

Hackathon Proposal: Formalization of use case encodings under the GOEF framework

Abstract describing the project work

Ontologies have become a prominent way to represent knowledge in an increasing number of disciplines, due to their ability to formalize knowledge in a consistent manner.

However, ontology construction is labor-intensive, which makes it desirable to reuse existing ontologies when possible. Therefore, in many development scenarios, it must be determined whether an existing ontology (or part of the ontology) can be used in a different application. The General Ontology Evaluation Framework (GOEF) is intended to provide an organizational framework for intrinsic and extrinsic evaluation of an ontology (or part thereof) and its associated use case. The use case contains the definitions of specific information needed for the evaluation. At present, additional work is needed to implement the GOEF framework, capable of assembling individual evaluation sub-services and their corresponding use case requirements.

Collaborators:

Research Team members:

| Names | Affiliations | Roles |
|----------------|---|--|
| Joanne Luciano | Rensselaer Polytechnic Institute, Tetherless World Constellation | Ontology experts, to provide guidance and work together with the subject experts on Fairtrade certification, subject experts on Supply-chain and Graduate Student to develop the I-Choose ontology. |
| TBD | | Software coding and testing. Work together with GOEF expert to implement the GOEF skeleton that takes as input the use case encoding and ontology and invokes the appropriate evaluation sub services. |

Objectives / Goals

For this session, we will start by reviewing a pre-developed candidate architecture for GOEF, based on the SADI web service framework. Participants will have the option of bringing in their own ontologies, paired with corresponding use cases for re-use.

However, it is anticipated that a collection of use cases (and corresponding) ontologies will be made available for discussion from the I-Choose project (planned for discussion prior to the GOEF hackathon). Using the present GOEF candidate architecture as a starting point, we seek to develop the following extensions through this hackathon:

- A listing of evaluation metrics for enabling ontology review. These will be based around use-case/ontology pairings, either provided by participants or through I-Choose.

- Discussion of appropriate strategies for formalizing use case encodings. Here, the goal will be to identify an encoding strategy compatible with as many sample use cases as possible.
- General discussion on viability of the SADI-based candidate architecture.

Expected Deliverables:

- A collection of candidate use cases for GOEF, combined with relevant evaluation metrics.
- A listing of evaluation metrics, derived from participant provided use cases, as well as use cases from I-Choose
- At least one candidate strategy for enabling the encoding of use cases.

Resource / References

1. <http://tw.rpi.edu/web/project/SeSF/workinggroups/OntologyEvaluation>
2. Ontology Evaluation and Reuse: A Science and Engineering Approach. This is based on work I did at The MITRE Corporation. Slides on slideshare.net at: <http://www.slideshare.net/joanneluciano/luciano-pr-08849ontologyevaluationmethodsmetrics>
3. 2008 Infectious Disease Ontology Workshop September 16-17, 2008, Buffalo, N.Y., USA. Influenza Ontology (presented by Burke Squires) and Ontology Evaluation (presented by Joanne Luciano). Presentations available on IDO website. <http://ontology.buffalo.edu/08/IDO/Luciano.pdf>
4. Sriram, R. D.; Bock, C. E.; Neuhaus, F. M.; Wallace, E. K.; Brady, M. C.; Luciano, J.; Musen, M.; NIST Workshop on Ontology Evaluation (NISTIR 7774). April 01, 2011 Pages: 17. PDF: http://www.nist.gov/manuscript-publication-search?pub_id=907201