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# Parallax Ontology and the Philosophy of Information

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## ABSTRACT

This paper discusses differing perspectives relevant to library and information studies (LIS) regarding the philosophy of information, primarily disparate accounts of ontology. The perspectives include, but are not limited to, those of Luciano Floridi, Raphael Capurro, Michael Eldred, applied ontologists like Pierre Grenon and Barry Smith, Fred Fonseca, and Bernd Frohmann. Slavoj Žižek's parallax ontology is used as a leitmotif and theoretical frame to provide a comprehensive and nuanced understanding of differing standpoints on ontological issues within LIS and the philosophy of information. Parallax ontology is presented not as a replacement for any particular perspective but rather as a means to utilize the differing points of view. The antinomies within and between these perspectives are not overcome through some kind of synthesis but instead disclose the fundamentally irreconcilable nature of the topic of ontology itself, particularly within LIS and the philosophy of information. The paper concludes with an assessment of the importance of this type of research, and the topics of ontology and the philosophy of information in particular.

## INTRODUCTION

This research breaks ground on the topics of information and ontology and the relationship between the two. It does not directly address what Floridi (2004) refers to as “the elementary problem”—that is, what is information? Instead, it provides analysis of views on the topic of information and “information-related phenomena” (Furner, 2010), presenting different perspectives on the ontological understanding of information using Žižek's parallax ontology as a leitmotif and theoretical frame. This requires some background on existing approaches to ontology and dis-

course on information, particularly within, but not limited to, information studies. It is a critical analysis zooming in on *information* (as a thing, process, social construct, polysemic term requiring etymological examination, and so on) within a larger project comprised of a critical analysis of ontology itself that is relevant to information studies. Although the discourse covers matters relevant to information studies, due to the interdisciplinary nature of the topic (like most topics in information studies), the scope of the discussion must extend beyond information studies. For good reason, in a practical field like LIS, significant justification for this type of research is warranted. The paper concludes on a persuasive note on the importance of this type of research in general, and the topics of ontology and information in particular.

The perspectives expressed below are not necessarily the views of the author, and the peculiar language therein is obligatory in illustrating the inchoate nature of ontology. The seemingly chaotic findings may be unsettling for even the intended audience if it anticipates a coherent, well-organized modeling of these phenomena. Ultimately, this paper takes a critical theoretical approach, examining thinking concerning ontology, information, the role of information in ontology, and the ontological understanding of information. Therefore, a critical analysis of the relationship between information and ontology must try to answer at least the following two questions: What is the role of information in ontology? And what is ontology with respect to information? One might think that the prior question presumes to situate information within ontological understanding; the latter might give the impression that information has *ontological priority*—that is, the existential (in the analytic philosophical sense rather than the continental existentialist sense) foundation for reality. However, simply answering these two questions, as complicated as they may be, would oversimplify a critical analysis of information ontology and the ontology of information. Although these are research questions, what follows is not an attempt to answer them comprehensively but rather a fleshing out and analysis of differing perspectives' attempts to answer them.

The following demonstrates that although these points of view are, at times, incommensurable, even containing internal alterities, due to the nature of information and ontology, the more strongly and elegantly articulated the perspectives are, the clearer the picture we will get of the phenomena at hand through the triangulated perspective that these differing vantage points provide together. It is necessary to discuss computational ontology, particularly applied ontology as defined by Munn and Smith (2008), which provides the most comprehensive philosophical framework for computational ontology development. Furthermore, this research engages the dialectic between the differing philosophical orientations toward the digital ontology of Floridi on the one hand, and Eldred and Capurro on the other. Such an account is vital because it can

- provide students, practitioners, researchers, and other scholars with a better grasp of what *ontology* means in different contexts;
- help them, through deductive reasoning, conclude what the term means within the context of their profession;
- provide knowledge-management specialists better fundamental understanding of computational ontology's grounding principles, thus providing them with a more nuanced appreciation of the strengths and weaknesses of that thinking in system development; and
- aid educators in elucidating what *ontology* means contextually, particularly within the context of knowledge management (Compton, 2014a, 2014b).

We will also look at how Frohmann (2004), from a partially linguistic orientation, argues that *information* is an untenable concept, and discusses the mutual relevance among this subject, early documentation practices in Western science, and ontology. Prior to concluding, this paper assesses Floridi's (2002) suggestion, and the contentions it aroused, that the philosophy of information is the most favorable candidate for the intellectual foundation of LIS.<sup>1</sup> Here, it is argued that it is not entirely fair to dismiss Floridi's view on the matter as a naïve outsider-to-the-field's sin (Cornelius, 2004), in the original biblical sense of the notion of sin as "missing the mark," but rather that it is yet another essential perspective that contributes to a more accurate and comprehensive understanding of what the diverse field of LIS is.

