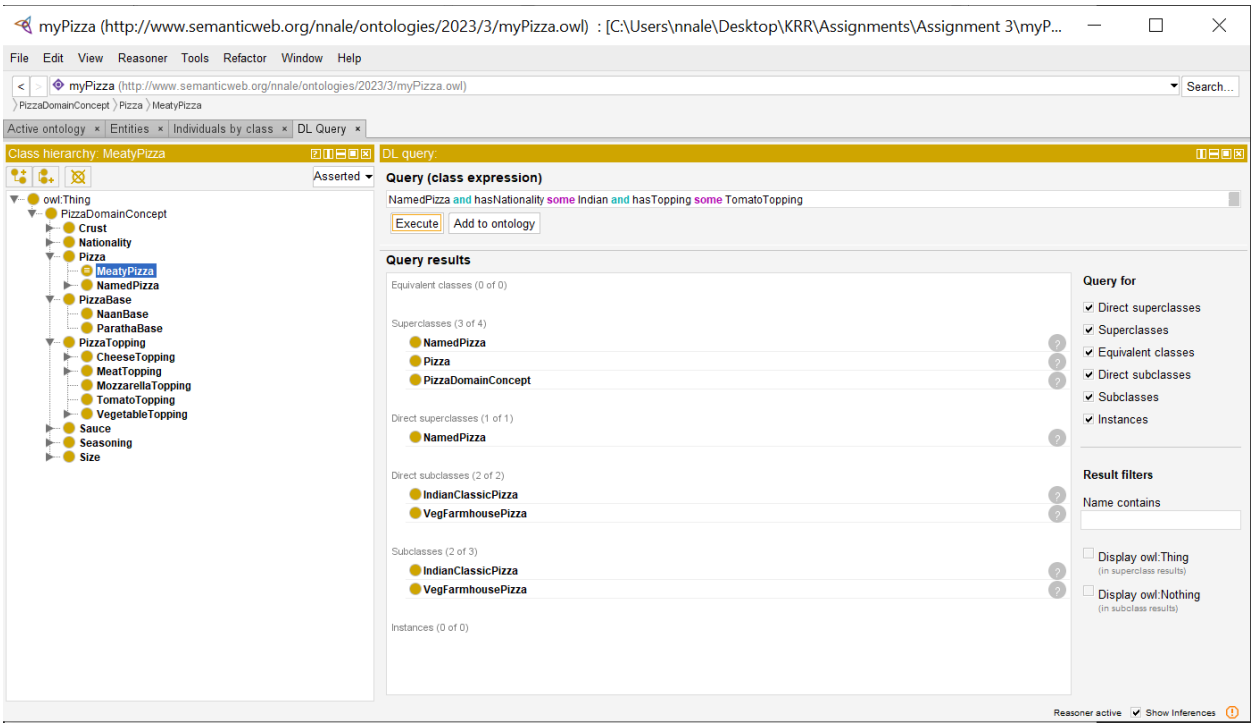
Ans: NamedPizza and hasNationality some Indian and hasTopping some TomatoTopping

Q6-1. Explanation of the First query.

Ans: This query finds all the NamedPizza types which have Indian Nationality, and only those which have TomatoTopping.

Q6-2. Screenshot of the First query.

Ans:



Q7. Second query of your own choice.

Ans: NamedPizza and hasCrust some GarlicHerbCrust and hasTopping some MozzarellaTopping

Q7-1. Explanation of the Second query.

Ans: This query finds all the NamedPizza types which have GarlicHerbCrust as crust, and only those which have MozzarellaTopping.

Q7-2. Screenshot of the Second query.

Ans: