2006

"Ontological Foundations of Conceptual Modeling" by Boris Wyssusek—A critical response

Kalle Lyytinen

Case Western Reserve University, kalle@po.cwru.edu

Follow this and additional works at: http://aisel.aisnet.org/sjis

"Ontological Foundations of Conceptual Modeling" by Boris Wyssusek—A critical response

Kalle Lyytinen

Case Western Reserve University
kalle@po.cwru.edu

I read with great interest and excitement Boris Wyssusek's critical review of the Bunge-Wand-Weber (BWW) modeling ontology and its philosophical foundations. The review articulates carefully Bunge's position on ontology and how the BWW ontology sharply deviates from it. I agree with most of Wyssusek's criticisms leveled against Wand and Weber's interpretation and ontologically Wand and Weber's position is untenable and not in line with Bunge's original definition of ontology and its scientific intentions. I even wonder whether Wand and Weber want to be recognized as ardent proponents of Bunge's Diamat ontology. In business schools where they mostly work this is not a position which is esteemed or easily understood—it can even be dangerous!

If one wants to reject the BWW model based on its inventors' misinterpretation of Bunge's ontology, there is very little to add to Wyssusek's conclusions. But this is not the only story that we can learn from this debate. There are additional lessons that can be garnered from the BWW ontology research. Many of us have found sometimes that we may be right, but for the wrong reason. In the BWW case this is the happy part of the story. The articulation of a minimal and consistent set of modeling constructs and consequent derivation of a system ontology has been a useful exercise for the authors and served also well the IS modeling community. This is demonstrated by the growing number of publications that draw upon BWW ontology. The extensive intellectual

debate that has followed the adoption of Bunge's ontology as a formalism, has been positive and clearly moved the field forward. Until Wand and Weber formulated their idea about a complete modeling grammar we had little understanding how complex modeling situations can be, how we would rate them, and how many constructs would be needed to represent those situations without ambiguity and construct overload. Consequently, their work has influenced how the research community evaluates modeling languages, and how it matches modeling capabilities with modeling situations. In addition, the BWW program has offered ways to empirically evaluate the effectiveness and clarity in modeling tasks by using BWW ideas.

On the negative side, we should scrutinize more carefully both the theoretical assumptions and practical implications of the modeling program suggested by Wand and Weber. Their original idea was to devise a single language which would enable to derive "good" representations of users' IS phenomena. First, it is not clear how one measure of "goodness" can ever be devised and agreed, and even if that would be the case, it remains not clear why and how such "good" representation would be achieved in a single linguistic system. There are two levels of objections we can make against this position. First, on what grounds can Wand and Weber show that *their ontology as a universal representational system* is adequate for this task in achieving goodness? Just claiming that something is better than others as it is based on formal definitions does not take us very far. We need here a more careful discussion of the criteria by which we can decide whether one representational system is better than others in conveying a "good" representation.

Second, and a more fundamental objection is the following: The Wand and Weber ontology is amazingly close to the original ideas of logical positivists. These rebels of philosophy claimed that the main challenge for philosophy was to devise a universal scientific language in which "all relevant scientific phenomena" and their explanations could be formulated and solved. This was the goal of Frege, Whitehead, young Wittgenstein, and the Vienna Circle until the early 1930s. We now know that this program failed, though it produced many important findings including incompleteness theorems, decidability problems, the failure of induction, and so on. On what accounts can Wand and Weber claim that they will be more successful in this general goal?

Instead of assuming like Wand and Weber a single representational system that would map the world (as it is)—another alternative is to examine the representation and the reality as co-constitutive, and assume that alternative linguistic systems (grammars) will organize and constitute our world differently (but still retain some fidelity towards the world outside the representations). In this scenario we would need flexible (meta-modeling) capabilities to organize and extend our grammars and associated "ontologies" as new world structures

82 • K. Lyytinen

are being invented with new emerging representational categories. We would simply need an evolutionary approach to modeling constructs in the same way we approach the actual systems in an evolutionary manner. Some recent work in meta-modeling frameworks (cf., Leppanen 2005) are right steps into this direction. Another aspect of this would be to better empirically understand how modeling ontologies are constructed, how they evolve, and how they relate to variations in cognition and sense-making within organizations. Overall, we may need a more careful articulation of alternative empirical and theoretical positions between (modeling) languages and the world, where both are seen as co-constitutive. In this regard, Wand and Weber's position is helpful as it defines (for me) the simplest set of assumptions how one can think of the relationships between the modeling constructs and the world being modeled: only one "complete" set of modeling constructs is needed for all our modeling needs that maps always into a single world (that is being modeled). Both of them are fundamentally closed and eternal. The world of modeling—however—may not turn out to be that simple.

References

Leppanen, M., "An ontological framework and methodical skeleton for method engineering—a contextual approach," PhD Thesis, University of Jyväskylä, 2005.

84 • K. Lyytinen