OWLGrEd/CNL: a Graphical Editor for OWL with Multilingual CNL Support

Normunds Grūzītis
Institute of Mathematics and Computer Science
University of Latvia

Third GF Summer School: Frontiers of Multilingual Technology
Frauenchiemsee, Bavaria, Germany
18th–30th August, 2013
Finally, an easy way to work with ontologies
Try it Today, for FREE!

- See like never before
  No more scrolling through long and cryptic text files or seeing only one item at a time. With OWLGrEd you can see your whole ontology at a glance.

- Edit like a Pro
  OWLGrEd is easy to understand and use even for “non-ontologists”. You can give it without hesitation to your industrial partners.

- Customize for your needs
  You can choose which OWL entity types are included in the visualization. You can change the automatic layout of the ontology as well as its graphical style.

- Share your insight
  After you have visualized and fine-tuned your ontology, you can export it as an image for use in documentation or inside a web page.

Licensing
OWLGrEd is free for personal, academic and evaluation purposes.
To obtain a commercial license please contact us at owlgred@lumii.lv.
About OWLGrEd

• A compact UML-style graphical **notation** and **editor** for OWL 2
  – Uses the Manchester OWL Syntax for class expressions

• Builds on 20 years of experience in graphical modeling languages and tools
  – Implemented using the Transformation-Driven Architecture technology ([tda.lumii.lv](http://tda.lumii.lv))
  – Provides a set of automatic graph layout algorithms

• Full interoperability with Protégé

• Extensions:
  – OWLGrEd/S: supports schema editing for Stardog OWL/RDF databases
  – OWLGrEd/CNL: supports axiom verbalization in controlled languages
Downloads in the last 3 months
The CNL plug-in

• Under construction

• Combines the controlled graphical language with controlled natural languages (CNL), currently English and Latvian
  – Graphics demonstrate the structure and connections
  – CNL helps to understand (and check) the semantics

• Uses:
  – The OWL subset of **Attempto Controlled English** (ACE) as an interlingua
    • Attempto **OWL verbalizer** for translating from OWL to ACE ([attempto.ifi.uzh.ch](http://attempto.ifi.uzh.ch))
  – **Grammatical Framework** (GF) to support the multilingualism
    • The **ACE-in-GF** application grammar ([github.com/Attempto/ACE-in-GF](https://github.com/Attempto/ACE-in-GF))
Declaring a class

Lexical forms in English and Latvian

Ontology symbol, generated from the English term
Declaring a property

Properties are always declared and lexicalized in the context of their domain and range.

In Latvian, the grammatical case of the subject and object can depend on the verb; The user can implicitly correct the cases, if the automatically suggested are incorrect.
Verbalizing all/specific axioms

Verbalize the whole ontology, or verbalize axioms that are relevant to a specific node or arc.
Axioms in the context

Every herbivore is a creature which is eaten by a carnivore and which eats nothing but plants.

Every creature which is eaten by a carnivore and which eats nothing but plants is a herbivore.
The whole ontology

**In English:**

- Every carnivore is a creature that eats a creature.
- Every creature that eats a creature is a carnivore.
- Every herbivore is a creature that is eaten by a carnivore and that eats nothing but plants.
- Every creature that is eaten by a carnivore and that eats nothing but plants is a herbivore.
- Every carnivore is a creature.
- Every creature is a living thing.
- Every herbivore is a creature.
- Every lion is a carnivore.
- Every lion eats a tasty plant.
- Every plant is a living thing.
- Every tasty plant is a plant.
- No creature is a plant.
- Everything that eats something is a creature.
- Everything that is eaten by something is a living thing.

**In Latvian:**

- Ikviens plēsējs ir radījums, kas ēd radījumu. Ikviens radījums, kas ēd radījumu ir plēsējs.
- Ikviens zālēdājs ir radījums, ko ēd plēsējs un kas ēd tikai augus. Ikviens radījums, ko ēd plēsējs un kas ēd tikai augus ir zālēdājs.
- Ikviens plēsējs ir radījums.
- Ikviens radījums ir dzīva būtne.
- Ikviens zālēdājs ir radījums.
- Ikviens lauva ir plēsējs.
- Ikviens lauva ir gārgū augu.
- Ikviens augs ir dzīva būtne.
- Ikviens gārīgs augs ir augs.
- Neviens radījums nav augs.
- Jebkas, kas ēd kaut ko ir radījums.
- Jebkas, ko ēd kaut kas ir dzīva būtne.
Todos

- Extended support for verbalizing nominal object properties, used both directly and inversely
  - Introducing more ACE constructions into the ACE-in-GF grammar

- Limited support for verbalizing data properties
  - Introducing more ACE constructions into the ACE-in-GF grammar

- Authoring ontologies in CNL (in parallel to the graphical means): instant translation from CNL to OWL and, thus, to the graphical representation
  - The lexicon→grammar problem