#### THE SEAMLESS BOUNDARIES BETWEEN THE ONLINE WORLD AND THE REAL WORLD

When shown the laundry facilities during a tour as a new resident of my apartment complex, I was told that the washers and dryers could send a text message to my cellular phone to let me know when my clothes completed their cycles. This is one simple example of how information technology not only makes the inconveniences facing the subaffluent like me *less* inconvenient but also, of the "internet of things," creates an amorphous integration of and intercommunication between the internet and the physical world. At this early stage of that technology, one may describe it using propositions from a number of perspectives. For example, one might say that the internet of things is an unhedging of the network allowing application software to perform tasks appropriating objects and processes in the world as interfaces and as informational and manipulable components. From another perspective, one could assert that the internet of things is an envelopment of the physical world into components of the network. Possible pan-computational interpretations of the internet of things might view this technology as a sort of awakening of the computational nature of the universe, or as the beginning of a universal

computer that will eventually spread the filaments of its network outward until the computer and the universe become one.<sup>2</sup> It is possible that one of these or some other explanation will become definitive. However, at present, it seems like any one of them might be helpful to technology professionals, researchers, philosophers, and even everyday users in understanding this emerging phenomenon. Moreover, someone who freely shifts his or her mode of perspective might be better capable of using and contributing to the development of this technology because it provides more vantage points from which to solve problems. This last idea demonstrates the value of Žižek's parallax ontology described below.

### PARALLAX ONTOLOGY

Žižek's (2006) parallax metaphor is a simple though elegant and powerful philosophical tool for attending to dichotomies and antinomies between, and even within, particular theoretical orientations on given subject matter. Rather than dismissing the incommensurability of polarities and discarding contradictions regarding a topic, when fruitful it is better to examine the "constantly shifting perspective between two points between which no synthesis or mediation is possible . . . there is no rapport between the two levels, no shared space—although they are closely connected, even identical in a way" (p. 4). Žižek stresses the necessity of identifying the "parallax gap," or "gaps," in the dialectic between "closely linked perspectives [for] which no neutral common ground is possible" (p. 4), thus replacing the notion "of the polarity of opposites with the concept of the inherent 'tension,' gap, noncoincidence, of the One itself" (p. 7). We shall see later on how the fundamentally different perspectives on digital ontology and other related ontological points of view are necessary to obtain a clearer understanding of the subject matter, and how, despite their differences, they relate many of the same findings instantiated so differently that they seem either at odds or unrelated, but nevertheless taken together help to better illuminate ontology, technology, and social, psychological, existential, and many other facets regarding reality in the digital age. Albeit rudimentary, Žižek defines parallax as:

the apparent displacement of an object (the shift of its position against a background), caused by a change in observational position that provides a new line of sight. The philosophical twist to be added, of course, is that the observed difference is not simply "subjective," due to the fact that the same object which exists "out there" is seen from two different stances, or points of view. It is rather that, as Hegel would have put it, subject and object are inherently "mediated," so that an "epistemological" shift in the subject's point of view always reflects an "ontological" shift in the object itself. Or—to put it in Lacanese<sup>3</sup>—the subject's gaze is always-already inscribed into the perceived object itself, in the guise of its "blind spot," that which is "in the object more than the object itself," the point from which the object itself returns the gaze. (p. 17)

Although only tangentially relevant to this article, Žižek identifies common, helpful instances illustrating parallax gaps, including: “*quantum physics* (the wave–particle duality)” (p. 7) of which Floridi (2008b) speaks when arguing that assumptions about reality being either discrete (digital) or continuous (analogue) are untenable; “the *ontological difference* itself as the ultimate parallax that conditions our very access to reality”;<sup>4</sup> “the parallax of *neurobiology* (the realization that, when we look behind the face into the skull, we find nothing; ‘there’s no one at home’ there, just piles of gray matter—it is difficult to tarry with this gap between meaning and the pure Real)” (p. 7); and, finally, “the *scientific parallax*, the irreducible gap between the phenomenal experience of reality and its scientific account/explanation, which reaches its apogee in cognitivism, with its endeavor to provide a ‘third-person’ neurobiological account of our ‘first-person’ experience” (p. 10). Observations of this kind between antinomies and informational gaps in theoretical perspectives will be addressed throughout the remainder of this paper.

*What Is the Role of Information in Ontology and What Is Ontology with Respect to Information?*

It seems inevitable that when one addresses *information*, one must also address the distinction, seamless as it may be, between digital and analogue information, as well as the data–information–knowledge–wisdom spectrum. One might take an approach classifying different forms of ontology respective to these different categories and potential subcategories; for example, information ontology, digital information ontology, analogue information ontology, epistemological (that is, knowledge) ontology, and so on. Unfortunately, there is no clean, definitive answer to the questions asked in the title of this section. In a seemingly contradictory manner, parallax ontology provides a simplifying metaphor, allowing the assimilation of multiple conflicting perspectives into a holism that is internally inconsistent at times but nonetheless provides a clearer, comprehensive description of ontology and information and the relationship between the two. To some (for example, analytic philosophers like Smith [2008] who adopt Quine’s ontological orientation), this might open a Pandora’s box, in that it takes the form of a *prima philosophia* (first philosophy—the foundation for all other areas of philosophical study).

