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INTERDISCIPLINARITY AND THE QUESTION OF BEING

by

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Abstract: The question of being adds another dimension to interdisciplinary theory and practice. The interdisciplinary approach to complex problems requires engaging with multiple perspectives from various disciplines, schools of thought, ideologies, and belief systems. All of these perspectives possess underlying and often unacknowledged ontological assumptions. An exploration of ontological thought will enhance interdisciplinary understanding of diverse viewpoints. Of particular emphasis here is the relationship between consciousness and reality. This relationship is studied in multiple contexts over the history of Eastern and Western thought, evolutionary theory, and cognitive psychology. The nature of consciousness supplies a grounding for integrative practices. The strategy of ontological pluralism enhances the interdisciplinary technique of perspective taking.

Keywords: interdisciplinary, integration, ontology, religious studies, philosophy, Eastern philosophy, cognitive psychology

Interdisciplinarity and the Question of Being

It is a peculiar impulse of human consciousness to question being. We do not simply live within reality and react behaviorally to environmental stimuli; we seek to understand reality, which places a layer of abstraction between ourselves and the world around us. Abstract awareness puts consciousness into a dynamic relationship with reality, wherein reality is organized into categories, symbolic patterns, and causal structures. Our symbolic insight into the patterns that surround us is founded upon the human ability to second-guess nature, to speculate, experiment, interpret and theorize about reality. Being, in this sense, is not the same as existing. Plants exist,

bugs exist, and so does my cat, but they do not examine the world in the abstract way that we do.

The question of being is of fundamental concern to the development of interdisciplinary theory. Interdisciplinarity is founded in the negotiation of multiple ways of knowing. By situating itself as a means for synthesizing insights from diverse perspectives into a holistic understanding of complex phenomena, interdisciplinarity engages disciplinary thought at the core of its most basic assumptions. Newell (2007) identifies three types of assumptions: "ontological (regarding the nature of the 'reality'), epistemological (regarding the nature of knowledge of that 'reality'), and value-based" (p. 256). The present work will focus on ontology. A problem facing interdisciplinarians attempting to create common ground among insights from disparate perspectives is that disciplinary assumptions, especially their ontological assumptions, are seldom identified or even acknowledged. An exploration of ontology and the question of being can enable interdisciplinarians to identify underlying assumptions of the disciplines on which they are drawing. Moreover, a comparative discussion of ontologies can aid in deciding the most promising way to negotiate among different, even conflicting, assumptions.

Ontology, in its most general sense, is the study of being. However, the concept of being can be interpreted and treated in various ways. This article approaches ontology in a way that emphasizes both the structure of consciousness and the structure of external reality, along with the manner in which these structures are mutually interdependent. This project is distinct from the more specialized definition of ontology in the tradition of analytical philosophy, which is mainly concerned with the way existence is structured into categories and the determination of the inherent properties of objects in reality.[1] Being, as treated herein, does not refer simply to existence, but to the ways human consciousness relates to the structure of reality. Our capacity for metacognitive awareness allows us to question whether our interpretation of reality reflects its intrinsic order or distorts it into an artificial order of our own devising. Understanding and negotiating this potential schism is of great importance to the study of being in its holistic, interdisciplinary complexity.[2] Exploring ontology in this broader context helps supply interdisciplinary theory and practice with a more comprehensive understanding of the question of being and the basis for a broad range of ontological assumptions.

[1] For an example of a more traditional treatment of ontology in analytic philosophy, see John Heil (2003), *From an Ontological Point of View,* New York, NY: Oxford University Press..

[2] My treatment of ontology shares some similarity to "metametaphysics," which studies the foundations of metaphysics. However, that approach is very much grounded in the analytical tradition. See D. Chalmers, D. Manley, & R. Wasserman (2009), *Metametaphysics: New Essays on the Foundations of Ontology*, Oxford, UK: Clarendon Press.

In order to help incorporate ontological awareness into the interdisciplinary approach to knowledge, this study explores the way a few basic ideas about the relationship between consciousness and reality evolved and built upon one another, making the question of being more accessible to interdisciplinarians. The study begins by introducing ontology from the perspective of Eastern philosophy. The contrasting Western treatment of ontological thought is then surveyed, beginning with its mythological origins, followed by the way these ideas were formulated in ancient Greek philosophy. Two branches of ontological thought developed from this tradition, one emphasizing reason and the other emphasizing revelation. Finally, relevant findings from evolutionary biology and psychology on the structure of consciousness are presented. The article concludes with recommendations for the way ontology can be effectively incorporated into interdisciplinary theory and practice.

The present study builds upon my previous work on epistemology (see Welch, 2009, 2011), adding another dimension to the development of interdisciplinary theory as a valuable approach to knowledge and complex problem solving. Ontology and epistemology are interrelated subjects—the epistemological ability to create knowledge and make truth assertions is predicated upon the ontological relationship between consciousness and reality. Therefore, many thinkers and ideas treated in my previous articles on epistemology will be revisited here. The purposes of this article are threefold. First, it supplies interdisciplinarians with important insights on the way the question of being has been addressed by representative traditions, both historical and disciplinary. The perspectives presented here are not intended to constitute an exhaustive chronological history of the subject, but rather are chosen because they supply insights into the relationship between consciousness and reality that are crucial to interdisciplinarians. Secondly, this article argues that ontology is best approached as a pluralistic subject, and that this approach enhances the interdisciplinary technique of perspective taking. Finally, this article argues that the relationship between consciousness and reality is essentially integrative, and this provides ontological grounding for interdisciplinary theory.

Eastern Perspectives on Ontology

Eastern philosophy, as illustrated in the traditions of Taoism, Hinduism, and Buddhism, employs strategies for resolving questions of being that are very distinct from those of Western thought. For the East, dualistic conceptions distinguishing body from mind and consciousness from reality make little sense. The Eastern approach to ontology argues not only that reality and consciousness are in an inextricable relationship, but that they are essentially the same thing. However, at the same time Eastern philosophy argues that the relationship between consciousness and reality is potentially problematic. Our capacity to project our will onto reality creates dissonance between our perceptions of the world and its natural order. Eastern approaches to ontology are concerned with developing ways to resolve this dissonance.

Taoism is founded on the notion of *wu wei*, "the uncarved block," which reflects the natural order. A sculptor does not simply impose an image onto stone, but utilizes the way it naturally splits, so that the shape in the artist's mind naturally emerges from the characteristics of the stone. The *I Ching* is the earliest description of Taoist concepts, formulating the interactive patterns of the world into underlying principles.

