



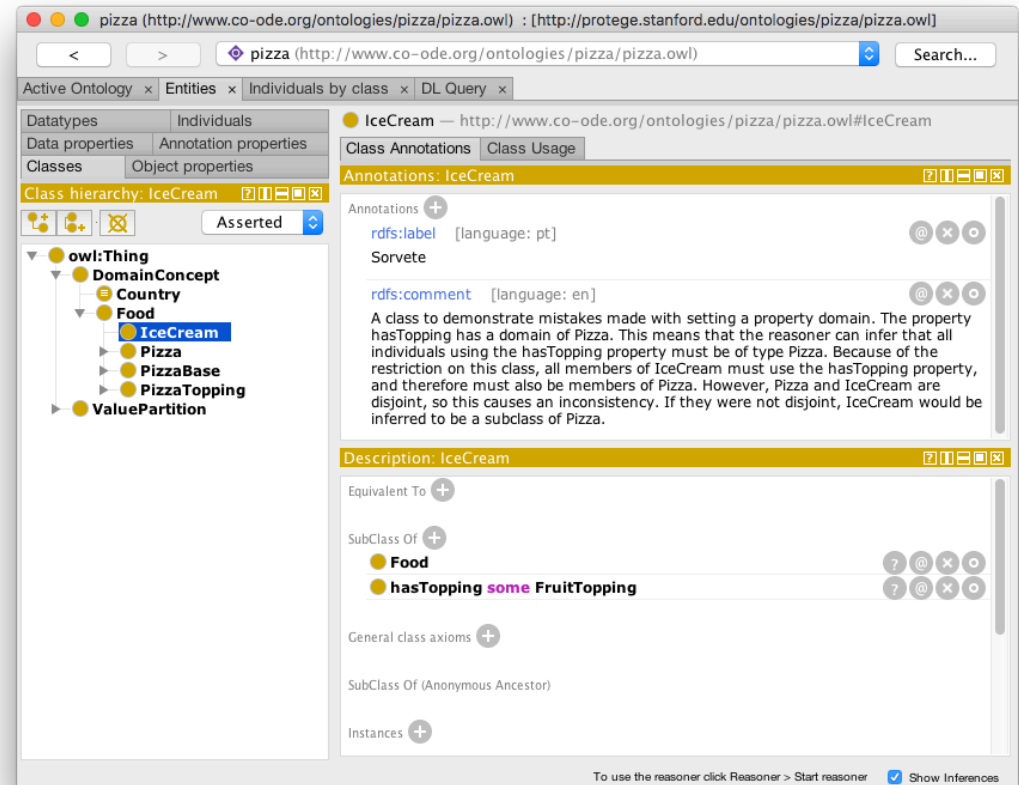
Introduction to Protégé

Protégé Short Course
October 09 - October 11, 2017

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Protégé basics

- ❑ Java ontology editor
- ❑ W3C standards:
 - ❑ OWL 2, SPARQL
- ❑ Automated reasoning
- ❑ Customizable user interface
- ❑ Pluggable architecture



The Protégé website

<http://protege.stanford.edu>



Download for your operating system

Downloading Protégé



Protégé Desktop is a feature rich ontology editing environment with full support for the OWL 2 Web Ontology Language, and direct in-memory connections to description logic reasoners like HermiT and Pellet.

Protégé Desktop supports creation and editing of one or more ontologies in a single workspace via a completely customizable user interface. Visualization tools allow for interactive navigation of ontology relationships. Advanced explanation support aids in tracking down inconsistencies. Refactor operations available including ontology merging, moving axioms between ontologies, rename of multiple entities, and more.

 Screenshots  Documentation  Resources

- ✓ W3C standards compliant
- ✓ Customizable user interface
- ✓ Visualization support
- ✓ Ontology refactoring support
- ✓ Direct interface to reasoners
- ✓ Highly pluggable architecture
- ✓ Cross compatible with WebProtégé



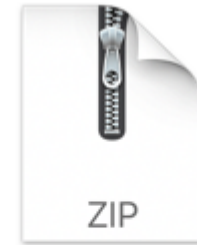
Older Protégé releases

Platform specific
release (includes Java)

Platform independent
release (no Java)

After downloading Protégé

- A compressed archive is stored locally
- Extract contents of the archive
- New folder will appear:
 - “Protege-5.2.0”