Floridi (2008a) explicitly defines his own “informational ontology,” called *informational structural realism* (ISR). According to him, ISR, like most versions of realism, has an ontological commitment “to the existence of a mind-independent reality addressed by and constraining our knowledge” (p. 31) as well as “to a view of the world as the totality of informational objects dynamically interacting with each other” (p. 1). ISR posits that “explanatorily, instrumentally and predictively successful models (especially, but not only, those propounded by scientific theories)

at a given [level of abstraction] can be, in the best circumstances, increasingly informative about the relations that obtain between the (possibly sub-observable) informational objects that constitute the system under investigation (through the observable phenomena)” (p. 39). ISR is akin to the “naturalist fallibilist realist adequatist perspectivalism” (NFRAP) of applied computational ontology: epistemological *naturalism* is the view that our primary source of knowledge is the findings of natural science; *realist fallibilism* holds that there is an objective reality, knowledge of it is possible, and that our knowledge suffers from incompleteness and human fallibility; *perspectivalism* asserts that knowledge of the world is made up of multiple legitimate perspectives; and *adequatism* posits that this knowledge cannot be reduced to any single veridical perspective (Compton, 2014b; Grenon, 2008). Floridi supports the proposition of ISR with formal logic and diagrammatic reasoning at a disciplinary level beyond the scope of our purposes here, but part of his reasoning for developing and adopting ISR is relevant and addressed below.

### DIGITAL ONTOLOGY

Digital ontology lies within the overlapping domains of information and ontology and helps disclose some of the philosophical orientations essential to this discussion. One must clarify an inevitable confusion about the terms *ontology* and *metaphysics* to preface a discussion such as this. Analytic philosophy, for the most part, defines *ontology* as a highly structured, relationship-based classification system (the kind on which computational ontology is based) and defines *metaphysics* as the study of Being (Furner, 2010). Heideggerian philosophy asserts the converse: that ontology is a foundation for all philosophy and asks the question, “What is Being qua Being?” (Heidegger, 1962). A truly Heideggerian ontological approach to comprehending the digital would ask, what is the digital with respect to Being as such? What Capurro (2006) and Eldred (2011) call “digital ontology” is actually an ontological (Heideggerian) *approach* to understanding the digital because it is unlikely that Heidegger would put qualifiers on *ontology*; he would say that this too is a form of metaphysics.

The dialectic between the analytic approaches used by Floridi and applied ontologists and the Heideggerian approaches to ontology—two philosophically incommensurable orientations—weaves an awkward tapestry exemplifying a parallax view of ontology relevant to information studies comprised of points of view that do not come together like puzzle pieces to form a coherent picture but nonetheless, taken collectively, disclose an inchoate whole. I make a Žižekian assertion that ontology’s inchoate appearance does not stem from the fact that we face theoretical or knowledge gaps without which we might obtain a clear picture; rather, ontology and attempts to articulate it *are* inchoate. Critical examination always poses traumatic interstices in our mental-reality representations

wherein we face the uncanny or alien that comprises the substratum of our understanding.

Digital ontology perfectly exemplifies the need for a parallax approach to ontological understanding. It presents a dialectic wherein philosophers of different camps use the same word, in many respects talk about the same thing, reach some of the same conclusions, and yet are in some respects diametrically opposed, use completely different discourses and methodologies, and *prima facie* use the term *ontology* to denote dissimilar perspectives. The awkward, tangled dialectic presented here takes place between analytic philosopher Floridi and the continental, Heidegger-influenced philosophy of Capurro (2006) and Eldred (2011). Both Capurro and Eldred at times promote and at other times seem to infer that their work is digital ontology. Their thinking is a deconstruction of the current worldview, culminating from ancient Greek to modern philosophy, in which we cast reality as reducible to number and *logos* (that is, mathematics and ordered reasoning), and, therefore, that we can perfectly represent all that we know, and potentially all that there is, digitally. Similarly, but in a divergent manner, Floridi (2008b) describes and argues against digital ontology as a kind of cosmology wherein the physical universe is comprised of, or at least can be “adequately modeled,” using discrete units like integers or bits—that is, digitally. Floridi frames his argument against digital ontology by employing Kant’s rebuttal of propositions, stating that the world is either discrete (digital) or continuous (analogue). Floridi says that

the age-old question about the discrete vs. continuous nature of reality has been recast in the more fashionable terms of *digital* vs. *analogue* ontology [and that] digital (discrete) vs. analogue (continuous) is a Boolean dichotomy typical of the computational paradigm of our age, but both digital and analogue are only “modes of presentation of Being” (to paraphrase Kant), that is, ways in which reality is experienced and conceptualised by an epistemic agent, at a given *level of abstraction*. (p. 152; emphasis in original)

He instead argues in favor of an “informational ontology” (p. 152), ISR, mentioned above. Although ISR is essential to Floridi’s intellectual arsenal, an in-depth account of it would distract from the dialectic presented here.

