

## **Reviewer's report**

**Title:** OGMS: The Ontology for General Medical Science

**Version:** 1 **Date:** 22 July 2013

**Reviewer number:** 3

### **Reviewer's report:**

Major Compulsory Revisions:

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review of OGMS manuscript and OGMS owl files:

The manuscript describes a BFO based ontological artifact to be used as a mid-level resources for developing domain/disease specific ontologies. The authors detail development choices and practices as well as a set of resources which currently rely on the proposed artifact for their development. The manuscript is well written.

At the time of the revision, I considered the version of OGMS which could be accessed from the purl. It currently differs from the version available from the google svn. Chiefly, accessing OGMS from Protege 4.0 using the purl fails to bring in the full ontology, missing the relation imports. This can only be done when checking out from the svn and getting the full version. I would encourage the authors to verify the version available and identified by the purl.

This causes a major problem for review and assessing the resource. OGMS version available from Ontobe does not allow from assessment of class formal definitions. OGMS version available from the SVN, relies on BFO2 and therefore isn't not covered properly in the manuscript, but it does contains full formal definition for most classes.

Bottomline, it does not look good and the authors should look into remediating the situation.

The manuscript somewhat reflects that state of affair, mixing 2 top level ontology versions: bfo11 and bfo2 :

importing relation from a different framework does not bode well for interoperability and reasoning across resources. Can the authors clarify that point?

Since the authors mention the existence of a migration process, it would be probably best to stick to one version for that particular manuscript.

The authors claim to "have attempted to adhere closely to OBO Foundry principles<sup>1</sup>." However, there are too many instances of failure to adhere to the principles. Many class textual definitions are missing (e.g. all subclass of health

care encounter),

absence of logical definitions, no characterization of disjointness (\* note that this is more an release problem than an actual fact, nevertheless this should have been thoroughly checked prior to submission)

The following classes for instance contradict the claims made on page 4.

- pathological invasion has no definition
- bodily process no definition
- pathological formation has no definition
- portion of pathological body substance has no definition

I could find use for disjointness, could the authors comment on why it is so?

continuant branch:

no disjointness between 'acquired and constitutional genetic disorder'

absence of example of usage, absence of references documenting those classes.

process branch:

->absence of synonym: for a clinic oriented resource, therapy could be used instead of treatment or added as synonym. Formal definition lacks specificity

->since OGMS claims reuse of obo foundry class, how OGMS would interoperate with GO with respect to "inflammation process" which remain unrelated to GO:0006954 inflammatory response

Also, a number of classes are important from third party compatible artifacts (IAO, OBI), which is a nice example of reuse and modularity. However, imports seems to leave behind class metadata and class formal definition. This should be addressed.

Laboratory test is defined as 'a measurement assay which...'. Under obo foundry principles, this definition would mean that a class 'measurement assay' exists. It is missing from the hierarchy.

Should 'Laboratory test' be asserted or classify under 'planned process'? This points to further needs to work on formal definition. This should be straightforward since the authors already work with OBI and IAO.

This point could also be used to further quality or demonstrate in a tangible form the notion of interoperability. In its current form, OGMS seems to require additional work.

This should be related to a statement on page 4 about 'a greater degree of interoperability':

this is rather qualitative, can the author provide more quantified assessment? Could this be explored by bringing together all OGMS anchored resources?

On a similar line, in the background section, it is mentioned that some resources

dealing with clinical domain are "not maintained

in a way that allows it to respond in agile fashion to new developments in translational medicine".

Could the other clarify how OGMS helps here and how agile changes to OGMS are efficiently propagated to and across resources making use of OGMS? Such assertion require references or facts to back them up.

Physical examination often involves simple tests which can performed without required lab equipment. How should those test be classified?

-Class label 'clinical picture' may be misleading, synonyms and example of usage should be added to clarify the purpose and intent for that class.

While the manuscript mentions requirements about anatomy and physiology, ogms.owl contains no 'entry point' or hooks to such resources. UBERON may be a useful resource to rely on for documenting a possible pattern for extension when describing disorders affecting anatomical location. (as described on page 6)

question to the authors:

Why isn't a 'clinical history taking' a subtype of 'health care process' (as per the definition of that class)?

Overall, there is a lack of documentation and proof reading. This is a concern for a resource aiming at being a reference/mid-level ontology

Controversial terms living outside BFO framework:

While providing a list of potential problems, the absence of a solution provides little help. The authors should expand on this point by providing either an implementation example or a concrete use case covering that aspect.

Then comes a long list of resources using OGMS. Some sections about those resources provide an insight into how the class extension and meshing with OGMS midlayer ontology takes place.

But it leaves somewhat to be desired. For instance, providing a proof of ease of integration and benefit of using OGMS are lacking. Can the author document entailments resulting from OGMS?

It could prove more effective to create a table listing all these resources and then pick 2 or 3 to illustrate key patterns for extension (for example that of IDO or AERO). The manuscript would benefit from this change as it would make it more compact and to the point.

Minor stylistic issue:

I have counted 7 occurrences of statements starting or containing 'we believe' (2 on page2, one on page 5, 3 on page 8 and 1 on p13 in the conclusion). I would recommend the authors altering the formulation as I feel it somewhat undermines their work, as demonstrations are better than beliefs.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.