

Conceptologies: towards a framework for conceptual knowledge representation

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We think that every natural language is committed to a naive ontology (cf. Moltmann 2016, 2017). Its entities are not just the semantic values of its referential terms (mainly nouns and noun phrases), but also the implicit arguments of its predicates (semantic restrictions and preferences). Notice that it is only presuppositions, not assertions, that reflect the ontology implicit in a natural language. WordNet, EuroWordNet, and The Brandeis Semantic Ontology (BSO) are linguistic in nature, but, as noticed by Jezek & Hanks (2010), they cannot be considered fully linguistic, since, while describing a hierarchy of concepts, they do not account for combinatorial constraints on lexical items.

We found that entities in any such ontology are often differentiated by the way they are construed by the speaker. Many of them are inherently metaphorical (cf. Lakoff & Johnson 1980, Johnson 2015). For example, in English, a 'state' is conceived of as an abstract place. Hence they cannot be considered in general to exist in the world independently of the way they are typically construed in a given language. Such ontologies are therefore not true ontologies, since they can by no means be considered collections of real entities. So, maybe *conceptologies* would be a better term to refer to them. When going from a conceptology in one language to a conceptology in a second one, one must take into account both the referential aspect of the concept and the metaphorical one.

Starting with the example of 'game' and 'state' and comparing these concepts with the corresponding entries in some major (upper) ontologies (SUMO, DOLCE, BFO, BSO, ConceptNet), we will discuss the features of a conceptology, its compilation and its formal representation. This type of resource is not only a repository of conceptual data, it also provides a clear overview of the lexical domains we intend to cover in the PhraseBase project in Learner's Lexicography and facilitates consistent dictionary definitions.

References

Basic Formal Ontology (BFO), <https://basic-formal-ontology.org/> (25/05/2021).

Borgo, S., & Masolo, C. (2009). Foundational choices in DOLCE. In Staab, S. & Studer, R. (eds.), *Handbook on ontologies*. Springer: Berlin, Heidelberg, 361-381.

Havasi, C., Speer, R., & Alonso, J. (2007). ConceptNet 3: a flexible, multilingual semantic network for common sense knowledge. In *Recent advances in natural language processing*. Philadelphia, PA: John Benjamins, 261-267.

Jezek, E. & Hanks, P. (2010). What lexical sets tell us about conceptual categories. In *Lexis - Journal in English Lexicology* 4.

Johnson, M. (2015). Embodied understanding. *Frontiers in psychology*, 6:875

Lakoff, G. & Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago.

Moltmann, F. (2016). Natural Language Ontology. In Aronoff, M. (ed.): *Oxford Research Encyclopedia in Linguistics*. Oxford: Oxford University Press.

Moltmann, F. (2017). The Ontology of Natural Language. In *Oxford Research Encyclopedia of Linguistics*. Oxford UP, New York.

Pease, A., Niles, I., & Li, J. (2002). The Suggested Upper Merged Ontology: A Large Ontology for the Semantic Web and its Applications. In *Working Notes of the AAAI-2002 Workshop on Ontologies and the Semantic Web*, Edmonton, Canada.

Pustejovsky, J., Havasi, C., Littman, J., Rumshisky, A., & Verhagen, M. (2006). Towards a Generative Lexical Resource: The Brandeis Semantic Ontology. In *Proceedings of the Fifth International Conference on Language Resources and Evaluation (LREC'06)*, 1702-1705.