Eldred (2012a) provides relevant criticism of Floridi’s (2011) work on contemporary privacy matters in which Floridi employs his informational ontology by arguing that, like the rest of reality, human identity is reducible to informational structures and the relationships therein. Eldred objects to Floridi’s “ontology of the self” as “a theoretical construction supposed to ‘model’ a certain ‘system,’ just like a scientist models reality with a theory on the basis of certain made-up hypotheses, interrogating reality with experiments to get the answers he needs to achieve an effective,

successful intervention into this reality” (p. 105). This objection is due, in part, to Eldred’s Heideggerian orientation, which holds that human existence is a fundamentally different sort of Being than that of objects in the world. According to Heidegger, science is good at disclosing information about present-at-hand objects in the world, but human existence, what we consider our “selfhood,” is not a present-at-hand object. Therefore, strictly scientific exploration of human existence can only disclose superficialities: science may tell us *what* we are but not *who* we are.

Although Eldred and Capurro refer to their work as *digital ontology*, I believe, within the Heideggerian parameters they set, that qualifiers do not belong on ontology, since, according to Heidegger, ontology is the foundational philosophy asking, “What is Being?” So, like Floridi, what Capurro and Eldred do is a critique and, unlike Floridi, a Heideggerian ontological analysis of the digital casting of Being. Floridi would likely say that his is an ontological analysis also, but one more in line with analytic philosophical methodologies (for example, problem-oriented, formally logical, and so on), whereas Capurro and Eldred use the continental philosophical methodologies of Heidegger (phenomenology, hermeneutics, and so on).

I agree with Floridi’s, Eldred’s, and Capurro’s assertions that ultimately this digital casting is wrong, but contend that this casting, which both Eldred and Capurro deconstruct, provides a useful paradigm, theoretical model, or lens through which to see the world, which can help us understand and further advance scientific and technological advancement. You might ask why, if my sympathies lie more with Eldred and Capurro than with Floridi, although I believe that Floridi’s contribution on the topic is also helpful, I concur to varying degrees with the conflicting discourses. I believe that these different perspectives are powerful and provide valuable insights into our current age as well as the possible teleology leading to this age and what may lie ahead of it. For example, we take for granted that the basis of life is encoded genetic information that runs like a program outwardly expressed as inherited phenotypical traits analogous to the executed output of information encoded in computer programs. Nevertheless, however helpful this analogy is in assisting our understanding of biology and to the advancement of biological and computer science, it is just that—an analogy. It seems unjustifiable to place biology and computation into the same ontological domains, except for instances wherein these domains overlap—for example, cybernetic medicine. Regardless of how similar the patterns found in the brute facts disclosed by biological science and the patterns created or disclosed by computer science are, to say that those patterns are of the same type, at this point, appears to be as unjustifiable as saying that organisms and machines are of the same type—except again wherein those domains overlap in areas like prosthetic and orthotic medicine. As we will see in the discussion that follows, Floridi’s

informational ontology explicitly articulates this “re-ontologization” of reality wherein hardware, software, everyday objects, plants, animals, and human beings alike comprise an information ecology.

### ONTOLOGICAL PERSPECTIVES ON THE DIGITAL REVOLUTION

In his *Introductory Lectures on Psychoanalysis*, Freud (1916–1917/2010) states that in previous centuries up to his time, the “self-love of men” suffered three “major blows” or humiliations. The first was at the hands of Copernicus, with his heliocentric model, who disclosed that humanity is literally not the center of the universe. That may sound puerile, since we have taken this fact for granted for centuries, but nevertheless, people were persecuted and killed for asserting heliocentrism, and acceptance of the cosmology removing us from the *axis mundi* was certainly a collective trauma regardless of the fact that the truth, in many more ways, set us free. Darwin delivered the second blow: we took comfort in our status as beings set apart from the animal kingdom, but the theory of evolution via natural selection showed that *Homo sapiens* is just another mammal with remarkable adaptive traits, the most notable being self-awareness and reason. With the latter in mind, Freud announced the “third and most wounding blow from the psychological research” of his time disclosing “to the ego that it is not even master in its own house, but must content itself with scanty information of what is going on unconsciously in its mind” (p. 3361). Freud says that none of the three men to whom these wounds/blows are attributed were the first to proclaim the truths that they did. Two millennia earlier, the Pythagoreans had a notion of the earth not being the center of the universe. The earliest religious beliefs, such as totemism, held animals and plants to be the revered ancestors of humanity. Furthermore, Freud credits Schopenhauer (among other philosophers) as a forerunner of psychoanalysis, in that Schopenhauer asserted that not only individuals, or humanity in general, but all of reality is comprised of an unconscious will out of which the things of this world come into being.

Floridi sees the digital revolution as the fourth revolution that usurps (like Freud’s three wounding blows) humanity’s view of itself and the world; he sees this as a re-ontologization, or reclassification, of the fundamental nature of reality. Similar to Freud’s contention that the three wounding blows were revolutions based on ideas that had been around for some time, Floridi (2014) argues that the information age actually began 6,000 years ago with the development of writing during the Bronze Age. Furthermore, he notes that with the proliferation of technology like ambient intelligence, ubiquitous computing, the internet of things, and the like, it is easy to imagine that we will have a worldview similar to ancient animism that attributes sentience and volition to our environment.

