A Scientist–Poet's Account of Ontology in Information Science

Bradley Compton
Independent Contractor, USA

INTRODUCTION

The purpose of this article is to provide a framework wherein the discourse concerning ontology in information science (IS) can be properly formulated. It asserts that ontology is becoming part of the IS canon and such a formulation is crucial. It explores the antinomic perspectives on ontology in and outside of IS using critical information theory as a methodology. Slavoj Žižek's parallax ontology frames the discussion. It argues that this research is essential to IS because of the increasing significance of computational ontologies in knowledge management and because of the fundamental philosophical differences in how 'ontology' is defined.

Near the turn of the millennium, Howard D. White (1999), noting the interdisciplinary nature of library and information science (LIS) and its lack of definitive paradigmatic work, proposed a call for "scientist-poets" with "a talent for creative integration and criticism of ideas already embodied in the literature" to organize areas of LIS "through some single, powerful metaphor or thematic statement" (p. 1052). He referred to the lack of a "fat, standard textbook that we can all use and disparage" as a scandal and thus challenged "ambitious people with backgrounds in literature or philosophy" to state and justify a canon in LIS (p. 1052).

The growing salience of the term 'ontology' in IS indicates that ontology is becoming part of its canon.1 Although IS researchers primarily use 'ontology' to refer to particular types of knowledge management systems, ontology is a much broader area of philosophical study. This article takes a kind of romantic approach that borrows Žižek's (2006) parallax metaphor to systematically and, in a sense, *poetically* account for the antinomic perspectives on ontology within and relevant to IS. Moreover, this is not an attempt account for all of the different types of computational ontologies or to argue for the most practical approach to developing them. It seeks to articulate a number of different approaches to ontology in general within IS and related fields to disclose a clearer picture of what ontology is. The result discloses no coherent holism wherein the differing accounts fit together to form an elegant picture like so many puzzle pieces. Although lacking, such an account is crucial because it can 1) help practitioners, researchers, students, and other scholars have a better grasp of what 'ontology' means in a variety of contexts (even though the truth is more confusing than an artificially homogeneous account); 2) help them conclude for themselves what the term means to them in the context of their profession; 3) provide developers better understanding of the thinking grounding computational ontology which in turn allows them to approach system development with more nuanced appreciation of the strengths and weaknesses of that thinking; and 4) assist educators in explaining what 'ontology' means contextually, including within the context of knowledge management.

BACKGROUND

Ontologies in knowledge management, hereafter referred to as 'computational ontologies,' are robust digital information organization systems that represent entities, universals, classes, and relationships of particular domains of knowledge (domain level computational ontologies) or that are shared by all domains (upper level computational ontologies).2 These are based on philosophy from the analytic tradition that primarily conceives of ontology as the comprehensive identification and classification of things in reality (i.e., philosophy asking the question 'what is?'). Furthermore, many scholars involved in computational ontology, particularly applied ontology (explained in detail below), argue that natural science provides the most suitable knowledge and methodologies for reality

DOI: 10.4018/978-1-4666-5888-2.ch731

Copyright © 2015, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

representation and computational ontology development (Munn & Smith, 2008). For the most part this type of philosophy holds issues concerning the nature of being to be matters of metaphysics.

Philosophical ontology in the continental tradition, particularly that of Heidegger, is almost contradistinct from that forming the basis for computational ontologies. Heidegger (1962) argues that ontology asks the question 'what is being *qua* being?' and relegates the kind of classification found in computational ontology to the area of metaphysics. Many scholars whose research is relevant to IS approach ontology from the continental tradition using Heideggerian/existentialist or poststructuralist philosophy (Budd, 2001; Capurro, 2006; Day, 2001; Dreyfus, 2001; Eldred, 2011; Frohmann, 2008; Ilharco, 2002; Poster, 1990; Saab & Fonseca, 2008). These continental approaches to ontology with respect to IS and IS-relevant issues focus more on existential issues and intersubjectivity than on objective reality representation and critique the limitations of scientific theory and methodology.

WHAT IS ONTOLOGY IN INFORMATION SCIENCE?