> Events follow definite trends, each according to its nature. Things are distinguished from one another in definite classes. In this way good fortune and misfortune come about. In the heavens phenomena take form; on earth shapes take form. In this way change and transformation become manifest. (*I Ching*, 1950, p. 280)

Taoist ontology, although recognizing an organizational structure to reality in terms of archetypal energies, emphasizes the dynamic movement of reality between equilibrium and its disturbance. "[T]here is a system of order pervading the entire world. When, in accordance with this order, each thing is in its appropriate place, harmony is established. Such a tendency toward order can be observed in nature" (*I Ching*, 1950, p. 282). This tendency is Tao, The Way, which is not "set in stone" but rather embedded in the interplay of *yin* and *yang*. This primal duality represents the Receptive and Creative principles of nature.

> Matter is the product of energy. The light and the dark are energies. The interaction of these forces gives rise to matter—that is, the firm and the yielding. Matter makes up the form, the body, of all beings in heaven and on earth, but it is always energy that keeps it in motion. (p. 344)

Laotse elaborates on these principles in some detail:

> The source from which things come into being is called teh (character, or Tao embodied). Things have not yet received their form, but the divisions of the yang (positive) and yin (negative) principles which are intimately related to each other already appear—this is called natural constitution. When (the yin and the yang) begin to move, things come into being. When things are formed in accordance with the principles of life—this is called form. When the bodily form shelters the spirit where each part behaves according to its own pattern—this is called the thing's nature. When the thing's nature is cultivated, it reverts to teh. When teh is complete, it is identified with the origin of things. From identification come [sic] passivity (emptiness), and from passivity come [sic] greatness . . . then all things are merged in continuous formlessness, seemingly devoid of all consciousness. This is called the Mystic Virtue, which is identification with the Grand Harmony. (Laotse, 1948, p. 113)

Human consciousness participates in the deep patterns of nature, yet in order to restore harmony with the grain of the world, the Eastern way requires some form of meditation, which steadies the mind, bringing consciousness into closer accordance with Tao.[3]

The ontology of Hinduism is focused upon reconciling the relationship between the corporeal and the spiritual. The Hindu tradition conceptualizes Tao as Dharma, the natural path reality takes, described as the underlying vibrational pattern of the universe. The material world is not the real World; the corporeal self is not the real Self. "Soundless, formless, intangible, undying, tasteless, odorless, without beginning, without end, eternal, immutable, beyond nature, is the Self. Knowing him as such, one is freed from death" (*Upanishads*, 1948, p. 20). Hinduism utilizes acoustical metaphors such as harmony and attunement, distilled in the mantra, OM—the indivisible syllable, unutterable, and beyond mind. In it the manifold universe disappears. "Before creation came into existence, Brahman existed as the Unmanifest. From the Unmanifest he created the manifest. From himself he brought forth himself. Hence he is known as the Self-Existent" (p. 56). In meditating upon OM, one comes to know Brahman, the ontological foundation of Being, the original undifferentiated energy of reality and consciousness (Scharff, 1978, p. 84). Hinduism is not primarily interested in describing the nature

[3] For an interesting look at the Taoist concept of *wu wei*, see Dolores LaChapelle (1988), *Sacred Land, Sacred Sex: Rapture of the Deep*, Durango, CO: Kivakí Press.

of existence or consciousness for its own sake, but rather is interested in "the goal of self-realization: to know being means to coincide with being, which is always present as one's own true potential" (Halbfass, 1978, pp. 98-99). The material world is a secondary construction, an illusion derived from vibrational patterns. The Hindus believe that trees come into being because there is already an underlying "song of treeness" prefigured within Dharma. By fixating upon the material world we become detached from the spiritual vibrations that create it. We can restore ontological communion with Nirvana, the original state of bliss, through Yogic practices, which emphasize purifying the body and focusing the mind.

The Buddhist approach to the question of being is likewise not primarily concerned with what is or what can be known, but rather with what can be done to achieve Nirvana, within which all ontological questions are essentially meaningless. The Buddha questioned the choice between seeing reality as either permanent or impermanent, as either immutable essence or transitory material phenomena. Candrakirti, an early Buddhist commentator, explains:

> What avoids these two dogmas is said to be without a specific nature, beyond proof, not dependent, unmanifest, without an abode, not to be known conceptually. It is, Kasyapa, the Middle Way: it is the right way of regarding the true nature of things. (Sprung, 1978, p. 131)

The Buddhist concept of emptiness describes the dynamic tension between form and motion as itself the true nature of reality. Because humans tend to avoid instability and unpredictability, they "project into, superimpose upon, impute to the seeming things around them, gratuitously but not arbitrarily, the notion of self-existence, and this gives rise to the reassuring everyday world. This projection, superimposition, or imputation arises from the dynamic of human needs and ignorance" (Sprung, 1978, p. 132).

Buddhism declares that the human mind creates disunity by attaching itself unnecessarily to the material world through the assertion of ego. Ego seeks to control the world, to make it into an object of self-gratification, whether through consumption, construction, or understanding. By attempting to master the world, we impose our laws and values upon it, which creates friction. For Buddhism, the return to communion is simply a matter of letting the world be itself. Meditative practices here are dedicated to silence. Emptiness is relativity. There is no difference between samsara, reality, and Nirvana. "Bliss consists in the cessation of all thought, in the quiescence

of plurality. No [separate] reality was preached at all, nowhere and none by Buddha!" (*Dhammapada*, 2006, p. 175) The Dharma is already here, available to human consciousness, once we are able to relax our need to control our world. Ontological awareness comes from a sense of emptiness, the sense that all of our thoughts and desires create obstacles to understanding. "This requirement that perception be nonconceptual is the cornerstone of the Buddhist theory of perception" (Dreyfus & Thompson, 2007, p. 106). This, in turn, implies that the universe operates just fine without human interference, that there are intelligible patterns to reality that transcend our comprehension, which nonetheless inform and guide our consciousness if we but listen. Thus, in the Middle Way, groundlessness grounds consciousness in Being.

The Eastern approach to ontology may seem hopelessly paradoxical, but its long history of dealing with the nuanced question of being provides an illuminating alternative conceptualization of the relativity of ontological issues. As opposed to Western thinkers who emphasize either the internal or external structure of existence, Eastern philosophy starts with the assumption that the relationship between consciousness and reality is dynamic, fluctuating, and complex. In contrast to the kind of ontological vertigo described in the section on phenomenology and post-structuralism later in this study, Eastern techniques calm the mind through meditative practices that reveal consciousness is ontologically grounded and capable of penetrating insight into the workings of reality.