Eldred (2012b) sees the same phenomena of the digital age and asserts that they embody the culminating thread of Western thought dating back

to ancient Greek philosophy wherein number and *logos* are lifted off of physical reality represented ultimately in digital code:

Number is both placeless and positionless, and it is also *discrete*, in contrast to geometric figure, which is *continuous* in the sense that all the points that go toward making it up hang together very tightly. This distinction has momentous consequences for the history of mathematics and mathematical science up to the present day, including in mathematical logic and quantum physics, in which disciplines there are still unresolved antinomies directly relating to discreteness vs. continuity. (p. 87; emphasis in original)

Capurro (2006) argues that this digital cast of Being, or digital ontology, in which we conceive the world as fundamentally digital or at least as digitally representable, is our current zeitgeist. Eldred and Capurro provide phenomenological deconstruction of digital ontology, whereas Floridi argues that the presumptions that digital ontology makes—that reality can be reduced to either the discrete (digital) or the continuous (analogue)—were already successfully dismantled by Kant.

In addition to ISR, Floridi holds that the digital revolution radically increases the salience of the infosphere as an ontological domain consisting of inforgs, and continues to do so until there is no longer even a seamless boundary between the infosphere and the rest of reality. To clarify, what Floridi refers to as the *infosphere* is likely similar to Eldred's (2011, p. 75) digital *ekmageion* insofar as in their early stages, these realms consist of not only cyberspace but also other communication media.<sup>5</sup> Inforgs are, like the name suggests, informational organisms residing in the infosphere. Again, in the early stages of the digital revolution, inforgs are likely akin to what Eldred calls "digital beings" (applications, avatars, documents, viruses, and so on) comprised of binary code that, in a sense, *inform* the stampable mass of the digital *ekmageion*. Unlike the digital *ekmageion* and digital beings, however, Floridi holds that with the re-ontologization brought about by the fourth revolution, everything we consider to be distinct from information media and digital or informational entities will eventually be recognized as informational in nature; in other words, we will recognize all of reality as the infosphere and everything in it as inforgs, including ourselves.

Floridi (2010) calls for an ethics that treats the infosphere as an ecology to be stewarded in much the same way that environmentalism calls for stewardship of the ecosphere. He states that the fourth revolution is not about future anthropomorphic robots or cyborgs. He goes on to say, however, that "the possibility of fanciful post-human IT-enabled or IT-enhanced beings, whether genetically or prosthetically, should be appreciated, philosophically, as the symptom of a deeper transformation in the way in which we are reassessing our nature . . . that we can think co-

herently about such future humanity shows that something deeper in our self-conception is being revised silently” (p. 16).

Floridi makes a strong case for the digital revolution being as significant as the Copernican, Darwinian, and Freudian revolutions; it is indeed reshaping, reorienting, and perhaps re-ontologizing our worldview. Moreover, as noted, Freud referred to the first three revolutions as “wounding blows”; some might consider the casting of our world and selfhood as essentially informational to also be such a blow. I contend that the digital age seems more like a shift from the Newtonian mechanistic worldview, in the same way that the mechanistic worldview was a shift from the Aristotelian worldview. Both the Newtonian worldview and digital revolution are based on defining technology metaphors: the Newtonian on the machine, and the digital revolution on computational technology.

The fundamental difference I see here is the following. Freud’s three wounding blows were scientific findings that altered our perception of reality and ourselves, eventually bringing us, as Žižek (2006) points out, through the humanistic Renaissance up to modernity wherein humanity loses its “privileged place and is reduced to just another element of reality” (p. 164). On the other hand, the Newtonian and digital worldviews seem like paradigms based less on some defining breakthrough scientific findings and the disillusionment that ensued than on metaphorical lenses modeled on the defining technologies of their respective eras; for example, through most of the modern era we were complex biological machines driven by immaterial souls or neuro-electrical impulses, and now we are computational minds and genetically encoded flesh.

Thus far we have dealt with ontological problems explicitly addressing information and the digital. The next sections are to some extent peripheral, but necessary to expand on ontological perspectives related to the philosophy of information, in that they speak to the important topic of our field—knowledge management—and articulate why, perhaps, information should not take ontological priority when attending to issues within and relevant to LIS.

### APPLIED COMPUTATIONAL ONTOLOGY

One primary distinction between Floridi’s, Eldred’s, and Capurro’s approaches is their philosophical orientations. As Eldred (2012a, p. 104) points out, although Floridi at times refers to “Being,” he does not seem to be talking about Being qua Being as Heidegger does. Furthermore, his argumentation against the casting of reality as fundamentally digital is stylistically of the analytic philosophical tradition, and again, as Eldred notes, he seems to conceive ontology as the robust philosophical-classification methods reminiscent of the Vienna Circle that comprise the methodologies of computational ontology. This is abundantly clear in

applied ontology (Munn & Smith, 2008), which uses analytic philosophical ontology and knowledge-management principles of less complex information organization (indices, thesauri, and so on). Computational ontology—particularly applied ontology (as defined in Munn and Smith), in that it seeks to represent reality in an unambiguous, parsimonious, and comprehensive way—presents problems that are not merely issues of practical application but instead revive enduring questions about the nature of reality and human understanding.

