

DecisionOntologyExample.wiki

This wiki page provides an example of describing the knowledge and experience of domain experts in form of requirements and/or recommendations related to a given type of decision-making. For basic introduction [see this HowTo page](#).

Introduction

There can be many possible ways to solve a problem and many recommendations/rules/best practises regarding a given type of a decision-making process. Using [Decision Ontology \(DO\)](#) together with [Requirement Ontology \(RO\)](#) allows to represent and compare these aspects on many levels providing a way to inspect different approaches originated from multiple contexts.

This example demonstrates how to describe the knowledge and experience of domain experts in form of requirements and/or recommendations related to a given type of decision-making. The associated OWL file can be found [here](#). Below is a short video showing how it can be browsed in Protégé 4:

http://www.youtube.com/watch?feature=player_embedded&v=dbpQodni7F4
target='_blank'><http://img.youtube.com/vi/dbpQodni7F4/0.jpg> width='425' height=344 />

Details

The example decision-making process is initiated by following problem/question: **What is the appropriate therapy for a bacterial throat infection?**. In the OWL file this type of process is represented by class labeled as **Deciding about appropriate therapy for bacterial throat infection**.

```
``` Class: Deciding_about_appropriate_therapy_for_bacterial_throat_infection
```

```
Annotations:
```

```
 label "Deciding about appropriate therapy for bacterial throat
infection"@en,
 comment "See
'Requirement_for_deciding_about_appropriate_therapy_for_bacterial_throat_in
fection' that defines necessary options and their criteria."@en
```

```
EquivalentTo:
```

```
 Decision_making
 and (is_initiated_by some
Question_for_indicating_appropriate_therapy_for_bacterial_throat_infection)
```

```
SubClassOf:
```

```
 Decision_making
```

```
```
```

Let's suppose our expert has a recommendation regarding the choice of possible options and their associated criteria for this particular case. These fact has been represented in our knowledge base by adding **Recommendation for deciding about appropriate therapy for bacterial throat infection** indicating what kind of decision-making it applies to and how it can be satisfied.

```
``` Class: Recommendation_for_deciding_about_appropriate_therapy_for_bacterial_throat_infection
```

```
Annotations:
```

```
label "Recommendation for deciding about appropriate therapy for
bacterial throat infection"@en
```

EquivalentTo:

```
(is_recommendation_for some
Deciding_about_appropriate_therapy_for_bacterial_throat_infection)

and (is_satisfied_by only
Recommended_decision_making_about_appropriate_therapy_for_bacterial_throat_
infection_1)
```

SubClassOf:

```
Recommendation
```

```
...
```

It seems to be a good practice to add a distinct OWL class for every domain object (or other relevant entity) - that is why another class labeled as **Recommended decision making about appropriate therapy for bacterial throat infection 1** has been introduced to our example indicating options recommended to be considered during this decision. Optionally a set of additional questions related to options' criteria can be explicitly added to a the decision-making description (as in the following example):

```
``` Class:
```

```
Recommended_decision_making_about_appropriate_therapy_for_bacterial_throat_infection_1
```

Annotations:

```
label "Recommended decision making about appropriate therapy for
bacterial throat infection 1"@en
```

EquivalentTo:

```
Deciding_about_appropriate_therapy_for_bacterial_throat_infection

and (initiates some Question_for_confirming_of_being_older_than_12)

and (initiates some
Question_for_confirming_of_not_having_amoxicilin_allergy)

and (initiates some
Question_for_confirming_of_not_having_penicilin_allergy)

and (initiates some
Question_for_confirming_the_readiness_to_stay_home_for_five_days)

and (is_consideration_of some Choosing_amoxicilin_therapy)

and (is_consideration_of some Choosing_non_atibiotic_therapy)

and (is_consideration_of some Choosing_penicilin_therapy),

satisfies_recommendation some
Recommended_decision_making_about_appropriate_therapy_for_bacterial_throat_
infection
```

SubClassOf:

```
Deciding_about_appropriate_therapy_for_bacterial_throat_infection
```

'''

Please note that every option and every underlying evaluation criteria is described by distinct OWL class (in Protégé they can be tracked by using the usage view).

``` Class: Choosing\_penicilin\_therapy

Annotations:

label "Choosing penicilin therapy"@en

SubClassOf:

Option,

involves\_choosing some Penicilin\_therapy,

has\_criterion some Minimum\_age\_of\_12\_requirement,

has\_criterion some Requirement\_for\_not\_having\_penicilin\_allergy

'''

A decision (or other result of a decision-making process) can be specified by the **has\_result** property.