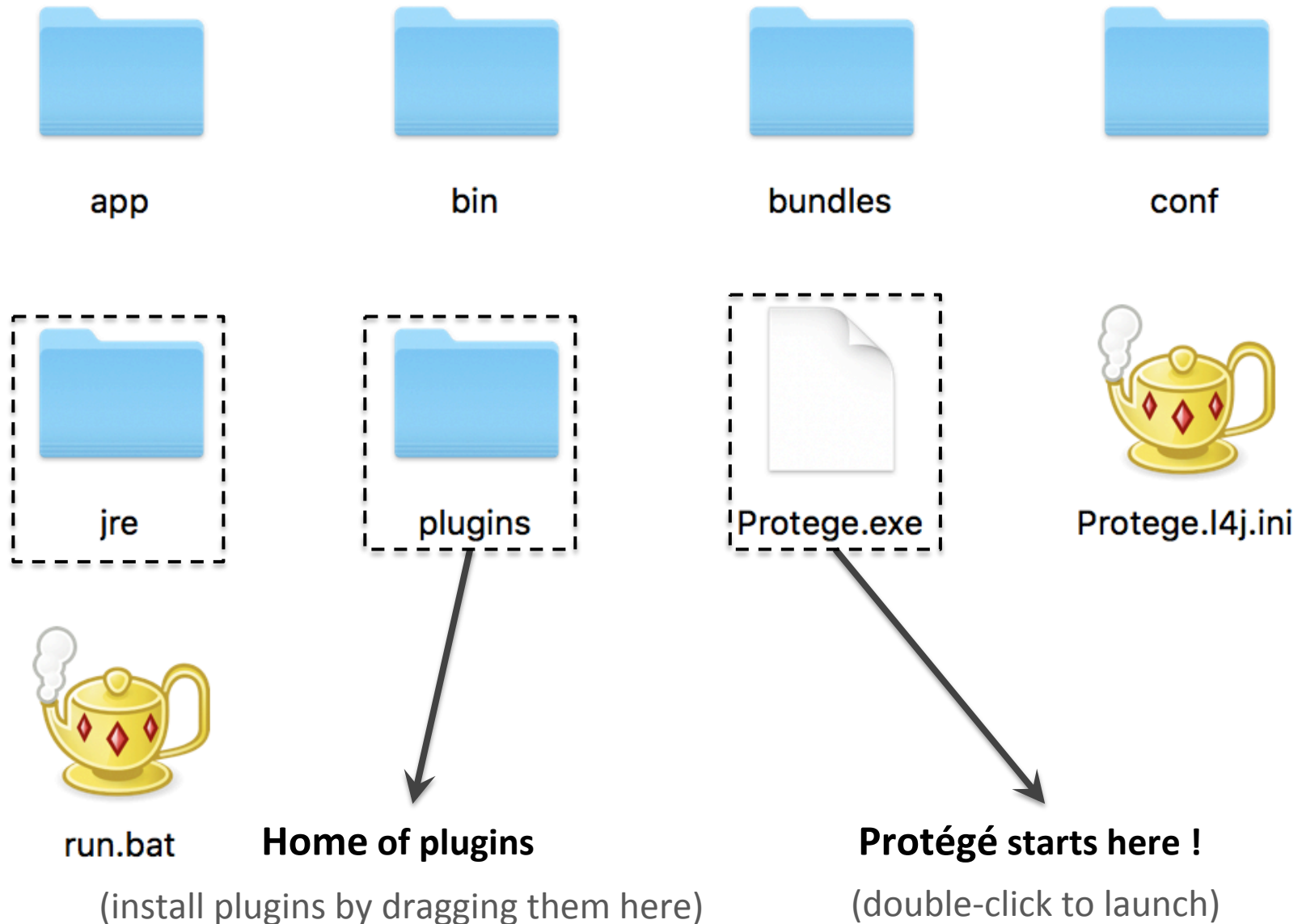


Protege-5.2.0-os-
x.zip



Protege-5.2.0

Protégé folder (on Windows)



Protégé folder (on Mac OS)



Protégé



Double-click to start

Mac OSX installation: https://protegewiki.stanford.edu/wiki/Install_Protege5_Mac

Menu Bar

Ontology

Search

Protégé File Edit View Reasoner Tools Refactor Window Help

groceries (http://protege.stanford.edu/ontologies/groceries) : [/Users/tu/Documents/Dropbox/Protege/201703ProtegeSC/groceries.o...

< > groceries (http://protege.stanford.edu/ontologies/groceries) Search...

