JÖNKÖPING UNIVERSITY
School of Engineering

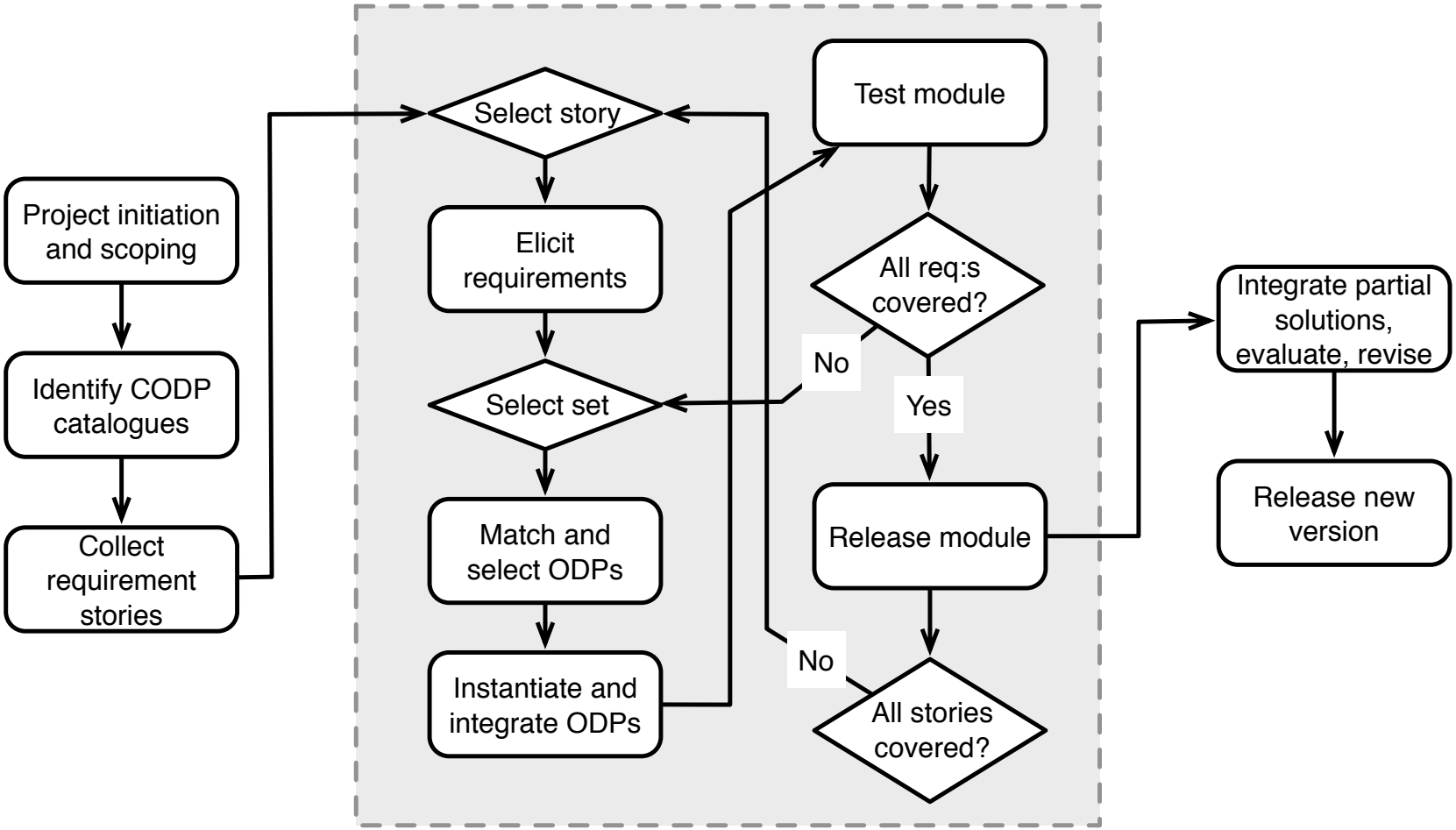
Introduction to XD and XDP

Karl Hammar

2016-10-17

eXtreme Design

- *”a family of methods and associated tools, based on the application, exploitation, and definition of Ontology Design Patterns (ODPs) for solving ontology development issues”* – Presutti et al.
- Agile, iterative, pair development, testing emphasis
- Requirements written as user storys formalised as Competency Questions, Contextual Statements, Reasoning Requirements
- Tight customer integration
- Key steps: find ODP, instantiate ODP, integrate solution


Project initiation and scoping
Identify CODP catalogues
Collect requirement stories
Select story
Elicit requirements
Select set
Match and select ODPs
Instantiate and integrate ODPs
Test module
All req:s covered?
No
Yes
Release module
No
All stories covered?
Integrate partial solutions, evaluate, revise
Release new version