The Mythological Origins of Western Ontology

Creation myths from cultures around the world concern themselves with essential ontological issues—the way reality came into being and organized itself, and the manner in which human consciousness emerged from that creation. The Biblical account in Genesis forms a foundational narrative that became one of the great influences over the development of Western ontological thought. In this narrative, creation emerges from the void spontaneously at the word of God. Light and darkness separate, and from this primordial duality emerge earth, oceans, skies, and heavens. Life arises, ultimately culminating in the creation of human beings. Humans experience a period of innocence in the Garden of Eden, in perfect communion with God and nature. This innocence is interrupted when Adam and Eve disobey God by eating the fruit of the Tree of Knowledge, leading to their expulsion from the Garden. This became known as The Fall, a theme that recurs throughout

the development of Western ontology. Symbolically, The Fall concerns the realization of self: that I am a being, and that I can separate myself from the world in my own mind. Religious and philosophical traditions that developed from this narrative often involve returning individual consciousness to its original state of communion with nature. The mythological accounts of the origin of the cosmos set up a fundamental ontological paradox—that human consciousness is simultaneously derived from nature and separate from it.

The Greeks Attempt To Bridge the Gap

The other great influence on the Western philosophical tradition is ancient Greek thought. Pre-Socratic experimentation in ontology deals with two main concepts, *arche* and *logos*. *Arche* is essence, a primal force beneath reality that is both immutable and intangible. *Logos* is the logical pattern by which reality organizes itself into the multitude of objects that make up the material universe (Bambach, 2005). The early Greek philosophers are hardly unified in their explanations of this relationship, although all their ontological thought is founded in an elemental notion of the structure of being, divided into the primal substances of earth, air, water, and fire. Anaximander contends that the universe tends to organize itself into polar opposites. Pythagoras regards the world as an expression of mathematical harmony. Heraclitus posits that the world is constantly involved in dynamic transformation, structured by the patterns of *logos*. The philosophers of the Eleatic school emphasize the essential unity of the world, declaring that an immutable essence underlies reality; therefore, ontology could not be built upon notions of change. "In this tradition from Parmenides, 'being' is conceived as fundamentally contrary to 'becoming'; this means that 'being' essentially connotes changelessness, excluding any kind of process of 'coming-into-being'" (Leclerc, 1980, p. 6). "He is insistent on showing how [the] universe really is, in contrast to the way it appears. According to the truth it is immobile and undifferentiated, but in appearance it is multiple and ever-changing. But under both ways of knowing it, it remains the same thing" (Owens, 1978, p. 23). Anaxagoras attempts to reconcile the two approaches to ontology by maintaining that the essential patterns cycle themselves into the multitude of objects in the material world.[4]

[4] For an overview of pre-Socratic thought, see G.S. Kirk (1983), *The Presocratic Philosophers: A Critical History with a Selection of Texts*, New York, NY: Cambridge University Press.

Early Greek ontological thought is synthesized in the philosophies of Plato and Aristotle. Plato's concept of absolute form is a fundamental ontological construction. Beneath all material objects there lies an Idea that provides the pattern for the form an object takes. For a tree to be, there must first exist the form of the tree, the Idea of "treeness." Our ideas about the world reflect the Ideal state of the world (*Symposium,* 212).[5] Every tree is different, yet we are able to see that they are all "trees"; thus, there is an essential pattern to trees that transcends its individual instances. All things "must be supposed to have their own proper and permanent essence: they are not in relation to us, or influenced by us, fluctuating according to our fancy, but they are independent, and maintain to their own essence the relation prescribed by nature" (*Cratylus,* 386). Plato's conceptualization of absolute form and Idea is a unified construction. Our idea of "tree" is not projected arbitrarily from the human mind, but rather is consciousness realizing an Idea that was already embedded in reality. Plato's path to this realization is reason. In order to apprehend the pure Idea, one must commit to rationality and logic. Plato's work employs the dialectic to discover preexisting truths inherent in the *logos* of the world, such as the rules of geometry. "And if there have been always true thoughts in him, both at the time when he was and was not a man, which only need to be awakened into knowledge by putting questions to him, his soul must have always possessed this knowledge" (*Meno*, 86). Plato's doctrine turns ontology away from a material grounding in the body toward a more transcendental existence in the ordered mind. "He who has got rid, as far as he can . . . of the whole body, these being in his opinion distracting elements which when they infect the soul hinder her from acquiring truth and knowledge—who, if not he, is likely to attain to the knowledge of true being?" (*Phaedo,* 66)

Aristotle elaborates on Plato's Ideas by embarking on a categorical imperative that would characterize Western thought for millennia. He set up the basic organizational structures of phenomena that we still use today, through the employment of taxonomies and classification schemas. In Aristotle's system, which divides reality into a hierarchy of categories, primary substances underlie all phenomenal objects. "Now the same relation that subsists between primary substance and everything else subsists also between the species and the genus to which the primary substance belongs, on the one hand, and every attribute which is not included within these, on the

[5] All references to Plato are in the standard Staphanos pagination, without column letters. Specific dialogues are also identified.

other" (*Categories*, 3a).[6] Being comes from a substratum, like the plant from its seed: "For as the bronze is to the statue, the wood to the bed, or the matter and the formless before receiving form to any thing which has form, so is the underlying nature to substance, i.e., the 'this' or existent" (*Physics,* 191a).

Greek philosophical thought frames basic ontological assumptions by examining the relationship between the external structure of the world and the internal structure of the mind. This focus on structure rejects the dynamic aspects of mind and nature, and moves ontological investigation away from direct experience to abstract analysis. Plato makes the important assumption that patterns in reality are actually contained in the structure of consciousness as Idea or absolute form. The emphasis on analysis, along with the central role of reason, forms the basis for the concept of scientific objectivity employed by many disciplines. Aristotle's elaborations on the structure of reality through the use of categories have led to a proliferation of taxonomies and classification systems throughout the history of Western thought. Indeed the very existence of the disciplines themselves rests on the ontological assumption that abstract organizational systems reflect the true structure of phenomena.

The Unavoidable *Cogito*

A brief analysis of the theories of Descartes and Kant must suffice here to illustrate the way ontology has been connected to the inner structure of the mind. No exploration of ontology is complete without an encounter with Descartes' *Meditations*. These short essays describe a thought experiment that attempts to navigate through what is known as the mind/body problem. Metaphysics rejects the material in favor of the essence upon which the material is predicated. Because the mind seems to float in time and place, in its own internal space, it is seen as separate from the body. Descartes pursues this line of reasoning to its logical end, concluding that it is possible for the mind to have experiences apart from the world of objects. This is not to say that the external world does not exist, but that the mind experiences objects as ideas, and in order to understand them clearly, consciousness must apply the discipline of reason.