Active Ontology x Entities x Individuals by class x DL Query x SPARQL Query x

Annotation

Ontology header:

Ontology IRI http://protege.stanford.edu/ontologies/groceries

Ontology Version IRI e.g. http://protege.stanford.edu/ontologies/groceries/1.0.0

Annotations +

rdfs:comment

An ontology about grocery items, including their ingredients.

Ontology metrics:

Metrics

Axiom	456
Logical axiom count	240
Declaration axioms count	207
Object property count	0
Data property count	0
Individual count	13
Annotation Property count	4
DL expressivity	SRO

Class axioms

SubClassOf	179
EquivalentClasses	6
DisjointClasses	27
GCI count	0

Ontology imports | Ontology Prefixes | General class axioms

Imported ontologies:

Direct Imports +

Indirect Imports

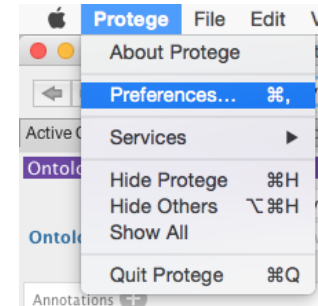
To use the reasoner click Reasoner > Start reasoner ☒ Show Inferences

Protégé preferences

Mac OS

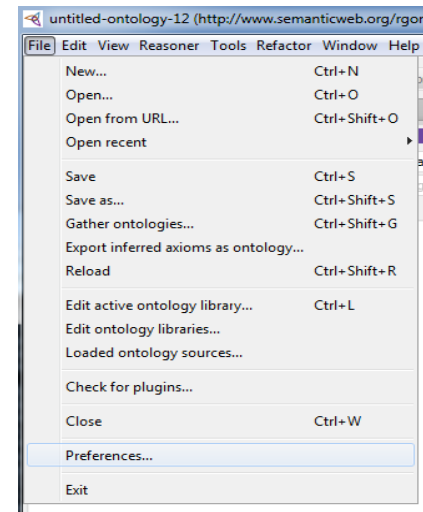
Access through Mac menu bar

Protégé > Preferences



Other operating systems

File > Preferences



Preferences

New Ontologies	OWLViz	Plugins	Reasoner	Renderer	User de
Annotations	General	New Entities	New Entities Metadata		

Entity IRI

- Start with:
- ☒ Active ontology IRI
 - ☐ Specified IRI:
- Followed by:
- ☐ #
 - ☒ /
 - ☐ :
- End with:
- ☒ User supplied name
 - ☐ Auto-generated ID

Entity Label (for use with Auto-generated ID)

- ☒ Same as label renderer
 - ☐ Custom label
- IRI
- Lang

Auto-generated ID

- ☐ Numeric (iterative)
- Prefix:

User interface components

The screenshot displays the Protege user interface for the 'dinner' ontology. The top bar shows the ontology name and URL, along with navigation buttons. Below the top bar, there are tabs for 'Active Ontology', 'Entities', 'Individuals by class', and 'DL Query'. The left sidebar shows a class hierarchy starting with 'owl:Thing', with 'Dinner' selected. The main right pane displays the 'Dinner' class details, including 'Class Annotations', 'Class Usage', and 'Annotations'. The 'Annotations' section shows an 'rdfs:comment' describing the ontology. The 'Description' section shows 'Equivalent To' and 'SubClass Of' axioms. The 'SubClass Of' section lists 'hasDish some FoodDish' and 'hasParticipant some Person'. A 'View' label points to the class hierarchy, a 'Tabs' label points to the top bar, and a 'Section' label points to the Description section.

View

Tabs

Section

Active Ontology x Entities x Individuals by class x DL Query x

Individuals

Annotation properties

Datatypes

Data properties

Classes

Object properties

Class hierarchy: Dinner

Asserted

owl:Thing

Dinner

FoodDish

FoodStuff

InformationEntity

Person

Query

Dinner — <http://www.protege.stanford.edu/dinner/Dinner>

Class Annotations

Class Usage

Annotations: Dinner

Annotations +

rdfs:comment

A dinner in this toy ontology is specified in term of some food dishes and some persons attending the dinner. It can