Applied ontologists hold that computational ontologies, when compiled correctly, are analogous to windows that accurately disclose knowledge of the world (Smith & Grenon, 2004). Compton (2014b) argues that computational ontology, and its close relative artificial intelligence, asserts and implies things about reality and human existence that seem to be influenced by our understanding of information technology. In some regards, applied ontology might be construed as a form of digital ontology, in that it views the world as being “adequately modelled by discrete values” (Floridi, 2008b, p. 151)—that is, the digital. However, computational ontologists might argue that the principles in computational-ontology development are dependent on the digital substrate of binary code only because they use expert systems comprised “of software dedicated to performing the [reasoning] tasks that a human expert would perform” (Grenon, 2008, p. 61). Applied ontology’s practical origin is the pursuit of an “Esperanto of databases” (Smith & Klagges, 2008, p. 21) in order to solve the “Tower of Babel problem”: the lack of interoperability between information systems due to different controlled vocabularies used to define the same objects, concepts, relationships, and so on in reality (Grenon, 2008, p. 73). Applied ontologists employ a naturalist epistemology, as part of NFRAP mentioned earlier, which holds the methodology and findings of natural science to be the primary means by which we attain knowledge about the world.

As one can imagine, this raises objections from those concerned with the knowledge management of domains outside of that of the hard sciences because it seems that naturalist epistemology might not be a suitable orientation for systems designed for cultural history or other examples from the humanities. Fonseca (2008) challenges the Esperanto of databases approach of applied ontology by referring to it as the “Newspeak Solution,” an obvious pejorative referencing Orwell’s novel *1984* wherein citizens’ thought and behavior are controlled, in part, by a state-sanctioned language that restricts vocabulary and definitions to make it nearly impossible to conceive of revolt. Fonseca sees the Newspeak of applied ontology as a kind of authoritarian, cookie-cutter control over knowledge management that unnecessarily limits information systems’ potential to attend to cultural nuances and variations of concepts in information sources. He offers an alternative Heidegger/Gadamer-influenced

hermeneutical approach to ontology development that, he argues, can address these nuances and variations.

One may speculate that a parallax approach incorporating, or perhaps a synthesis between, applied ontology and computational ontologist views like Fonseca's might be desirable because applied ontology is a straightforward solution to the Tower of Babel problem, but Fonseca's critique of it raises legitimate concerns and suggests a solution that may be more difficult to implement systematically than applied ontology. Both, again, exemplify the parallax gap between those influenced by analytic philosophy and those influenced by the continental tradition. The next section seems to step further away from the topic of the philosophy of information and information ontology but is vitally relevant because it challenges the centrality of information regarding ontological perspectives within the context of information studies.

#### RELEVANT ONTOLOGICAL PERSPECTIVES THAT ARE NOT INFORMATION-CENTERED

Frohmann (2004) half-heartedly dismisses Capurro's and Eldred's views on digital ontology and the need for a new philosophical category attending to digital-age phenomena. He also addresses possible shortcomings in the way that natural scientists throughout history have interpreted how nature informs us about itself. Frohmann gives the document ontological priority over information, citing linguistic and phenomenological critiques of how *information* and *meaning* are used, in addition to historical analyses of documentary practices in science. He cites Nunberg's discussion of how differing conceptions of *information* confound "the boundaries between several genetically distinct categories of experience" (Nunberg, 1996, p. 114). Frohmann (2004) states that to conceive information "as abstract, noble document content indifferent to the transformation of its vehicles and stripped of all material, institutional, and social supports" amounts to perceiving "it as belonging to the same ontological category as the immaterial, intentional, and mental substance present to an individual mind in a state of understanding that document" (pp. 389–390). This poses problems because an author's intentions, the subject matter, and the user's interpretation of the document (categorically different things) together help comprise this gossamery notion of *information*—that of which the document informs the user.

Frohmann observes what he feels is a similar philosophical problem between this typical conceptualization of information and the traditional understanding of meaning. He explicates Wittgenstein's language-game proposition, which argues against the conventional notion of meaning as a kind of ethereal object attaching itself to words. Wittgenstein holds that the meaning of a word is simply the way in which the word is used in linguistic context: meaning comprises the rules that words obey in the

game of language. Frohmann goes on to say that “because ‘meaning’ is grammatically related to ‘information’ by virtue of the unexciting truth that a meaningless sign cannot be informing, similar conclusions follow for a philosophy of information” (p. 395). Put differently, placing information into the ontological category of an intangible substance attached to otherwise meaningless symbols or passing through media is a “superstition” that attributes “magical or occult properties” to it (p. 395). One should instead regard a document’s informativeness to be contingent on its institutional and cultural contexts, as well as its medium.