> Hence we must allow that corporeal things exist. However, they are perhaps not exactly what we perceive by the senses, since this comprehension by the senses is in many instances very obscure and confused; but we must at least admit that all things which I conceive in them clearly and distinctly, that is to say, all things which, speaking generally, are comprehended in the object of pure mathematics, are truly to be recognized as external objects. (*Meditations,* VI)

[6] All references to Aristotle "are approximate indications of the pages and columns of the standard Berlin Greek text"— from the editors of the *Great Books of the Western World*. Titles of individual works are also provided.

For Descartes, then, reality has an essential structure, mathematical in nature, which is not perceived directly through the senses, but in the light of reason. The light of reason shines in us because our soul possesses a fragment of divinity. Descartes contends that the acknowledgement of our ignorance is evidence of an innate relationship with an omniscient God. "For how would it be possible that I should know that I doubt and desire . . . that something is lacking to me, and that I am not quite perfect, unless I had within me some idea of a Being more perfect than myself, in comparison with which I should recognize the deficiencies of my nature?" (*Meditations,* III). Descartes asserts that the primary ontological reality is, in fact, God, whose divine will is reflected in the structure of the human mind.

For Kant (1781/1952), this conception of the mind/body problem implies that the mind is not formed solely by its individual experiences with the outside world, but possesses an innate a priori structure from its very inception. "All conceptions, therefore, and with them all principles, however high the degree of their a priori possibility, relate to empirical intuitions, that is, to data towards a possible experience. Without this they possess no objective validity, but are mere play of imagination . . . (Book II, Chapter II, Section III, 3).[7] Kant, an Enlightenment thinker, sought to reconcile the mind/body problem by asserting that there was a "transcendental manifold" that connected the ideas in the mind with the structure of the world.

> The synthetical unity of consciousness is, therefore, an objective condition of all cognition, which I do not merely require in order to cognize an object, but to which every intuition must necessarily be subject, in order to become an object for me; because in any other way, and without this synthesis, the manifold in intuition could not be united in one consciousness. (Second Part, First Division, §13)

Consciousness is built upon the higher principles of reason, which are not

[7] All Kant quotes are from *The Critique of Pure Reason*, followed by section titles and numbers as appropriate.

derived from the world, but already exist in the mind, without which we could not meaningfully conceive the world at all. "All that we do, and ought to do, is to follow out the physic-mechanical connection in nature according to general laws, with the hope of discovering, sooner or later, the teleological connection also" (Appendix). In this passage, Kant presages discoveries about the nature of consciousness that would eventually be unveiled in other disciplines—that the mind does indeed possess a structure that successfully interacts with the world around it. A further important point he makes here is that ontology is not simply about analyzing the structure of reality, but is also about understanding how our relationship with the world gives our existence meaning and purpose. The work of Descartes and Kant, although widely separated chronologically, shares the assertion that the innate rational structure of the human mind is the proper basis for ontology.

Revelation

Another branch of ontology in the Western tradition emphasized revelation rather than reason. During the Middle Ages, the question of being fell under the purview of religious scholars like St. Augustine and Thomas Aquinas, who take a hermeneutical approach to the subject through the careful interpretation of sacred texts. These scholars believe that the advent of consciousness constituted The Fall from direct communion with Creation brought about by the Serpent's seduction of Adam and Eve. For Augustine, the mental and physical suffering humans endure during their life on earth is a result of this fall from grace. "Is not this proved by the profound and dreadful ignorance which produces all the errors that enfold the children of Adam, and from which no man can be delivered without toil, pain, and fear?" (*City of God,* XXII.22). Although these thinkers believe reason to be a useful tool, given by God, they privilege revelation as a superior approach to the question of being.

> The science of reasoning is of very great service in searching into and unraveling all sorts of questions that come up in Scripture . . . And yet the validity of logical sequences is not a thing devised by men, but is observed and noted by them that they may be able to learn and teach it; for it exists eternally in the reason of things, and has its origin with God. (*On Christian Doctrine,* II.31-32)

The hermeneutic tradition believes that restoration of communion with God is achieved through meditation on the scriptures, and the revelations derived

therefrom (III.27). Aquinas, in his *Summa Theologica*, reinforces this directive:

> Even as regards those truths about God which human reason can discover, it was necessary that man should be taught by a divine revelation, because the truth about God such as reason could discover would only be known by a few, and that after a long time, and with the admixture of many errors. But man's whole salvation, which is in God, depends upon the knowledge of this truth. Therefore, in order that the salvation of men might be brought about more fitly and more surely, it was necessary that they should be taught divine truths by divine revelation. (Question I, Article 1)

The interpretation of sacred texts is seen as the process of translating divinity into human terms, a process that could restore the purity of being realized in the Garden of Eden. The religious view of ontology is not explicitly concerned with exploring the structure of existence, but rather with achieving personal happiness and spiritual well-being.

In response to the Enlightenment, the ontological shift from reason to revelation returns in the 19th century. The Romantic movement takes up the critique of reason as expressed through idealism and empiricism: "It either soars up to heaven to weave there its fine-spun webs of dialectics, and to build its metaphysical castles in the air, or else, losing itself on the earth, it violently interferes with external reality, and determines to shape the world according to its own fancy" (Schlegel, 1847, p. 12). The Romantics conceptualize ontology in more poetic than religious terms. They establish a philosophy of life, attempting to make contact with the forgotten essence of being, found, again, in communion with God.

> Thus, then, the whole human consciousness is filled with unmitigated discord and division, not merely in its mixed rational and sensuous or terrestrial and spiritual nature, but thought itself is at issue with life. And moreover while in the thought the internal and the external, faith and science, are involved in a hostile contrariety, disturbing and destroying each other, so is it also in life with the finite and the infinite, the transitory and the imperishable. In such a state of things . . . the problem of philosophy . . . cannot well be any other than the restoration of the consciousness to its primary and true unity, so far as this is humanly possible . . . this true and permanent unity . . . must be looked for in God. (Schlegel, 1847, p. 96)

Romantic philosophers hold up Love as the ultimate way of interacting with reality, of existing. They believe that nature restored being, that the heart is superior to the head. "When our intelligence and our world are in harmony then are we like unto God" (Novalis, 1903, p. 36). The Romantics believe that nature possesses a great "Manuscript of Design" embedded in all the multifarious manifestations of reality, "on wings of birds, on the shells of eggs, in clouds, in snow, in crystals, in rock formations, in frozen water, within and upon mountains, in plants, in beasts, in men, in the light of day, in slabs of pitch and glass when they are jarred or struck, in filings around a magnet, and in the singular Coincidences of Chance" (p. 45). Human beings are meant to participate in this flowing multiplicity, rather than organize it into abstract logics, to perceive the "hidden music of Nature" (p. 60).