Description: Dinner

Equivalent To +

SubClass Of +

hasDish some FoodDish

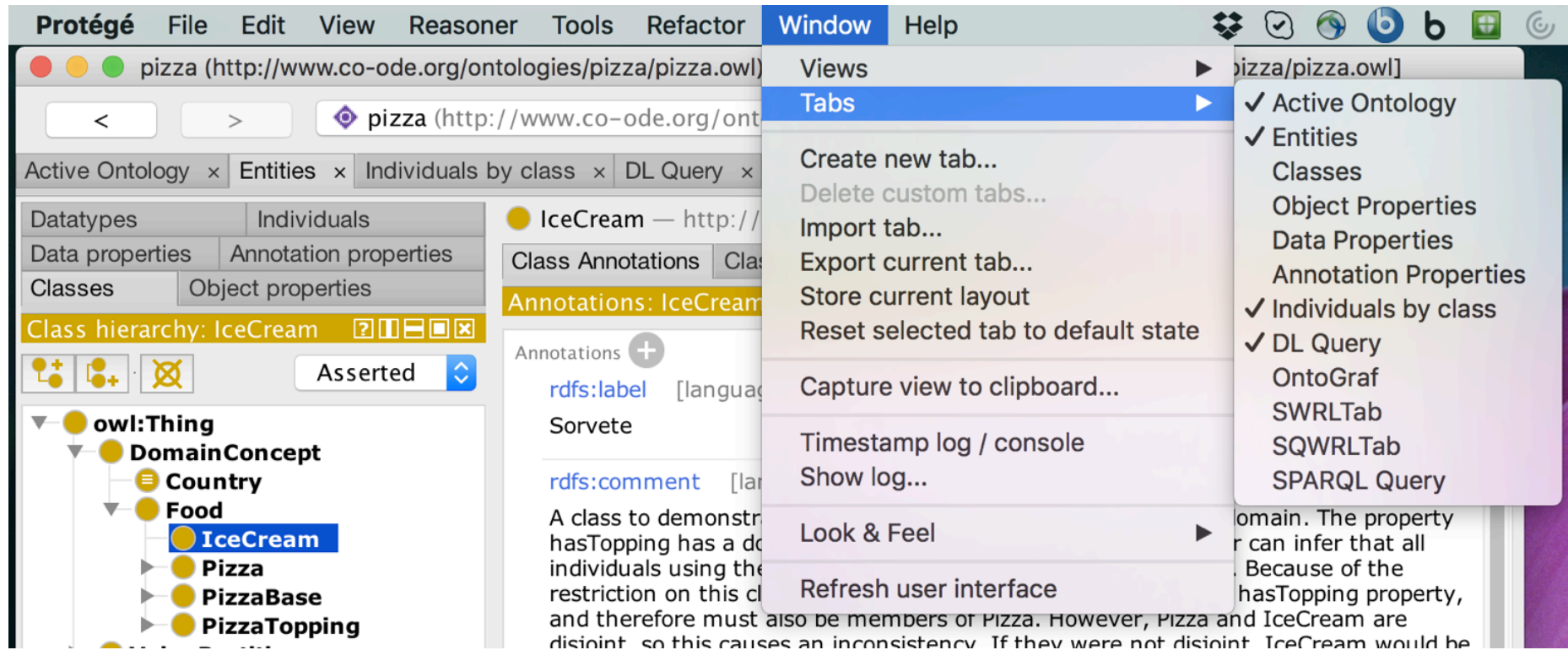
hasParticipant some Person

General class axioms +

SubClass Of (Anonymous Ancestor)

