

## Ontology editing and reasoning tools

- **Protégé 4.1**, a free, open source ontology editor, can be downloaded from

<http://protege.stanford.edu/>

where you can also find

- a library of ontologies and
- documentation, Protégé Wiki
- tutorials explaining how to use Protégé; see also

<http://www.co-ode.org/resources/tutorials/>

- built-in ontology reasoners **FaCT++** and **Hermit**

<http://owl.man.ac.uk/factplusplus/> and <http://hermit-reasoner.com/>

## Building a pizza ontology

What is a **pizza**?

The answer depends on how we are going to use our ontology...



All pizzas (among other things) have some base that is a **pizza base** and also have some topping that is a **pizza topping**.

- A pizza base can be either a **deep pan base** or a **thin and crispy base**.
- There are lots of pizza toppings: cheese topping, fish topping, meat topping, vegetarian topping, vegetable topping, etc.
- Does this mean that the classes CheeseTopping, FishTopping, MeatTopping, etc. are all different?

Define MeatyVegetable as a subclass of both Meat and Vegetable...

## Building a pizza ontology (cont.)

- **Cheesy pizzas** are those pizzas that have, among other things, some cheese topping.
- **Margherita pizzas** have, among other things, some mozzarella topping and also some tomato topping.
- Are Margherita pizzas cheesy?

If they are, why Protégé does not know this fact?

- A **vegetarian pizza** is any pizza that, among other things, both does not have some meat topping and also does not have some fish topping.
- Are Margherita pizzas vegetarian?

Well, the definition above allows us to add some meat to a Margherita pizza.

What is the correct definition?