In America, the Transcendentalists form similar approaches to ontology that advocate returning to a more natural life. The Industrial Age is seen as an artificial development that has removed consciousness from its ontological roots. Thoreau's experiment at Walden Pond is an attempt to demonstrate that a close relationship with nature clears the mind of the distortions of civilization. Thoreau declares that humans need wildness, unfathomable mystery. We need to be refreshed by the vast, inexhaustible vitality of nature's cycles of death and renewal. Thoreau advocates cultivation of poverty: "sell your clothes and keep your thoughts" (1937, p. 292). Transcendental philosophy attempts to ground human existence in (the very American notion of) "common sense." To know nature is to know ourselves. Nature's creative essence inspires truth "springing spontaneous from the mind's own sense of good and fair" (Emerson, 1957, p. 68). For the Transcendentalists, consciousness relates to reality on a deep, instinctual level, and in order to fully understand reality, one needs to slough off the sedimentary layers of civilization that have built up over the course of human history.

Nietzsche seeks to reestablish an ontological approach that emphasizes the power of revelation while rejecting the monotheism of medieval philosophers. He asserts that Western theories about the nature of being took a wrong turn very early on by accepting the philosophies of Socrates and Judeo-Christianity as their founding principles. For Nietzsche, being is life, not thought, best conceptualized in poetic and mythical narratives. "He who recalls the immediate consequences of this restlessly progressing spirit of science will realize at once that *myth* was annihilated by it, and that, because of this annihilation, poetry was driven like a homeless being from her natural ideal soil" (1872/1967, §17). In order to be in the world, one must be grounded in what he calls Dionysian impulses—passion, emotion, creativity and intuition—the instincts that predate the order of reason and monotheism. "Under the charm of the Dionysian not only is the union between man and man reaffirmed, but nature which has become alienated, hostile, or subjugated, celebrates once more her reconciliation with her lost son, man" (§1). He sees the nature of reality as dynamic, seething with energy and constant transformation. In opposition to the absolutist ontologies that came before him, Nietzsche declares that being should be founded upon a communion with the vital flow of nature.

The rejection of reason formulated by Christian, Romantic, and Transcendental philosophers is an important reminder that, for many, the question of being is best addressed on a spiritual and emotional level, not a rational one. As academics, we often need to be reminded that most people have not received extensive training in research and critical thinking skills. Typically, they hold ontological assumptions based on spiritual principles, which supply deep meaning and purpose to their lives.

Phenomenology Restores the Life-world

The revelatory approach to ontology led subsequent thinkers to revise their views of the relationship between consciousness and reality. The dynamic relationship of subjective and objective consciousness became a particular obsession for the phenomenologists, and here epistemology and ontology become inextricably intertwined as we enter the philosophy of the 20th century. Husserl founded the phenomenological method on being in the *lebenswelt*—the life-world. Instead of trying to determine the underlying metaphysical axioms of reality, he asserts that one must instead place consciousness into the flow of the world, and see it from within. Husserl's method is to hold consciousness in a unique state of suspension, so that the relationship between subjectivity and objectivity can be more precisely examined. Among other things, he creates the groundwork for the concept of intersubjectivity, the belief that individual minds cannot be phenomenologically alienated from each other, because they share the mutual life-world (1936/2002).[8]

Heidegger's phenomenological investigations yield a much more nuanced resolution of the mind/body problem. He argues that the nature of human consciousness is that it stands apart from reality, makes itself separate, while

[8] An excellent analysis of Husserl and the phenomenological method can be found in H. Reeder (2010), *The Theory and Practice of Husserl's Phenomenology*, Bucharest, Romania: Zeta Books.

constantly yearning to return to its natural state of communion. Here is the familiar motif of The Fall, the recognition that we have separated ourselves from our ontological roots through the very sense of ourselves as individual beings. Heidegger turns this circular argument back on itself by phenomenologically demonstrating that being itself is dependent upon our separation from it, yet at the same time calls us to return to the primal state of union. In other words, our consciousness is designed to second-guess the world, to reflect on the world and project its thoughts onto the world, but can never be quite alienated from it. This tension, for Heidegger, is what makes all existence possible (1977). Heidegger argues that the way to restore consciousness to being is through the cultivation of the poetic sense, "though not in the sense of poesy or song. The thinking of being is the primordial form of poeticizing in which, before everything else, language first becomes language, enters, that is to say, its essence" (2002, p. 247). Heidegger believes that the tension between belonging to the world and being alienated from it is a necessary condition for consciousness and, indeed, for the entire phenomenal world.

The post-structuralists who followed took the phenomenological method to extremes, and in so doing concluded, like Descartes, that the human mind is able to construct realities of its own devising and that there is no way to determine, within consciousness, whether these constructions reflect reality in any precise, verifiable way. This is not to say that all post-structuralists advocated ontological nihilism. Rather, they demonstrated that humans are essentially paradigm builders, who are driven to create organizational models for phenomena that operate within a tautologically internal order (Foucault, 1977). Derrida's work explores the way in which this order, for Western thought, is structured around reductionist principles, such as dualism, determinism, and absolutism (Welch, 2009, 2011). These principles attempt to solidify reality into a world of immutable abstract symbols, constructions intended to make reality more manageable. It is impossible to have a fully objective viewpoint, because there is no way for us to escape the paradigm we have collectively constructed for ourselves. Instead, what post-structuralism reveals is a layer of metacognitive awareness that recognizes the process of paradigm-building as an inherent relationship between consciousness and reality. In Derrida's *différance*, the mind achieves a metacognitive suspension between engagement and disengagement, and consciousness is forced into a more complex relativistic framework where paradigm shifting becomes possible (Derrida, 1974).

Because interdisciplinarity deals with forming holistic understanding from multiple perspectives, much insight can be gained from the relativistic framework described by these thinkers.[9] Phenomenology and post-structuralism describe the nuanced ontological relationships that result from engaging in multiple perspectives, complex systems, and integrative thinking. Relativism need not be conflated with nihilism. The ideas provided by these thinkers do not require us to reject any ontological connection with reality, but instead provide us with tools for understanding and working within the convoluted, multidimensional relationship between consciousness and reality.

The Evolutionary Model

Philosophical approaches to ontology entail consciousness examining itself and its relation to reality from the inside out. The empirical sciences have effectively reversed this polarity, examining nature and the way our consciousness has developed from the outside in. Philosophical perspectives tend to get lost in introspection; thus, the natural sciences can help triangulate the interdisciplinary position on ontology by supplying their more "grounded" findings. Early scientific examination of existence primarily came through efforts to establish categories, hierarchies, and taxonomies of phenomena that formulated nature into linearly arranged, static relationships. These organizational schemes rested on the ontological assumption that the human mind is making sense of an already intelligible world—that the patterns in nature correspond to the structure of consciousness.

