The OntoEnrich platform: using workflows for quality assurance and axiomatic enrichment of ontologies

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Ontologies are rich in natural language content, because it facilitates the understanding of the ontology to humans. Ontologies contain more human-facing content than that which is machine-processable—not all the natural language content in definitions is mirrored as logical axioms, which is how machines can understand ontologies. Consequently, the development of methods and tools able to convert the natural language into logical axioms would be helpful to increase the usefulness of ontologies.

Some ontologies have *lexical regularities* (LRs) and, when they exist, the OntoEnrich platform[i] [1] can be used to exploit them from the analysis of the labels. Methods and tools about how these LRs can be ordered, filtered and prioritised with the aim of generating logical axioms are provided. OntoEnrich contains a series of pre-defined workflows to help the user in the inspection of LRs, and help him in deciding whether an LR is there to be exploited or not. For example, one workflow permits to check the "lexically suggest, logically define" principle [2]. Its application to the biomedical ontology SNOMED CT reveals some potentially suboptimal design of its axioms. Another workflow exploits the POS-Tagging of the words associated with the LR to design templates for generating new axioms. Those two workflows will be the ones selected for this demonstration, although OntoEnrich offers other workflows, such as aligning LRs with terms from other ontologies to suggest matches, calculating the semantic distance between classes that exhibit an LR, or calculating the modularity of an LR in an ontology.

In summary, OntoEnrich contributes to the systematic analysis of LRs in ontologies. The transformation of LRs into patterns that enrich the ontology has not been completely automated, but Ontoenrich supports domain experts in ontology quality assurance and enrichment tasks.

Acknowledgements

References

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[i]`http://sele.inf.um.es/ontoenrich`