Welcome to Semantic eScience 2011 Fall!

Scribe: Amar Kannan
Next week's Scribe: Apurva Tiwari

---Agenda---

*Class is focused on describing the tools to aid Semantic Web Development

---Attendance---

*Amar Kannan
*Weijing
*Linyun
*Han
*David Molik
*Michael
*Katie Dunn
*Amruta Akut
*Sumitra
*Deborah
*Kathyayani

---Past Action Items---

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---Action Items---

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---Notes---

Highlights on tools - Ontology Tools, Pellet, OWL-S, SAWSDL, Wine Agent
Assignment 2 clarifications
At the using tools portion from the Methodology diagram
Languages to be described - RDFS, OWL, SKOS-Simple Knowledge Organization System, RIF-Rule Interchange Framework, SPARQL, OWL-S: OWL for Services

XML aimed at schemas and so it has little expressive power as an ontology language.
RDFS on the other hand is recognizable as an ontology language because it supports
  --Classes and properties
  --Sub/super-classes(of properties)
  --Range and domain of properties
Despite the above-mentioned uses, RDFS is still weak when describing:
  ---No localized range and domain constraints
  ---No existence/cardinality constraints
  ---No transitive, inverse or symmetrical properties

OWL Requirements:

Desirable features for Web Ontology:
  Extends existing web standards
    --such as XML,RDF,RDFS
  Easy to understand and use
  Formally specified
Of 'adequate' expressive power
Be able to provide automated reasoning support

OWL Class constructs and OWL axioms overview
OWL Layering: OWL Lite, OWL DL, OWL Full
See [http://www.w3.org/TR/owl-features/](http://www.w3.org/TR/owl-features/) section 2 for features and relation to RDF or OWL species.

OWL 2:
  - Extends OWL with a small set of features
    --- That are motivated from application usage
    --- Semantics and reasoning techniques are well understood
    --- Tool builders are willing and able to support
  - Is fully **backwards compatible** with OWL

New OWL 2 Features:
  - Expressiveness:
  - Metamodeling
  - Annotations
  - New Features: Syntactic Sugar
  - Profiles:
    - EL, QL and RL profiles

SKOS properties (Simple Knowledge Organization System)
  - For keeping log of things and tracking things
  - SKOS Vocabulary Elements
    - skos:mappingRelation
    - skos:closeMatch
    - skos:exactMatch
    - skos:broadMatch
    - skos:narrowMatch
    - skos:relatedMatch

If you want to use SKOS then check [http://www.w3.org/2006/07/SWD/SKOS/reference/20081001/skos.txt](http://www.w3.org/2006/07/SWD/SKOS/reference/20081001/skos.txt)

Editors:

Protege ([http://protege.stanford.edu](http://protege.stanford.edu)) would be, by far the best tool
CMap ([http://cmap.ihmc.us/](http://cmap.ihmc.us/))

Query Languages:
  - OWL-QL
  - SPARQL
  - XQUERY
  - SeRQL
  - RDFQuery

SPARQL
SPARQL has 4 result forms:
  - SELECT
  - CONSTRUCT
  - DESCRIBE
  - ASK

What happens when query is written and executed
Discussion on the differences between a database and a RDF graph

Discussing Rules, RIF

Using Jena, SWRL with Protege

Triple Stores

Discussion on various standards, services, reasoners, Software development tools and Triple Stores

---Break for 10 mins--------

Prof. Luciano's talk on Scottish Healthcare (Use Case development)

e-Health

  The age of the average human being has increased, this means more spending per family on treatment.

e-health motivations
  - aging population
  - healthcare costs

Medicine being more personalized is becoming a reality
  Health = P4 + C^n

  The P's:  The C's
  Personalized  Co-development
  Participatory
  Preventative
  Predictive  Communicating
  Crowd Wisdom
  Collaborating
  Co-Creating

An overview of the datasets which will be used for the healthcare project

A demo on the visualization for smoking/tobacco/tax

http://logd.tw.rpi.edu/demo/tax-cost-policy-prevalence