The theory of evolution upset this sense of static order by describing a more relativistic framework, demonstrating that all of nature is seething with interactivity, constantly reformulating its own categorical structures as it adapts and transforms.[10] According to evolutionary theory, life organizes itself into more and more complex creatures that develop through interactions with each other and their environment. Necessary to life is the ability to react and adapt to its environment. One such adaptation is consciousness, refined through millions of years of synthetic interaction between life and habitat. Therefore, human consciousness is derived from nature. In this way, the evolutionary perspective on ontology supplies empirical grounding for the relationship between consciousness and reality.

[9] For a more in-depth explanation of post-structuralist concepts and their contribution to interdisciplinary theory, see Welch (2011), pp. 12-19.

[10] Although other scientific approaches have made contributions to ontological thought, evolutionary biology is highlighted in this study because of its importance to the relationship between consciousness and reality.

Biological interaction created the mind. The extreme nihilism claimed by some postmodernists and others, which declares that consciousness is socially constructed (Szostak, 2007), dismisses this fact. The primary structure of this interaction is genetic; the basic information about the great experiment of life is encoded at the molecular level into the DNA sequences all of Earth's flora and fauna possess. DNA is a fundamental ontological structure—it patterns life. All organisms are built out of the stuff of Earth, structured according to the rules of chemical reactions. DNA organizes the way the material and the energetic coalesce into life forms. These forms change as DNA collects more information about how best to adapt to the environment. The genetic code records the trials and errors of every transformation along the way. In all these ways, humans are deeply embedded in the world around them. Consciousness, including our ability to reflect upon and make sense of nature, is essentially natural, an expression of life. "That is, perceptual experience is understood to be an active process of constitution whereby otherwise ambiguous stimuli are able to be articulated into personally and culturally meaningful forms" (Throop & Laughlin, 2007, p. 659). We reflect on the world while we are a reflection of the world. Howsoever our minds may lead us astray, we are the evolutionary result of eons of adaptation. "The contents of consciousness are both structured by the inherent organization of the body, and plastic and adaptively responsive to environmental, personal, and cultural influences" (p. 661). The way we see the world has developed from this ancient and ongoing relationship to the world, and this ultimately grounds us ontologically.

Evolutionary theories of consciousness assume that "the psychological structures that evolved are adaptive, information-processing mechanisms designed to deal with recurrent problems faced by our ancestors" (Bering & Bjorklund, 2007, p. 599). Human beings developed in diverse and changing physical and social environments, and need a flexible intelligence to survive in complex socio-ecologies. "Across human societies, and across the human life cycle, individuals encounter the same set of basic challenges in the social and physical environments—challenges that, if gone unmet, would directly threaten the successful propagation of their genes" (p. 601). The human ability to create mental simulations enables us to test out virtually the relationship between intentions and consequences, helping us understand and predict social and natural situations. If our consciousness were not grounded in reality, these mechanisms would fail, and thus not be selected for through evolutionary processes. However, like all other evolutionary traits, consciousness is adaptive, not infallible. Our ability to second-guess

reality, to speculate and project our thoughts on the world, has many advantages, but may also create maladaptive behaviors (p. 615). This paradoxical relationship between consciousness and reality creates the need for ontology itself. We cannot merely trust our biological heritage to guide us, but must utilize ontological awareness to enhance our relationship with the world.

Cognitive and Neuroscience Approaches to Consciousness

To delve deeper into this ontological grounding, it is necessary to investigate the structure and development of the mind/brain complex. The brain is physical, it has form and mass, and it is governed by biochemical reactions that generate electromagnetic fields. The way these fields create consciousness is still fairly mysterious, but it can be assumed that the brain is the product of hardwired evolutionary developments designed to better adapt us to the world. Nonetheless, we do not understand how our experience of consciousness is projected by our physical brain. Our instrumentation cannot perfectly map the brain, look at its electrical activity, and read our thoughts. "The same cortical areas seem to participate in conscious experience or not at different times, depending on their current dynamic connectivity" (McGovern & Baars, 2007, p. 192). The neural assemblies of our brain, which make experience possible by integrating sensory input with cognitive reflection, appear to be "kaleidoscopic." In the "holonomic" model, the brain does not encode "sensory experience as a set of features that are then stored or used in information processing"; instead, "sensory input . . . is encoded as the interference pattern resulting from interacting waves of neuronal population activity" (p. 190).

Studies of dream states and other unconscious mechanisms corroborate this virtual relationship between consciousness and reality. Dreams are often the result of our working out the hidden rules, patterns, and principles of reality, perfecting our ability to actually face them (Stoerig, 2007, p. 710). The brain is processing reality on a continual basis, even when we're not conscious of it (Gladwell, 2005). The mind processes reality by aggregating webs of associations. Although on one level this process is instinctual and unconscious, the network of associations is also affected by the way we consciously focus and prioritize our impressions of reality (Stoerig, 2007, p. 723). Within this complex interaction, there is an analogue between consciousness and reality, the basis for being and reflection on being. The mind is an integrative organ, and this provides an ontological foundation for the emphasis on integration at the heart of interdisciplinary theory and practice.

Consciousness is a powerful reality processor, able to extract a torrent of information from the senses and organize it into a complex, dynamic web of associations, of thoughts, feelings, memories and understandings of how it all works together. The mind is fluid and dynamic, constantly reassessing the world in its struggle to adapt.

As a reality processor, consciousness exhibits unmistakable quantum features that are shared by reality itself. Quantum theory offers an explanation for the qualities of consciousness and reality that cannot be accounted for by classical physics, including the assertion that human choice plays a decisive role in the dynamics of reality. "The physical world, as it appears in the theory, is transformed from a structure based on substance or matter to one based on events, each of which has both experiential aspects and physical aspects: Each such event injects information, or 'knowledge,' into an information-bearing mathematically described physical state" (Stapp, 2007, p. 883). Classical physics describes ontology as essentially deterministic—all phenomena arise from linear causality, in which the current state of an isolated system can be fixed as derivative from previous states of all the vectors of that system. Reality is entirely objective, not influenced by conscious observers. However, according to Stapp, in quantum terms, mind and matter

> become dynamically linked in a way that is causally tied to the agent's free choice of how he or she will act. Thus, a causal dynamical connection is established between (1) a person's conscious choices of how to act, (2) that person's consciously experienced increments in knowledge, and (3) the physical actualizations of the neural correlates of the experienced increments in knowledge. (p. 888)