As an example, Frohmann notes how early modern scientists metaphorically conceptualized their documented experiments as *reading from the book of nature*. “When it came to the manufacture of knowledge, it was not possible to suppose that nature’s information could speak for itself” (p. 399). He points out the encumbrance of transcribing “the book of nature into the book of mankind,” especially when trying to lash “nature to the rack” of human-fabricated experiments and convince others that this divulges nature’s secrets “rather than freaks spawned by mysterious manipulations of fantastic instruments by devotees of a secret cult” (p. 398). To accomplish this, Frohmann states that early modern era continental natural scientists like Galileo infused the articulation of their experiments with the axiom-centered documentary practices of geometry to create a “literary performance” that made findings sound “as evident and obvious as geometrical axioms” (p. 400).

Scientists of Restoration England, in contrast to continental natural scientists like Galileo, tried to construct “knowledge from the certified occurrence, at a particular time and place, of a granular, theory-resistant fact of nature rather than from the certainty of axioms” (p. 402). These scientists sought high probability instead of certainty; they recorded experimental details using stylized documentary practices to achieve verisimilitude that could authoritatively express high probability.

According to Frohmann, for both early modern scientific camps and scientific documentation in general, the meaningfulness of the experimental reports relies upon “culturally specific, historically determined, and institutionally disciplined documentary practices” (p. 405). Based on this reasoning, one might conclude that the applied ontologists’ proposition that one should consider computational ontologies as windows into reality reiterates the early modern scientists’ aspiration to transcribe the book of nature and disregards how the informativeness of representations in those systems are contingent on the context of historical and institutional documentary practices (Compton, 2014a).

Frohmann’s (2004) analysis seems in some regard to be an antiphilosophy of information, the sort of which is essential to addressing important counterpoints and antithetical perspectives regarding information when compiling a parallax ontology and the role of information therein—the

more knowledgeable the contributions and the more parallax gaps that are identified, the more comprehensive the picture becomes. Next, I will briefly explore information's role in the foundation of LIS.

### THE CENTRALITY OF INFORMATION IN INFORMATION STUDIES

We have discussed how information as a philosophical concept is shaping views on our world and ourselves in general, but what about with respect to information studies? Many in our field would argue that the proposition of information being the conceptual focus of LIS is incorrect because the focus of LIS is not *information* but rather *the user*. Focus on the user of information technology is supposedly what distinguishes LIS from fields like MIS and computer science. Even if the latter is correct (which I think it is), what distinguishes the user from other human subjects? Implicit in the notion of the *user* is that he or she uses information technology, or has the potential to use information technology, or should be given the potential to use information technology (the nearly unanimous ethical proclamation that the digital divide should be narrowed).

More traditionally, one might simply say that the purpose of a practitioner in LIS is to help the user find the information for which he or she is looking. The librarian can accomplish this through the reference interview, but there is growing emphasis on information literacy: the ability to use available resources to find the information one wants or needs. Notions like the *digital divide* imply that there exists no real distinction between the user and nonuser because everyone either has or should have the potential to find the information he/she needs; even those who do not have access to or do not know how to find the information they need are, in some respect, considered part of a user population—in this case, the nonusers. So, in this regard, despite criticism of his being “innocent of the social character of a field like LIS and the way it constructs itself” (Cornelius, 2004, p. 386), Floridi (2002) was, in some sense, correct in his view that information is the foundation of LIS (or at least its focus): LIS studies and trains practitioners to meet the needs of the user; the user is a member of some population that either utilizes information technology or should be utilizing it—and everyone should be. One can see where this leads: that the central focus of LIS is *homo informari*, “the one to be informed.”

The concept of information, as well as the philosophical foundation of LIS, is the *objet petit a* (“the unattainable object of desire”) (Hayles, 2012, p. 216) of our field, in that it always remains out of grasp though sought diligently by scholars. For example, I recall doctoral seminars wherein we devoted hours to the topic of “Who are we and what is it that we do?” Likewise, I am sure I am not alone in my wincing when asked what field I am in and receive the follow-up to my response: “library and information studies—so, what is that exactly?” Despite its polysemy, or more precisely

what Floridi (2004) calls information's "*ti esti*" nature (p. 566),<sup>6</sup> it is perceived to be the central focus of not only our field but of our present zeitgeist. Because it is both the defining concept of our time and philosophically one of the most problematic—it is elusive, yet most often foremost in our minds—thus, the most comprehensive ontological approach to understanding information and the wide range of topics in this field should resemble something like Žižek's parallax ontology.

## CONCLUSION

The preceding sections explored the topics of information and ontology from disjointed perspectives: the ways in which the digital revolution is shaping our fundamental understanding of reality; Floridi's informational ontology ISR; Floridi's, Capurro's, and Eldred's critiques of digital ontology; applied computational ontology; and Frohmann's document-centered ontological approach to understanding changes in information and communication technology. It is up to the reader to decide if the employment of Žižek's style of parallax ontological analysis effectively disclosed the gaps and tensions in the dialectic created, and the need to tarry with those incommensurabilities without dismissing any particular worthwhile perspective or creating an unnatural synthesis among them all.