XD for WebProtégé (XDP)

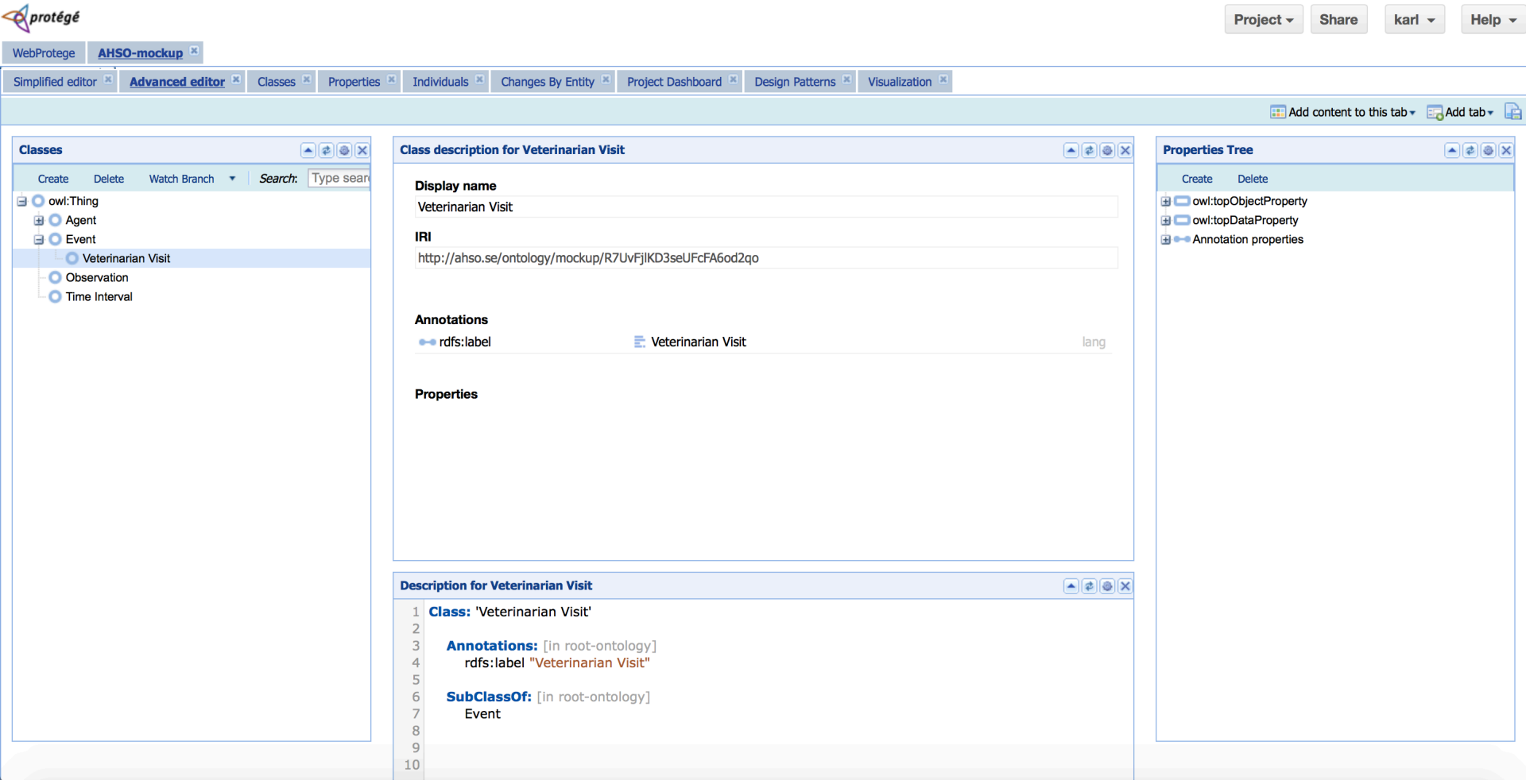
Fork of WebProtégé including tooling to support some XD steps:

- Find ODPs
- Instantiate ODPs (template-based or specialisation-based)
- Integrate ODPs into solution (basic alignment)

Also includes visualization, courtesy of code from the VisualDataWeb project and new UI tabs for advanced editing

Some restrictions of WebProtégé:

- No reasoning
- ODP namespaces cloned, not imported


protégé
Project
Share
karl
Help
WebProtege
AHSO-mockup
Simplified editor
Advanced editor
Classes
Properties
Individuals
Changes By Entity
Project Dashboard
Design Patterns
Visualization
Add content to this tab
Add tab
Classes
Create
Delete
Watch Branch
Search:
Type sear
owl:Thing
Agent
Event
Veterinarian Visit
Observation
Time Interval
Class description for Veterinarian Visit
Display name
Veterinarian Visit
IRI
http://ahso.se/ontology/mockup/R7UvFjlKD3seUFcFA6od2qo
Annotations
rdfs:label
Veterinarian Visit
lang
Properties
Description for Veterinarian Visit
1 Class: 'Veterinarian Visit'
2
3 Annotations: [in root-ontology]
4 rdfs:label "Veterinarian Visit"
5
6 SubClassOf: [in root-ontology]
7 Event
8
9
10
Properties Tree
Create
Delete
owl:topObjectProperty
owl:topDataProperty
Annotation properties

protégé

Project | Share | karl | Help

WebProtege | AHSO-mockup

Simplified editor | Advanced editor | Classes | Properties | Individuals | Changes By Entity | Project Dashboard | Design Patterns | Visualization

Add content to this tab | Add tab

ODP Selector

ODP Category Selector

Select Category

ODP Search

Query:

Search | Reset

Results list

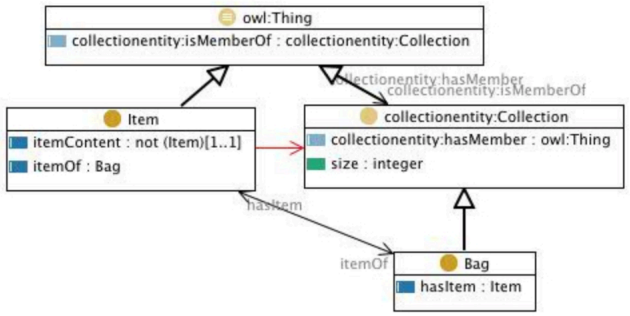
Name
Affordance
agent role
Airline.owl
Aquatic resource observation ontology
AquaticResources
Bag
BasicPlan
BasicPlanExecution
CatchRecord
Classification
ClimaticZone
Co-participation
collection entity
CommunicationEvent
Communities

ODP Details

Use this Pattern

Pattern Description | WebVOWL Visualisation

Graphical representation



General description

Name	Bag
Intent	To model bags of items (elements). The Bag is characterized by a collection that can have multiple copies of each object.
Solution description	The Bag is characterized by a collection that can have multiple copies of each object. This is performed through the Item entity. The Item is linking exactly one resource through the relationship itemContent.
Consequences	

CODP Instantiation Wizard

X

Instantiation Method Selection

CODP Instantiation | CODP Visualisation

Select the appropriate Content Ontology Design Pattern instantiation method from the choices below. For a discussion on their respective attributes and effects, see http://goo.gl/dv8pA3

(•) **Template-Based Instantiation**

In this method the CODP building block is treated as a template that is instantiated into the target ontology module by way of copying and renaming its constituent classes and properties. Advantages of this method include that CODP-level generic concepts that may be off-putting to less experienced modellers are not included in the final ontology, but only the CODP structure is kept. Disadvantages include that future alignment to other ontologies using the same CODPs may be complicated, as the IRIs of COPD-level concepts are not kept.

( ) **Import-Based Instantiation**

In this method the original CODP is imported into the target ontology module, and instantiation is performed via specialization of CODP classes and properties using subsumption axioms. Advantages of this method include increased traceability and ease of alignment with other CODPs, as IRIs of CODP-level concepts are maintained.

Back | Finish | Next

CODP Instantiation Wizard

X

CODP Instantiation | CODP Visualisation

Please provide labels for the ODP entities below that make sense when adapting the ODP to your domain.

Classes

|	item	==>	My item class
|	(collections) Bag	==>	My bag class

Object Properties

|	item content	==>	my item has some content
|	item of	==>	is item in my bag
|	has item	==>	my bag has my item

Back | Finish | Next

CODP Instantiation Wizard

X

CODP Instantiation | CODP Visualisation

Generate preview

Axiom Preview | VOWL Preview

```
Prefix: owl: <http://www.w3.org/2002/07/owl#>
Prefix: rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
Prefix: xml: <http://www.w3.org/XML/1998/namespace>
Prefix: xsd: <http://www.w3.org/2001/XMLSchema#>
Prefix: rdfs: <http://www.w3.org/2000/01/rdf-schema#>



Ontology: <wptmp:entity>


ObjectProperty: <wptmp:entity#is item in my bag>

   Domain:
      <wptmp:entity#My item class>

   Range:
      <wptmp:entity#My bag class>


ObjectProperty: <wptmp:entity#my item has some content>

   Domain:
      <wptmp:entity#My item class>


ObjectProperty: <wptmp:entity#my bag has my item>

   Domain:
      <wptmp:entity#My bag class>
```

