VCoI Call Notes

*18 Jan 2021*

# Attendees

* Mike Bennett
* Stephen Powley
* Rob Nehmer
* Cory Casanave
* Claude Baudoin

# Agenda

* Allocate the work
* Direction and objectives
* Discussion: concept modeling and context

# Meeting Notes

## Initial Thoughts

### Direction and Objectives

What do we see as the direction for this group – is it merely for vocabulary for TFs? Or more?

CC: Can see that this is useful for OMG but sees further potential for what we are developing. Just for OMG we are going awfully far, but for things beyond OMG we don’t seem to be going far enough.

SP: Seemed to see this as much broader in scope than just the OMG work. My angle is something further than what OMG are looking at but well aligned with that. The underlying layers including what we looked at last time (lexical concepts etc.) may also be useful in a deeper understanding of the subject area even if they don’t go into a specification at the far end.

CC: Been seeing a few things in this fuzzy area between ontology and vocabulary. Sometimes there is a need for looser relationships between concepts and vocabulary than is demanded by formal ontologies. For instance you go into a financial institution and ask for all the stuff relating to a particular term e.g. unpaid balances, where there are loose connections that people want to make. Not necessarily the formal relations like sub classes, restrictions etc. and the need to say thing that aren’t that rigid. Have made some custom profile elements in UML (or CCM) to accommodate some of those thing, and more mappings at the conceptual level.

So if we are doing more than a dictionary and less than an ontology, that space is quite sparse.

SP: got into this via research on cyber security. Needed to start with:

* How do you define it?
* How do you measure it?

(they were not able to do either). There is no way to define ‘security’ because people not only define security differently but also have different ways to define security. These will never mesh 100%. To do a decent engineering job on this you have to accept all the ‘shades or grey’ on what they means. Identified patterns, some extensional some intensional. Some define wrt a predefined process rather than properties. Wil never get agreement on all of those. Hence needed a system to accommodate lots of definitions from different stakeholders, with relations between those. If can capture the ambiguity.

MB: Two things symptomatic of a broader issue: taxonomy in the broader sense, and synecdoche

(also an example from gUFO)

<https://www.youtube.com/watch?v=qZ7yYrZevGA&feature=youtu.be&ab_channel=ONTOBRAS>

CC: Example with account and balance. What is the relationship between all of those attributes. These also include temporal e.g. year end balance, that take a basic concept like balance and provide the qualifiers about that.

MB: TLO ontology incl. temporality. Role, units etc. as a standardized simple set of TLO abstractions.

CC: The unqualified thing e.g. Balance – in the ontology languages there is nowhere to

gUFO – simplified TLO – works like DSL where you have the language (but OWL is not that language and should not).

We should be able to understand the relations among concepts in the concept space AND the ways words drift across the semantic space, and how humans using the lexical space are going to necessarily drift over (language games).

RN: this is almost like a context shift – as we are talking the context shift, as part of the conversation, part of the train of thought. We tend to talk about meaning in a particular context while forgetting that meaningful across

So what we are trying to do as static (this Context) is really dynamic. Can we apply our thinking, to something more dynamic?

RN: Consider a poetry generating engine. See Lakoff and Johnson on how all of language is metaphorical. That is, you are tying to give a clue to your listener as to what your reference is So we shift from space, to time to emotions (the poetry part) so others. These are things we have not been considering.

SP: Also looking at UFO as foundational ontology. See also GG talk:

<https://www.youtube.com/watch?v=2AuU-tmEqic&feature=emb_logo&ab_channel=GiancarloGuizzardi>

Working toward an ontology pattern language. Also in the editor. Also ontology anti-patterns. No-one can create an ontology without making those mistakes.

SP: Expressivity of ontology language: OWL, UML etc. What I needed to express was something like a AssClass, could not do in OWL. See Ontology PSIG presentation in Dec. Difficult transformation. How can you create ontologies.

MB:

* Independent
* Relative (contextually defined thing)
* Mediating Thing (context)

Almost anything is a Relative Thing, which corresponds to Stephen’s need for the AssClass.

SP: OWL did not let you define relationships between relationships. One source might treat something as a relationship while another treats the same thing as a thing in itself.

MB property chain examples. The chain bypasses the reified relation (the relative thing)

We were seeing this as the conceptual v operational. Where the Property Chain is in the Conceptual model and the application has a single simple property. Needed to be different namespaces.

(or maybe you just segregate the ontologies and choose when to import)

### Conclusions

We have complex conceptual space, which is hard to model in simple ontology language (OWL explicitly does not have the techniques to deal with it) and needs a things like gUFO.

gUFO: Working toward an ontology pattern language.

Summarize

* Conceptual Space
* Lexical space
* Words (or terms) range over the conceptual space by context
* That contextual variation is a continuous not a discrete process
* Data is in the same part of this equation as words

So we have bunch of techniques for managing concept ontologies.

No the dimensional stuff (see Shed methodology on concept)

SP: Architecture Framework approach deals with a lot of that already e.g. ISO 42010.

Meaning – see link in Dec 21 meeting notes: Stakeholder concerns (sys engineering). Then identify which concepts and relationships are relevant to those stakeholder concerns. Then map to the viewpoints that address those concerns – in some business facing format (diagram, table, vocabulary (words)) tied back to the unified ontology.

(cloning that with our earlier conversation: the stakeholders are going to be using words, and doing so synecdochally y and multitaxonomically.

So the mapping is not 1:1

So we are back to the same challenge of how to get TF folks to follow the rules without being aware of the theory. Similar to what gUFO is doing

UFO Instance idea – makes sense in the light of multi-layer theory (type v instance).

Is that the same as Powertyping? Yes.

MB wonders if Type- instance in gUFO is the same as our prescriptive v descriptive

UFO-A and UFO-B (Endurants v Perdurants) are done using different underlying axioms. Now working on a UFO-AB that harmonizes.

See: <https://www.researchgate.net/publication/335210118_Towards_a_Unified_Theory_of_Endurants_and_Perdurants_UFO-AB>

## AoB?

When a term can mean 2 things e.g. Fund, there are distinctions:

* When there are 2 words spelled the same
* When there is an ontological reason the word has 2 meanings

Relationships among:

* Concepts
* Words or terms
* What is the relationship between those 2 relationships?
  + And are there a consequence of the relations above or is it more accidental?

This is the sort of question that an ontology of morphemes starts to address.

Also why we looked at morphemes, helps with multilingual stuff. See Stephen’s work (last week notes, Dec 21 notes).

Different languages and cultural concepts may not give 1:1 correspondences. Spit words differently. Swedish doesn’t have articles as separate words (you do have article as a suffix).

### Next Time

Parceling up the work.

Need to look at Context again.