To use the reasoner click Reasoner > Start reasoner ☒ Show Inferences

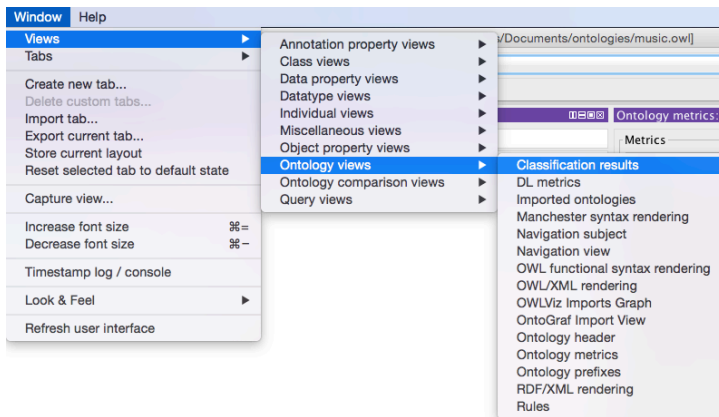
Protégé tabs



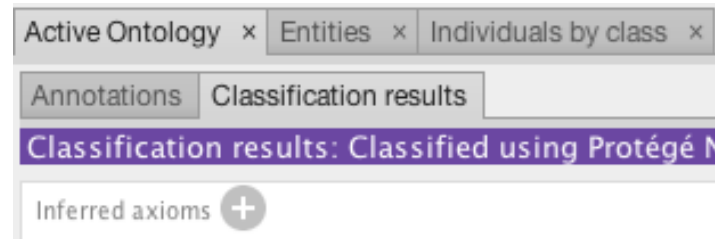
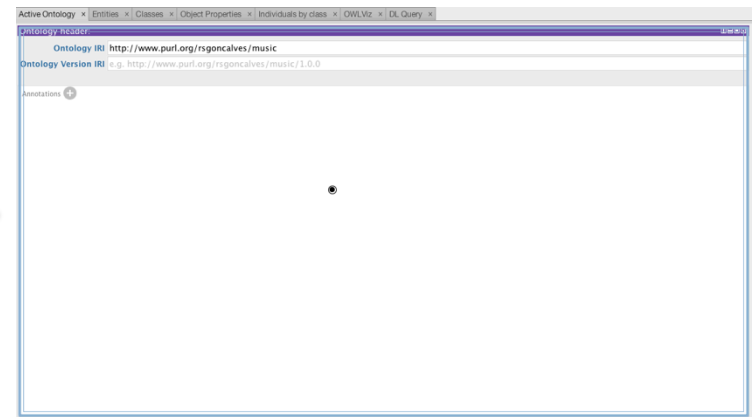
Add a new tab: Window menu -> Tabs