Back | Finish | Next

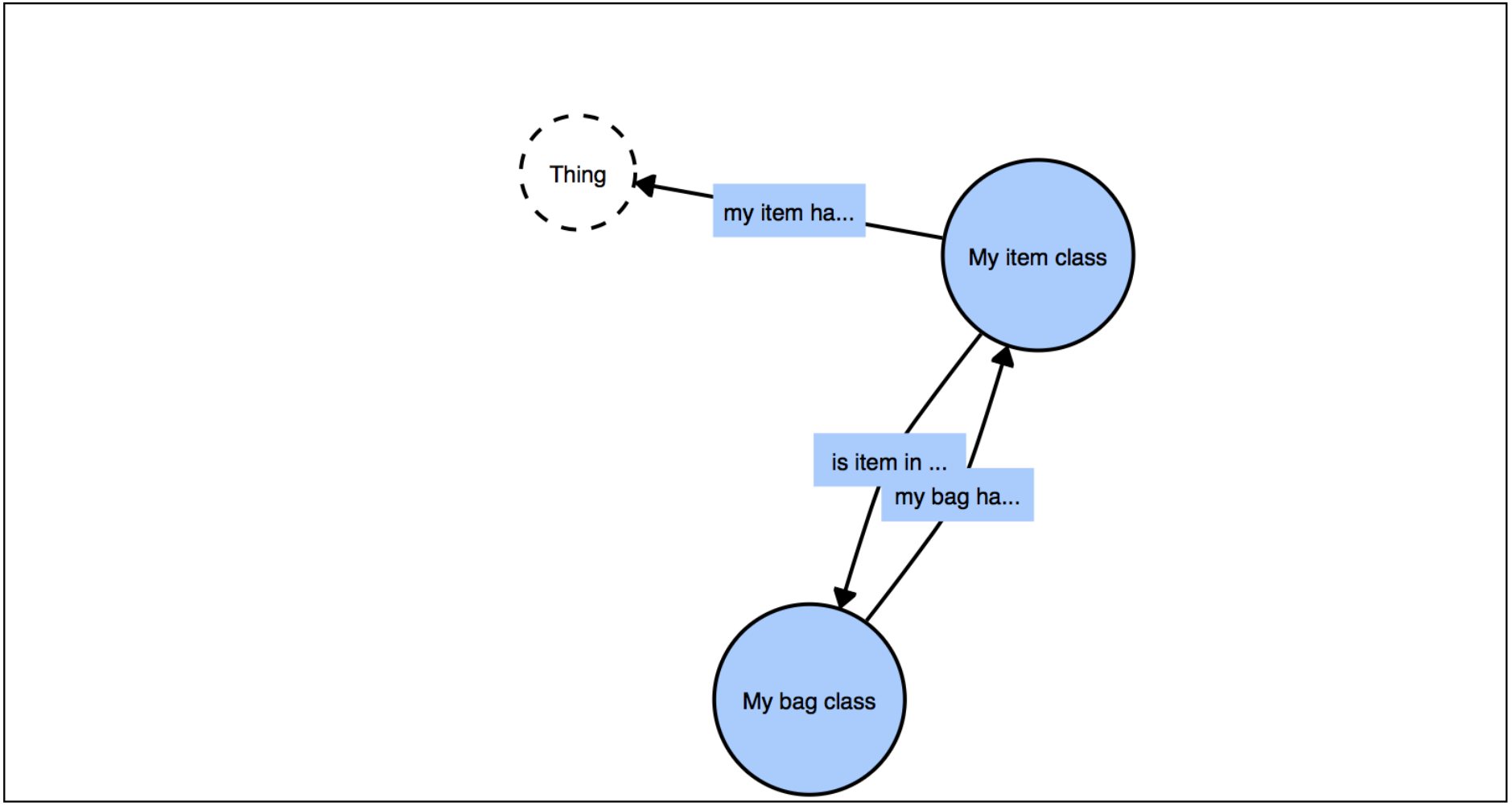
CODP Instantiation Wizard

X

CODP Instantiation | CODP Visualisation

Generate preview

Axiom Preview | VOWL Preview



Back | Finish | Next

Get started

Poll: Who wants some Google Refine/OpenRefine introduction as well?

- WiFi SSID “WOP Tutorial”
- Instructions: http://to.be.determined
  - Scroll down to the hands-on session introduction in the tutorial schedule for links to the exercise overview and example data.
- XDP Instance: http://to.be.determined
- ODP Portal: http://to.be.determined
- WebVOWL Instance: http://to.be.determined

JÖNKÖPING UNIVERSITY

School of Engineering