Assuming that most researchers and practitioners in LIS and related fields understand ontology to be a somewhat esoteric category of knowledge management is likely a safe hypothesis. Because of the broad scope and interdisciplinary nature of LIS and related fields, immersion in the complex discourse on the topic is certainly not a requirement for good scholarship or service in the meeting of information needs. Furthermore, it is probably not necessary for practitioners in knowledge management to engage in meta-analysis of philosophical ontology in order to develop effective information systems. Likewise, even philosophers employing advanced analytic methodologies in collaboration with computer scientists would hardly find such engagement necessary for their purposes. So, for our own purposes, what can we gain by engaging in the Sisyphean task of grabbing the stone of ontology that we know no philosopher has ever rested atop the hill of our understanding? Like Floridi's elementary problem—"What is information?"—it may be best to leave these topics to those in the ivory tower across campus, whose job it is to tackle questions for which there will likely never be a definitive answer. Again, we can engage in good social research on user populations in need, teach information specialists, and serve patrons effectively without nailing down a conclusive definition of *information* or navigating the labyrinthine discourse on ontology.

Regardless of how true these premises may be concerning being effective practitioners and researchers without engaging in philosophy, it is

invalid to conclude that such engagement is fruitless or should be left to someone else. As Furner (2010) points out, there are philosophical questions to be asked both about and from within information studies. We are lucky that a handful of philosophers like Luciano Floridi and Raphael Capurro have extended their expertise into our amorphous, dynamic, shifting, and possibly endangered discipline to join the small ranks of scholars in our field, such as Jesse Shera, Patrick Wilson, John Budd, Ronald Day, Bernd Frohmann, Jonathan Furner, Ken Herald, and Birger Hjørland, to name but a few of the few. However, this is a digression in the defense of philosophy in LIS rather than of the exploration of the philosophy of information and ontology.

Early in this paper I identified a few good, practical purposes that this kind of discourse serves, but it is important primarily because addressing issues like the nature of information and the philosophy influencing information-system development and social understanding of the digital age can, for better or worse, alter the way we do research, design information systems, and serve user populations. In their broadest senses, the topics of *information* and *ontology* touch all of these disciplinary continents, and although philosophical investigation of information and ontology may go unnoticed for the most part, it can sometimes quickly and sometimes slowly facilitate tectonic shifts in these continents. To some, it may be shocking to hear that our field is amorphous and possibly in danger, but I hold that this is not simply due to the uncertain future of technology and the ironic danger of it possibly rendering LIS obsolete; instead, LIS maintains its equanimity by riding the wave of technological change and maintaining its interdisciplinary character. Without someone within the field readdressing the issues in the philosophy of information and issues regarding the nature of reality found in ontology and metaphysics, we risk losing our bearings amid the conflicting methodologies and discourses of the different disciplines contributing to our own, not to mention losing foresight and hindsight in the crescendo of novelty we currently face that only seems to gain momentum. Furthermore, and most importantly relevant to this paper, without a flexible, yet grounded and methodical approach like Žižek's parallax ontology to work with the gaps, tensions, and alterities both between and within the respective discourses and methodologies, our only choices are to pick a camp and stick with it, allow ourselves to remain perpetually lost and confused, or stay philosophically neutral and focus on practical matters—the latter probably is the best choice of the three. I argue that we need folks who take the third choice more than they need us—folks who engage in ontology and the philosophy of information. Nevertheless, folks like us are still necessary to the survival of the field.

## NOTES

1. Floridi (2002) had argued that the philosophy of information is preferable to Shera's social epistemology for LIS's intellectual foundation because LIS's focus is information rather than knowledge.
2. Kevin Kelly (2002), in a *Wired* article titled "God Is the Machine," cites a similar fictional scenario in Isaac Asimov's short story "The Last Question" (1956). The article is a kind of exegesis of pan-computational theories and pseudotheological views modeled on computation; that is, computational models of intelligent design and notions of God being computational in nature.
3. Žižek's philosophy, to a great degree, is a philosophical expansion and exploration of Jacques Lacan's psychoanalytic theory.
4. In Heidegger's philosophy, "ontological difference" refers to the distinction between beings or entities, and Being as such. According to Heidegger (1962), we only have access to Being through beings, but Being itself is not a being.
5. In Plato's *Timaeus* (2000), he describes the *ekmageion* (ἐκμαγεῖον) as an essential part of his creation myth and cosmology: "And the same argument applies to the universal nature which receives all bodies that must be always called the same; for, while receiving all things, she never departs at all from her own nature, and never in any way, or at any time, assumes a form like that of any of the things which enter into her; she is the natural recipient of all impressions, and is stirred and *informed* by them, and appears different from time to time by reason of them" (p. 38; emphasis added). Eldred borrows the notion of the *ekmageion*, or "stampable mass," as a metaphor for cyberspace, as well as for all communication media.
6. This refers to Floridi's (2004) following statement: "A genuine new discipline in philosophy is easily identifiable, for it must be able to appropriate an explicit, clear, and precise interpretation of the classic '*ti esti*' question, thus presenting itself as a specific 'philosophy of.' 'What is information?' achieves precisely this" (p. 566).

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