This article contends that these ontological perspectives, although seemingly incommensurable, must be accounted for together in order to come close to a comprehensive understanding of what ontology in IS really is. They each form a frame through which we may perceive ontology and attempt to answer the questions it asks of reality. The disorientation caused by the antinomies between these perspectives, and resulting from the confusing nature of the issues and phenomena they attend to, is akin to that caused by the parallax of viewing a set of objects from differing vantage points in space. Žižek (2006) offers an "ontology of parallax" wherein the only way one can account for "the Real" is through framed perspectives and the gaps the differences between these perspectives present. He says that this ontological approach is like a Möbius strip: "curved space that is bent onto itself" (p. 29).3 According to Žižek, the parallax metaphor is "composed of two incompatible perspectives on the same X…we have a perspective and what eludes it, and the other perspective fills in this void of what we could not see from the first perspective" (p. 29).

A comprehensive account of ontology deserves a place in the IS cannon because of the growing importance of computational ontologies in knowledge management and because of the radically different views on what ontology is in and outside of IS. This area of study is a frontier in IS not in the sense of a uniformly unexplored sector, but rather as a well-researched area pocked with alterities and equivocacies like the bubbles in an ice core sample waiting to disclose the heterogeneous atmospheric conditions of a geographic region over time. The findings divulge a perturbing mass of immiscible discourses on the nature of reality, human existence, time, space, and representation with respect to digital technology.

The following briefly describes

- ontology in knowledge management and the philosophical foundations of computational ontologies with a focus on applied ontology in particular due to the philosophical stakes claimed by its developers;
- research in and relevant to IS using continental approaches to ontology;
- and how a poetic critique of these perspectives using Žižek's ontology and other critical analyses provides a more thorough understanding of what ontology is in IS than any one of these perspectives provides alone.

A NATURALISTIC APPROACH: APPLIED COMPUTATIONAL ONTOLOGY

Smith and Klagges (2008), who propose an approach to computational ontology known as 'applied ontology,' note that information scientists have sought "a sort of Esperanto for databases" that would allow for better interoperability and reutilizability due to the problem of conflicting terminologies and taxonomies between electronic information systems that became apparent in the 1970s (p. 21). Computational ontologists call this predicament "the Tower of Babel problem" (Grenon, 2008; Fonseca & Martin, 2005). Applied ontologists assert that such a universal language can provide a representation of reality itself or what one might call a transcription of the book of nature. Furthermore, they

7 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:
www.igi-global.com/chapter/a-scientist-poets-account-of-ontology-in-information-science/112442

Related Content

An Evolutionary Mobility Aware Multi-Objective Hybrid Routing Algorithm for Heterogeneous WSNs
Nandkumar Prabhakar Kulkarni, Neeli Rashmi Prasadand Ramjee Prasad (2017). *International Journal of Rough Sets and Data Analysis (pp. 17-32).*
www.irma-international.org/article/an-evolutionary-mobility-aware-multi-objective-hybrid-routing-algorithm-for-heterogeneous-wsns/182289

Exploring Higher Education Students' Technological Identities using Critical Discourse Analysis
Cheryl Brownand Mike Hart (2013). *Information Systems Research and Exploring Social Artifacts: Approaches and Methodologies (pp. 181-198).*
www.irma-international.org/chapter/exploring-higher-education-students-technological/70716

Socio-Technical Change Perspective for ERP Implementation in Large Scale Organizations
Jessy Nair, D. Bhanusree Reddyand Anand A. Samuel (2018). *Encyclopedia of Information Science and Technology, Fourth Edition (pp. 2975-2987).*
www.irma-international.org/chapter/socio-technical-change-perspective-for-erp-implementation-in-large-scale-organizations/184009

The Basis and Core Knowledge of Business Process Management
Vitus S. W. Lam (2015). *Encyclopedia of Information Science and Technology, Third Edition (pp. 5303-5314).*
www.irma-international.org/chapter/the-basis-and-core-knowledge-of-business-process-management/112979

Analyzing the IS 2010 Model Curriculum for Evidence of the Systems Approach
George Schelland Richard Mathieu (2016). *International Journal of Information Technologies and Systems Approach (pp. 54-66).*
www.irma-international.org/article/analyzing-the-is-2010-model-curriculum-for-evidence-of-the-systems-approach/144307