It has been argued that the electromagnetic field the brain generates, as well as its core biochemical processes, produces quantum field effects that can account for peculiarities of the mind—its seeming separation from material and temporal conditions, its ability to suspend in thought multiple outcomes at once before they are realized, and its capacity to organize information in an abstract multidimensional web. Quantum theory is able to account for the ionic processes involved in the neurotransmitter activity of the brain, describing the state of the mind as "an expanding cloudlike structure in a high-dimensional space" (Stapp, 2007, p. 889). Consciousness arises from the tripartite dynamics of choice, causation, and chance, wherein our volition synthetically influences the way these dynamics interact. This complex system incorporates the ontological assertion of strong interactions between

the mind and the environment. Although many contest the application of quantum theory to phenomena on scales larger than the subatomic, quantum theory does offer a sophisticated way to conceptualize the nature of consciousness and its relationship to reality.[11] Quantum theory provides yet another way to describe the inherent polyvalence of interdisciplinarity, as a synthesis of complexity deeply engaged in the relationship between the inalienable physical and mental aspects of existence.

Conclusion: Integration and Ontological Pluralism

These highly disparate ontological perspectives offer insights that merit integration into a more comprehensive understanding. The question of being is engaged with the very complex and often paradoxical relationship between consciousness and reality. Exploring the subject of ontology in religious, philosophical, and scientific contexts illuminates complementary facets of the question of being. Consciousness and reality are engaged in a complex feedback loop that is fluid, dynamic, and essentially ungrounded.

This dynamic relationship is the basis for Eastern ontology. Eastern thought characterizes being as form in motion; it is interested in the way essence flows though the material world. Consciousness is immersed in the dynamic recycling of essence and object, capable of both wisdom and delusion. Transcendence, for the Eastern mind, is not achieved through abstract idealism, but through the revelation that comes from the cessation of discursive thought. Mythological conceptions posit the notion of a transcendental basis for all being, a pure divinity that creates reality through differentiation. Human existence occupies a peculiar space between the divine and the material. Human beings are neither omniscient nor ignorant; our self-awareness comes at the price of realizing we have lost connection with the transcendent basis for being.

Greek ontological thought attempts to resolve this paradox by postulating the concept of essence, an underlying structure to reality. "What Plato has in mind . . . is that in speaking about being a differentiation is implicit

[11] The application of quantum theory to the operation of the mind is, of course, quite controversial. However, it is a significant part of the discussion about the nature of consciousness and worthy of inclusion in this study. In fact, according to a Cognitive Psychologist colleague who is active in consciousness studies, "Quantum theory is the language of consciousness studies." For further reading, see R. Penrose (1986), *The Emperor's New Mind*, New York, NY: Oxford University Press; R. Penrose (1994), *Shadows of the Mind*, New York, NY: Oxford University Press.

which does not distinguish different realms of being but rather suggests an inner structuredness of being itself" (Gadamer, 1978, p. 47). The patterns we see around us seem to preconfigure the world; they are essential—they produce life before it is born. However, in order for individual objects to exist in the material world, they have to differentiate themselves from each other and the pure, abstract Idea from which they are derived. Western philosophers like Descartes and Kant pursue the idea of essence by arguing that consciousness possesses innate, a priori comprehension of these underlying patterns, accessed by the mental discipline of reason. Another thread of Western thought, illustrated by medieval theology, Romanticism, and Transcendentalism, emphasizes revelation as a means for restoring the lost connection to the essence of being. This thread culminated in the work of Nietzsche, who declares that ontology is best grounded in direct experience of life, rather than the objective introversion of abstract reason. Phenomenology and post-structuralism develop a more nuanced conception of ontology by demonstrating that consciousness is not passively assessing external phenomena, but actively projecting a structure on the world.

Similarly, according to the evolutionary model, existence is both structured and dynamic. Biological organisms grow and die in a continual cycle of interaction and adaptation, structured and organized by the laws of physics and chemistry. Consciousness is derived from this process of interaction and adaptation, and through scientific reasoning has come to understand something of the laws governing phenomena. When we see beyond the tree to "treeness" we are seeing that trees come into being because there is already a pattern for trees, encoded in DNA, encased in seeds that sprout and gather the sun, the wind, the rain, and the soil into growth—"treeness" actualized into a tree. All trees are different because the conditions they are born into differ and constantly change; yet, howsoever trees may come and go, the essence of tree remains, continually reinventing itself. What was once revealed to human consciousness as metaphysical essence is re-presented in science as genetic pattern. From an integrative point of view, the ontology of essence can be conceived in both spiritual and concrete terms. Nature is a complex system of adaptable patterns that organize matter into intelligible forms.

Consciousness itself so far remains a mystery for empirical science. The human mind is a result of evolutionary mechanisms designed to enhance the survival of our species. Our ability to form abstract assessments and virtual simulations of the world has been wildly successful. Through observation and experimentation, we have come to understand much about the inner workings of existence, and our construction of logic and mathematics

has enabled us to see deep patterns that organize the universe. By turning an empirical light upon our own minds, we see that the structure of our brains is derived from these patterns, and thus pre-disposed to make sense of the world. However, this explanation offers little to explain the way the brain projects consciousness. Psychological investigations reveal that the human mind is a complex reality processer, disposed to integrate interactions with the environment into webs of association—to make sense of the world. Our consciousness may be susceptible to confusion, misdirection, and obsession, but it is still very much grounded in reality. Quantum theory helps conceptualize the paradoxical relationship between consciousness and reality, including the peculiar nature of consciousness itself, existing in a strange quasi-internal space. Quantum theory describes the nature of being as continually fluctuating, yet organized by consciousness itself. The empirical investigations of consciousness come full circle with the revelations of religion and philosophical reasoning to show that ways of knowing are ontologically connected with ways of being.

The mind processes reality through the integrative assimilation of complexity, and this provides an ontological basis for interdisciplinary theory and practice. Interdisciplinarity is predicated on the ability to "decenter" consciousness in order to shift among relevant disciplinary perspectives. Complex problems are best approached by investigating insights from diverse and often contradictory viewpoints, developing an integrative understanding from these sources, and applying that understanding to solving the problem at hand (Repko, 2012). This may seem a tall order, but studies of the mind reveal that it possesses inherent abilities to integrate knowledge from multiple perspectives. Consciousness, as a complex system, can hold itself in a quasi-unstable state, "so that by a multitude of adjustments it can adapt to environments that change continually and unpredictably" (Freeman & Rogers, 2003, as cited in McGovern & Baars, 2007, p. 194). The architecture of consciousness is comprised of "numerous, semi-autonomous specialist systems, which interact in a dynamic way," distributing information, both recruiting and filtering mental resources in the context of active goals (p. 202). Human consciousness itself enables the kind of complex problem-solving emphasized in interdisciplinary theory and practice—the weighing of multiple viewpoints, conceptualizing the world in terms of interrelated dynamic web-like structures, tolerating ambiguity and paradox, identifying conflict, and developing or discovering common ground—these all appear to be innate qualities of the mind developed over countless generations of evolutionary interaction with the natural and social world.

