Chapter 11
Logic and Order:
Ontologic Effective Management for Learning and Creativity

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ABSTRACT

Traditional human representation is unable to conserve complete information. Therefore ignorance, uncertainty, ambiguity to mankind's best conceivable worldview are even more amplified. To minimize this problem, we need to develop a reliable and effective ontological uncertainty management (OUM) approach. To reach this goal requires starting from traditional mankind worldview to arrive at a convenient OUM framework. Learning from neuroscience helps to develop neuromorphic systems able to overcome previous representation limitations by appropriate OUM solution. Furthermore, according to CICT (computational information conservation theory), the information content of any symbolic representation emerges from the capturing of two fundamental coupled components, i.e. the linear one (unfolded) and the nonlinear one (folded), interacting with their environment. Thanks to its intrinsic self-scaling properties, this system approach can be applied at any system scale, from single quantum system application to full system governance strategic assessment policies and beyond. A detailed OUM application example, taking advantage of the well-known EPM (elementary pragmatic model) by De Giacomo & Silvestri, to achieve full information extraction and conservation, is presented. This chapter is a relevant contribution to effective OUM solution development framework for learning and creativity, emerging from a Post-Bertalanffy General Theory of Systems.

THE HUMAN WORLDVIEW, INTERPRETATION, AND CREATIVITY

Mankind's best conceivable worldview is at most a representation, a partial picture of the real world, an interpretation centered on man. We inevitably see the universe from a human point of view and communicate in terms shaped by the exigencies of human life in a natural uncertain environment.

The discovery of Nature as a reality prior to and in many ways escaping human purposes begins from the story even of the sign. The story of the sign, in short, is of a piece within the story of philosophy

itself, and begins, all unknowingly, where philosophy itself begins, though not as philosophy. Even if we do not have to explore every theme of that history, we must yet explain all those themes that pertain to the presupposition of the sign's being and activity, in order to arrive at that being and activity with sufficient intellectual tools to make full sense of it as a theme in its own right. And those themes turn out to be nothing less or other than the very themes of ontology and epistemology forged presemiotically, as we might say, in that laboratory for discovering the consequences of ideas that we call the history of philosophy (Deely, 2001, pp.19-20). If the discovery of the sign began, as a matter of fact, unconsciously with the discovery of Nature, then the beginning of semiotics was first the beginning of philosophy, for only as philosophy are the foundations of semiotics possible, even if semiotics is what philosophy must eventually become.

Ontology was once understood to be the philosophical inquiry into the structure of reality: the analysis and categorization of "what there is", the theory of being. Ontology asks and tries to answer three related questions. What are the categories of the world? What are the laws that govern these categories? And why? Recently, however, a field called "ontology" has become part of the rapidly growing research industry in information technology. Despite their different languages and their different points of departure in knowledge engineering (ontology as technology) and in philosophy (ontology as categorical analysis), they have numerous problems in common and they seek to answer similar questions. The two fields have more in common than just their name (Poli & Seibt, 2010).

In contemporary philosophy, "formal ontology", introduced by German philosopher Edmund Husserl (b.1859–d.1938), has been developed in two principal ways (Husserl, 1900/1913). The first approach has been to study formal ontology as a part of ontology, and to analyze it using the tools and approach of formal logic. From this point of view, formal ontology examines the logical features of predication and of the various theories of universals. The use of the specific paradigm of set theory applied to predication, moreover, conditions its interpretation. The second line of development returns to its Husserlian origins and analyses the fundamental categories of object, state of affairs, part, whole, and so forth, as well as the relations between parts and the whole and their laws of dependence, once all material concepts have been replaced by their correlative form concepts relative to the pure "something". This kind of analysis does not deal with the problem of the relationship between "formal ontology" and "material ontology".

Certainly, pure philosophical ontology is different from applied scientific ontology, and ontology in the applied scientific sense can be understood either as a discipline or a domain. Ontology as a discipline is a method or activity of enquiry into philosophical problems about the concept or facts of existence. Ontology as a domain is the outcome or subject matter of ontology as a discipline. Applied scientific ontology construed as an existence domain can be further subdivided into, either as the theoretical commitment to a preferred choice of existent entities, or to the real existent entities themselves, including the actual world considered as a whole, also known as the "extant domain". Ontology as a theoretical domain is thus a description or inventory of the things that are supposed to exist according to a particular theory, which might, but need not, be true. Ontology as an extant domain, in contrast, is the actual world of all real existent entities, whatever these turn out to be, identified by a true complete applied ontological theory (Jacquette, 2002, pp.2-3).

As a matter of fact, an ontology is not a catalogue of the world, a taxonomy, or a terminology. If anything, an ontology, as the "Theory of Categorial Inferences", is the general framework within which catalogues, taxonomies, and terminologies may be given suitable organization. The problem of whole and part admits to various readings. As a minimum we must distinguish between the ontic interpretation and other interpretations of ontological-scientific nature. The cornerstone of the ontic interpretation is

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