Emails, as Q&A

Monday, November 26, 2012

8:49 AM

***Question 7/16/2012 - encoding time***

*How to encode a time from an event*

*specific example (gt 12 hours and le 24 hours) or gt 8 weeks) of acute hospitalization*

*taken from*

*(Recommendation) F3. Lipid profiles should not be obtained within 8 weeks of acute hospitalization, surgery, trauma, or infection unless they are obtained within 12-24 hours of the event to ensure accuracy.*

**Answer (ST)**

If you want specify the time (8 to 12 hours after acute hospitalization) when a lipid profile should be ordered, then you want to specify in the "when" property of Order\_TestOrProcedure an instance of relative time interval. Similarly, if you want to check whether a test was ordered 8-12 hours after acute hospitalization, you  want to specify the "period" slot of the Presence\_Criterion. The 'relative time interval' structure used in both slots allows you to specify an interval in terms of one time point and a duration before or after the time point. So you have to say (4 hours after, [8 hours after [time of acute hospitalization]). "Time of acute hospitalization" has to be written as a PAL query (the patient may have multiple hospitalizations, you need to write the criteria for the one you mean).

I noticed that the current "Relative Time Point" only allows "(past) days from current time". It's a simplification for the ease of implementation. The Relative Time Point is meant to specify the time before or after another time point. I've added the necessary structure in the standalone version of the ontology. You'll see that after you or Susana restart the Protege server.

……………...

***Question 7/13/2012 - encoding criteria***

*I thought there may be criteria created in different disease\_kbs that could be re-used, for example age, lab values, presence of drugs, etc. This would avoid duplication of criteria in different projects, akin to the library and concepts. Makes me wonder if criteria should also be part of library.*

**Answer (ST)**

Criteria that are in library project are available to any disease KB. Except when one disease KB includes another (e.g., heart failure including HTN & Lipid), criteria that are in one disease KB is not accessible from another. So there is no point in seeing them in the recommendation project if they not accessible in the KB projects.

There are pros and cons in reusing criteria across guideline KBs. It will be a lot of work to re-organize them.

………………

***Question 7/12/2012 - recommendations pprj***

*I noticed there is a project called ‘recommendations’ only. What is the purpose of this project?*

*In Recommendations\_lipid we don’t have access to the criteria from HTN. I thought we would have access to any criteria created in any of the other projects. Did I misunderstand? Is this because we do not have a library of concepts?*

**Answer (ST)**

The "recommendation" project was left-over from my failed attempt to have a generic recommendation project.

I thought, for each "recommendation" project of a disease, you only want access to concepts and criteria in the corresponding ATHENA KB project. So recommendation\_Lipid includes ATHENA\_Lipid.

***Question 7/11/2012 - active meds***

*I need to clarify the criteria for meds in the KB and the connection to patient data. Dan says EON only pulls active prescriptions. I thought that in the medication criterion if you did not add the mood ‘authorized’ it meant ever on the drug. If the mood slot is empty what is the default behavior? But if EON only knows about active prescriptions then my assumptions about ‘ever’ on the drug is incorrect.*

**Answer (ST)**

EON assumes that only active meds are queried and available to the system. "Authorized" means currently active. No mood default to "Authorized." The current distinctions are between "Authorized" and "Recommended."

It is possible to add "Past" medications, but the KB and the execution engine need to be updated.

***Question 7/10/2012 - encoding Forms tab, Slots***

*In recommendations\_Lipid.pprj for the slot, Recommendation Text, of the Guideline\_Recommendation class, is there a way to have a larger text box?  The recommendation text string can be quite long and a short single line is a bit small.*

**Answer (ST and CO)**

Unfortunately, the form configuration can only be done in Protege's standalone mode.

Are you familiar with Protege's form configuration (use the Forms tab to change the GUI widgets associated with the slots)? We can shut down the Protege server and you can make the necessary configuration changes to the classes that you are editing.

To change size of the slot, "Recommendation Text" in the Guideline\_Recommendation class,

* In Classes tab, select Guideline \_Recommendation
* Click on Forms tab
* On the right hand side, the Form Editor, click on Recommendation Text
* In "Selected Widget Types" pull down menu, select TextAreaWidget, rather than TextFieldWidget

**Answer (ST) 7/6/2012 - Medical Condition Class - icd9**

The attached HTML file

[\\vhapalathenaot\autopm\Protege\Protege\_KB\_encoding\RelatedFiles\MissingICDChildrenAugmented.html](file://vhapalathenaot/autopm/Protege/Protege_KB_encoding/RelatedFiles/MissingICDChildrenAugmented.html)

shows the hierarchy of the "Medical Condition Class" once HTN, HF, CKD, DM, and Lipid KBs are loaded together. Highlighted in BOLD are those ICD 9 CM codes that are subcodes of codes in the hierarchy, but are not in the hierarchy themselves. For example, 585 is a subclass of 'Chronic Kidney Disease', but its subcodes (585.1, 585.2,...) are not in the hierarchy (actually, I check that the subcodes are not among the sibling classes of 585). Therefore the subcodes are highlighted in bold.