Protégé views

(1) Select type of view

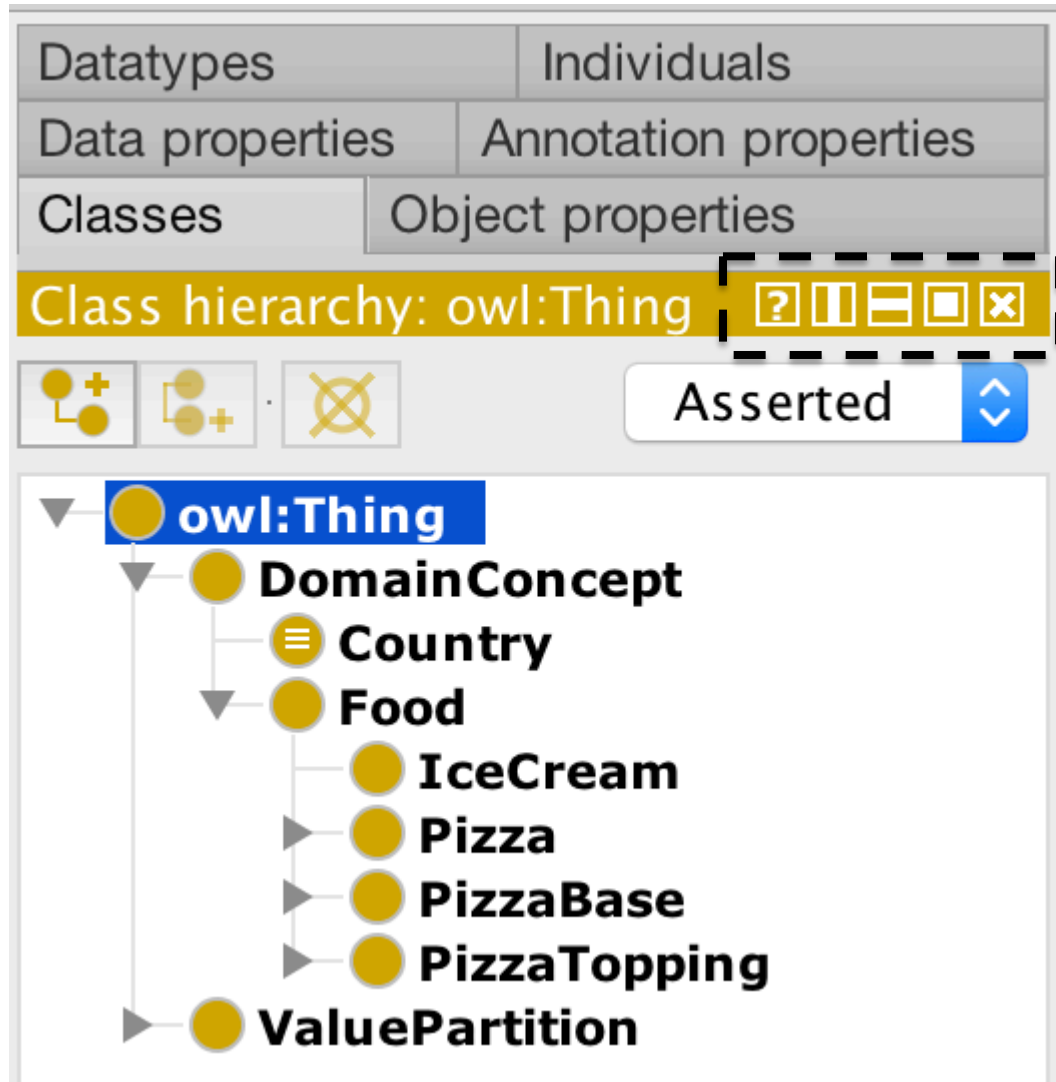


(2) Select a drop-off point



(3) The view appears within selected tab

View controls



Help

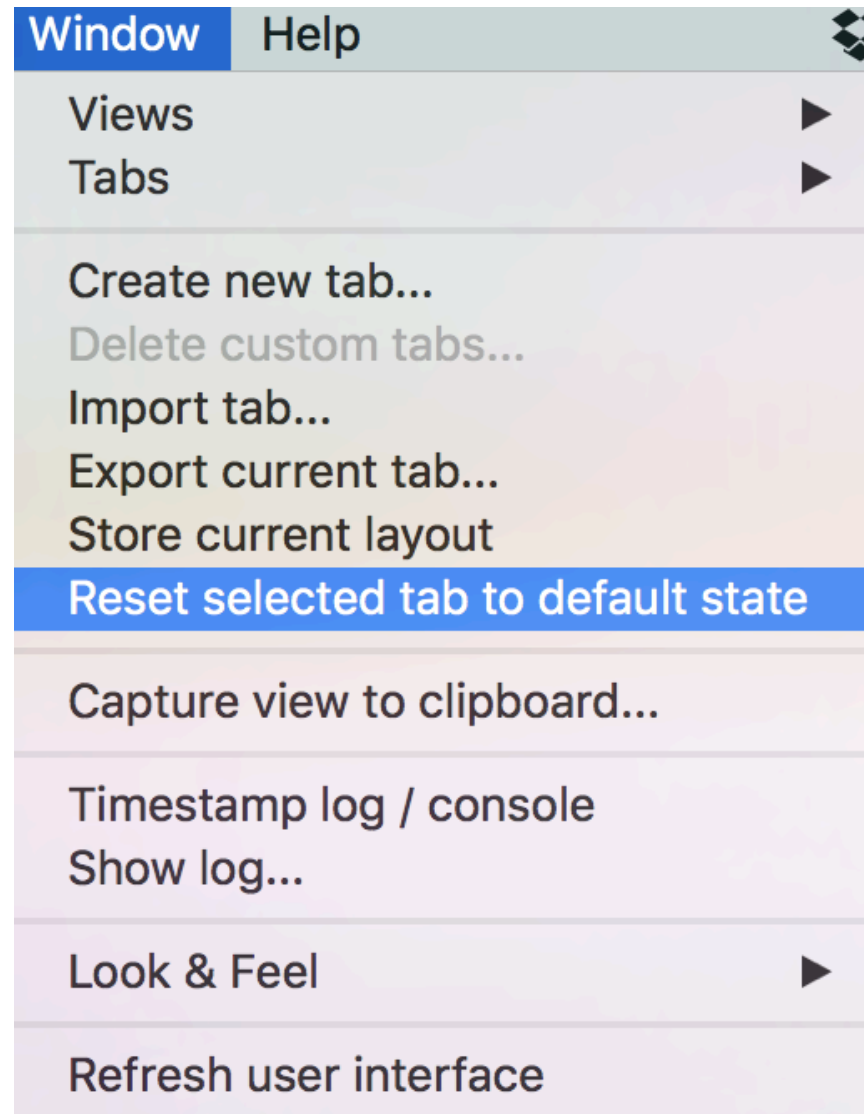
Split horizontally

Split vertically

Float

Delete

Resetting a tab



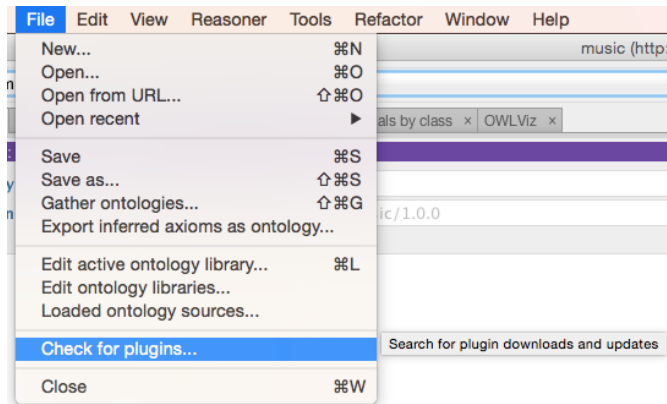
Sections in a view

The screenshot shows a software interface with a yellow header bar labeled "Description: Wheat". Below the header, there are several sections, each with a plus icon in a circle:

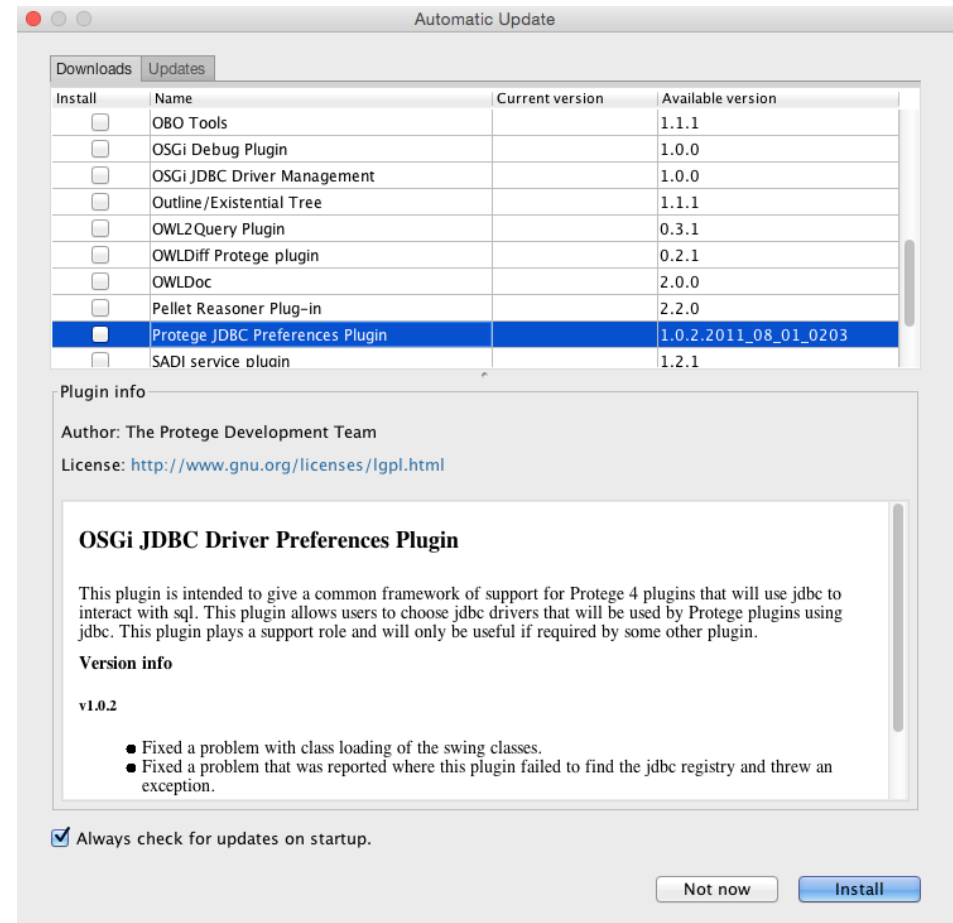
- Equivalent To** (plus icon)
- SubClass Of** (plus icon) - This section contains a yellow circle followed by the text **CerealGrain** and **and (contains some Gluten)**. A purple dashed box highlights the plus icon, with a purple arrow pointing to the text "Add new element in section".
- General class axioms** (plus icon)
- SubClass Of (Anonymous Ancestor)**
- Instances** (plus icon)

On the right side of the interface, there is a vertical toolbar with four icons: a question mark, an at-sign, a cross, and a circle. A purple dashed box highlights these icons, with two purple arrows pointing to them labeled "Remove" and "Edit".