> Consciousness . . . serves to integrate the various modules of the mind (e.g., social, technological, natural history) and, with this integration, permits the construction of tools and the transmission of knowledge in a way unprecedented in the animal world. With consciousness, our ancestors could reflect on what they knew, using information acquired in one domain to bring to bear on issues in other domains. Learning can extend beyond the immediate context and be applied to situations only imagined or in one's memory. (Bering & Bjorklund, 2007, p. 612)

The human mind is not solely an organ of reason or revelation. It is an integrative organ above all else. Interdisciplinary studies is, in turn, an extension and elaboration of the integrative faculties of human consciousness.[12] This principle provides a deep ontological basis for interdisciplinary theory by asserting that integration is a powerful, grounded way human beings navigate the relationship between consciousness and reality.

An understanding of ontology benefits interdisciplinary practice, as well. The technique of perspective taking requires an interdisciplinarian to serially shift among multiple viewpoints. This is a fundamental interdisciplinary practice. The art of perspective taking involves viewing a complex phenomenon through a series of "lenses." All perspectives—disciplines, ideologies, and schools of thought—are grounded in ontological assumptions. The complex, real-world problems that interdisciplinary studies engage most often require the coordination of experts and stakeholders who can have widely disparate ontological assumptions. These assumptions may not be explicitly acknowledged within a perspective itself. Because of this, cultivation of ontological awareness is crucial to interdisciplinary practice.

Natural science assumes human consciousness is part of an orderly universe, and our existence is derived from the natural processes that make up the universe. These processes have an ultimately intelligible structure. The arts assume that ontology is based on symbolic patterns that can be expressed and interpreted through creativity. Religion assumes existence possesses a deeper meaning and purpose best accessed and understood through communion with divinity. Psychology assumes the mind is structured by natural forces, and can be understood by examining brain physiology and behavior. An ideology like Libertarianism assumes a direct ontological connection of individual to reality that is sacrosanct. Some schools of thought

[12] The subject of integration, and its application to common ground theory, is more fully treated in Repko (2012).

like Marxism and feminism assume that being essentially possesses a dialectical structure that can be reconfigured, at least in terms of human affairs. Post-modernism has led to an ontology of social constructivism, emphasizing the important ways our consciousness projects patterns of being onto the world that may not accurately reflect its true nature.

This sparse and generalized survey of assumptions demonstrates that there are multiple approaches to ontology, practiced by various disciplines and schools of thought. The relationship between human beings and the nature of reality can be experienced in myriad ways, because consciousness and reality mutually possess a dynamic, multidimensional nature. By acknowledging ontological pluralism, interdisciplinarians deepen their ability to become more successful perspective takers. However, pluralism makes the practice of interdisciplinarity essentially problematic because it inherently engages relativism. The assertion that there is no *one* way to be creates a kind of existential vertigo, a sense of groundlessness. Yet, this groundlessness can be overcome through integration. Perspective taking creates for the interdisciplinarian a kind of polyvalent space in which multiple viewpoints simultaneously collide and coalesce. The process of integration does not reduce this polyvalence to a singular resolution, but rather develops a more nuanced, holistic perspective that incorporates the conflict and common ground inherent in a given complex problem. Integration, as a natural propensity of the human mind to create holistic perspective, allows a way of "grounding" ontological pluralism. Through integration, multiple ways of being can be synthesized into a more coherent relationship with reality.

Ontological pluralism, combined with the practice of integration, helps interdisciplinarians negotiate disciplinary assumptions. An example is the controversy over the theory of evolution. Biologists hold the ontological assumption that all phenomena obey laws of nature. In this view, evolution is not a belief or an ideology; it is an empirical model for the way life develops. This model is based on the deeper assumption that human reason is a reliable and verifiable way of understanding reality. Religious arguments against evolutionary theory question the very ontological assumptions upon which science is founded. Religious ontology privileges revelation over reason, and asserts that the nature of existence is predicated upon spiritual, rather than material forces. For some Christians, the Bible provides an infallible description of how the world came into being, ontologically founded on the word of God, who created it. These two conceptions of being come into conflict because their underlying ontological assumptions seem incommensurable, leading to intense debate. Perspective taking allows the inter-

disciplinarian to access these two "lenses" on reality, which together reveal a polyvalent space where the assumptions of empiricism and spirituality clash, creating cognitive dissonance. For proponents on either side of the debate, this dissonance is insurmountable, because they reject the perspective of their opponents. However, for interdisciplinarians, a more nuanced, holistic understanding of the problem can be developed. Integration allows interdisciplinarians an opening to discover common ground between these contradictory perspectives, revealing that the evolutionary and Biblical accounts of creation have many commensurable features. The account of creation in Genesis, if viewed on a symbolic level, parallels the historical description of the development of life on Earth. Indeed, in the conclusion to *The Origin of Species*, Darwin (1859/1952) himself accounts for the influence of divinity in his theory, attributing the process of evolution and the other laws governing the universe to The Creator. Through integration, a synthetic narrative of creation can arise from the empirical and the spiritual. The religious perspective is not subsumed into the scientific, nor is the scientific perspective converted to religious terms. An integrative narrative affords a deeper and more powerful understanding of evolution than either science or religion can singularly provide.

The controversy over evolutionary theory deserves more elaboration than this article can afford, but provides a sophisticated example of the integration of ontological pluralism, and engages the debate over reason or revelation described in this study. Interdisciplinarity is well adapted to understanding the dynamics of ontology and skillfully applying that knowledge to complex problems. The process of integration is not inherently reductive, but rather yields a higher level of organization within the polyvalent space that arises from perspective taking. In Welch (2007), I introduced the concept of Integrative Wisdom, which is worth revisiting here. "Wisdom is the synthesis of all avenues of insight—rational, experiential, intuitive, physical, cultural, and emotional—it breaks down all boundaries between categories of knowledge and returns them to holistic understanding. Wisdom creates equilibrium among these faculties, minimizing their individual weaknesses and achieving synergy" (pp. 149-150). From an ontological point of view, wisdom is founded on the principle that there exists a profound relationship between human consciousness and reality, a relationship that is essentially integrative.

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