Interestingly, I couldn't find a number of codes in the hierarchy in the UMLS 2012AA version of ICD 9 CM. (Search for "No such ICD code" in the HTML page).

Note that this check doesn't uncover the problem of missing systolic heart failure (428.2), because the more general code 428 is not in the hierarchy. Instead, 428.0 (Congestive heart failure, unspecified) is in the hierarchy. One possibility is to extend the search by including the code NNN whenever NNN.0 is in the hierarchy.

The hierarchy needs pruning (e.g., duplicate concepts) and re-organization.

***Question 7/5/2012 - pprj, rdfs/rdf, pins/pons, annotation***

*Only recommendations\_Lipid.pprj was changed, so I understand that the recommendations\_Lipid. rdfs and rdf needs to be updated/committed. But, I don’t understand*

* *why recommendations\_Lipid.pprj didn’t need to be committed when there were changes made and*
* *why the annotation\_recommendations\_Lipid. pprj and associated files were also impacted when only recommendations\_Lipid was changed*

**Answer (ST)**

Protege is not very smart about recognizing whether classes and instances have been changed.

Remember that the ".pprj" file contains bookkeeping information. When you change a Protege project, the changes to classes and instances are saved in pont/pins or rdfs/rdf files. In the server mode, the pprj file is not always re-saved. (When I say a "project", I mean the entire set of pprj/pont/pins or pprj/rdfs/rdf  files, not just the pprj file.)

When you make changes to the classes, slots, and instances of a Protege project, the resulting content are saved in pont/pins or rdfs/rdf files.

Optionally, Collaborative Protege may be keeping track of the change operations (e.g., add a class XXX, change the value of slot X in instance Y") in the background, resulting in modification to the associated annotation project.

***Question 7/2/2012 - encoding slots***

*We created a slot called “Uses\_criterion’ akin to ‘Uses\_concepts’ in Guideline\_recommendations. The only part we could not emulate was to add the inverse slot ‘is\_used\_in’. This slot does not show in the list of existing slots.*

**Answer (ST)**

You need to define a new property (e.g., criterion\_is\_used\_in). "is\_used\_in" is a relationship between Concept and Guideline\_Recommendation. (Probably should rename "is\_used\_in" to "concept\_is\_used\_in").

***Question 7/2/2012 - encoding slots***

*We want to add a slot ‘createdby’ in so Connie can identify the recommendations, criteria and concepts she creates. This gives her the ability to search for things she created. If I remember correctly you mentioned that we were NOT able to create a top level annotation project that would be inherited by all Recommendations\_XXXX projects. I just wanted to confirm this. I know how to create the slot, just wanted to make sure where to do it.*

**Answer (ST)**

Don't create "createdby" slot. For the Concept, Criterion\_Description, Guideline\_Recommendation classes, add the :CREATOR and :MODIFIER system slots to their template slots. Next, go to Project/Configure... menu item and check "Update modification slots" option in the Options tab. Protege will automatically keep track of who create and modify instances of these classes.

***Question 5/14/2012 - encoding (do not) create class as value of property***

*In the Knowledge Acquisition tab -> Instance Editor -> Patient*

*Characterization, I tried to create another class called “ACS <6mo”.*

*Somehow , I got into a state where there was in red, a <deleted*

*frame> in the box under Patient Characterization. I can go to the Classes&Instances tab, delete the class :THING -> temp1 and the <deleted frame> disappears, BUT when I try to add a new class under Patient Characterization, I end up in the same place; i.e., <deleted frame> reappears.*

**Answer (ST)**

The problem is that when you create a new class as the value of a property, the dialog box asks for the metaclass of the class, but not the parent of the class. By default, :THING is the parent when no parent is specified for a class.

The workaround is to create a class in the Class Hierarchy and place the new class at an appropriate place in the class hierarchy, and then select the class (using the +diamond> as the value of Patient Characterization.

The moral: Don't create a class as the value of a property. Create it in the Class Hierarchy first, and then select it for the propoerty.

***Question (implied) 11/28/2012 - truth tables***

*What are the truth tables for combining Boolean combinations of proposition statements that may evaluate to truth, false, or unknown.*

**Answer (ST)**

You can see them in the wikipedia page:

<http://en.wikipedia.org/wiki/Three-valued_logic>

The version of the logic used in the the EON system is the same as the "Kleene logic" described in the article.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | ***A AND B*** | **TRUE** | **Unknown** | **FALSE** | | **TRUE** | TRUE | Unknown | FALSE | | **Unknown** | Unknown | Unknown | FALSE | | **FALSE** | FALSE | FALSE | FALSE |      |  |  |  |  | | --- | --- | --- | --- | | ***A OR B*** | **TRUE** | **Unknown** | **FALSE** | | **TRUE** | TRUE | TRUE | TRUE | | **Unknown** | TRUE | Unknown | Unknown | | **FALSE** | TRUE | Unknown | FALSE |      |  |  | | --- | --- | | ***A*** | **NOT *A*** | | **TRUE** | FALSE | | **Unknown** | Unknown | | **FALSE** | TRUE | |  |  |  |

Pasted from <<http://en.wikipedia.org/wiki/Three-valued_logic>>