Plugins: 'Automatic Update' wizard

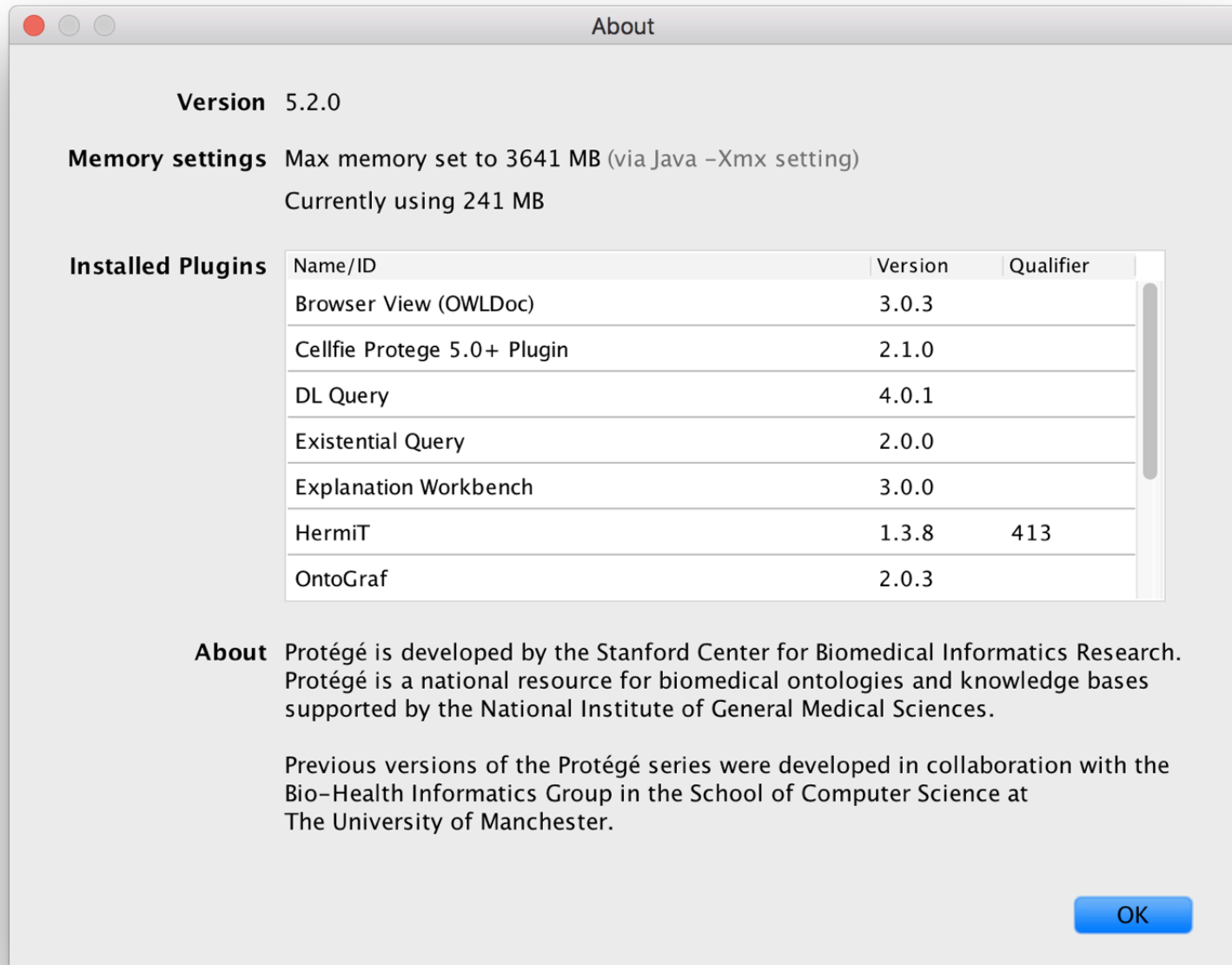


Triggers 'Automatic Update' wizard
List of plugins and their information



Protégé and plugin versions

Help menu -> About or Protégé -> About Protégé



Screenscasts

Screenscasts of basic operations and important features:

<https://www.youtube.com/user/TheProtegeProject/playlists>

Playlist: “Protégé 5 Screenscasts”

- Open ontology
- Install plugins
- Control tabs
- Control views