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Retrieving Realism: A Whiteheadian Wager

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This essay argues that the organic realism of Alfred North Whitehead (1861-1947) provides a viable alternative to anti-realist tendencies in modern and postmodern philosophy since Descartes. The metaphysical merits of Whitehead's philosophy of organism are unpacked in conversation with Hubert Dreyfus and Charles Taylor's recent book *Retrieving Realism* (2015). Like Dreyfus and Taylor, Whitehead's philosophical project was motivated by a desire to heal the modern epistemic wound separating soul from world in order to put human consciousness back into meaningful contact with reality. While Dreyfus and Taylor's book succeeds in articulating the problem cogently, its still too phenomenological answer remains ontologically unsatisfying.¹ Whitehead's process-relational approach invites philosophy to move closer to a real solution.

Keywords: *metaphysics, realism, knowledge, nature, experience, process*

Whitehead's protest against the bifurcation of nature and re-imagination of scientific naturalism in panexperientialist terms advances Dreyfus and Taylor's otherwise intractable struggle to root out and untangle the modern metaphysical topology they call "mediationalism." Mediationism is operative in any philosophy presupposing an "inner-outer structure" whereby "we grasp external reality [only] through internal representations" (Dreyfus & Taylor, 2015, pp. 2-3). The mediational frame begins with the basic assumption that *minds have ideas about things*. What at first may seem an obvious, commonsense construal of the way human beings relate to reality has led many of the modern philosophers who tried to work out the details into notoriously stubborn antinomies, paradoxes, and hard problems. Mediationism has inhibited philosophy's capacity for world disclosure by construing the mind's grasp of the world as somehow "in us" rather than in the transaction, "the interspace of our dealings with things" (Dreyfus & Taylor, 2015, p. 93). The modern picture of reality, because it denies what Dreyfus and Taylor referred to as the interspace between mind and world, turns out to be rather violently incoherent. The challenges faced by a diverse planetary society demand of the philosophical community that some integral cosmic imaginary be articulated within which the salvific fruits of the world's spiritual traditions and the scientific truths of modern physics, biology, and psychology can hang together with equal ontological

weight. The articulation of such an integral imaginary will be essential for the human species' successful navigation of the fast approaching evolutionary bottleneck caused by anthropogenic climate change and geopolitical instability. The modern mediational topology stubbornly persists in contemporary philosophy, even among the many postmoderns who purport to be criticizing it. Dreyfus and Taylor themselves at certain critical junctures remained tied to the topology of the mediational stance, most strikingly when they slip back into the modern bifurcation separating meaningless physical causation from embodied meanings and mental reasons. A less dualistic interpretation of modern scientific findings is possible, one that avoids the pitfalls of materialistic reductionism and skeptical relativism alike.

This essay is divided into two parts. The first part reviews Dreyfus and Taylor's attempt to overcome mediationism by integrating the objective knowledge claimed by modern scientific naturalism with the moral and spiritual values defended by inclusive humanism. The second part turns to Whitehead's process-relational philosophy of organism in order to offer a more coherent retrieval of realism. This Whiteheadian interpolation is part of an effort the present author has elsewhere characterized as the "re-enchantment project" (Segall, 2013c). An emerging wave of integral philosophers have grown tired of the self-defeating hyper-critique of moderns and postmoderns alike, and are ready to begin in earnest the difficult task of re-imagining a non-

modern, post-secular, re-enchanted, pluralistic, and participatory cosmological scheme (see Segall, 2012 and Segall, 2016a), a scheme unhampered by the confusions and contradictions inherent to the mediational picture that Dreyfus and Taylor argue has consciously or unconsciously framed Western thought since the 17th century.

Part 1: The mediational frame

Dreyfus and Taylor began their argument by retracing the history of modern European philosophy in order to uncover the wrong turn that led Western culture into a distorted understanding of knowledge and its relationship (or lack thereof) to reality. Unsurprisingly, much of the blame falls on René Descartes. Dreyfus and Taylor remind their readers that Descartes' skeptical, dualistic distortion of the human condition—what they referred to as the *mediational* theory of knowledge—is of far more than merely theoretical interest, since this framework is directly responsible for generating the contradictory ethical, existential, and (a)theological commitments characteristic of modernity and its postmodern aftermath. The distorted mediational theory has condemned modern people to experience themselves as “divided beings needing to be healed” (Dreyfus & Taylor, 2015, p. 26). As first articulated by Descartes, the mediational theory is based upon the foundational assumption that mind is entirely separate from matter, and that mind therefore gains knowledge of external matter only through its own internal representations or ideas. Dreyfus and Taylor (2015) referred to this original form of mediationalism as “representationalist,” but they are careful to note that this “much refuted” paradigm is only one among a variety of mediational theories all sharing the same “deeper topology” (p. 3). One of the key features distinguishing this deeper topology is the “‘only through’ structure” (p. 10): a mind's or organism's epistemic access to external nature comes only through structures endogenous to the mind or organism. Other variants of mediationalism noted by Dreyfus and Taylor include Immanuel Kant's critical turn, which although it re-imagined the meaning of inner and outer still enforces the only through structure and the gap between knowledge and reality; Willard Quine's materialist turn, which denies the existence of mind and claims scientific knowledge of nature comes instead to the brain only through sensory receptors; Rorty's linguistic turn, which claims that knowledge comes only through intersubjective

agreement between publicly expressed sentences; and finally the computational turn, which claims that the brain acts as a kind of hardware supporting the mind as its software or operating system, with knowledge coming only through the internal processing of external information.

The alternative to mediationalism offered by Dreyfus and Taylor is referred to as a *contact theory* of knowledge. Their contact theory aims to provide an unmediated grip on reality without falling prey to an overly *naïve* realism. Dreyfus and Taylor sympathetically summarized the ancient contact epistemologies of Plato and Aristotle, admitting, however, that these original contact theories are ultimately insufficient. Despite their admirable sophistication, the theories of Plato and Aristotle, according to Dreyfus and Taylor (2015), have become ontologically implausible as a result of modern scientific materialism's dismissal of the sort of “cosmically embedded teleology” (p. 18) presupposed by ancient philosophers. Dreyfus and Taylor (2015) turned instead to the 20th century contact theories of Martin Heidegger, Maurice Merleau-Ponty, and Ludwig Wittgenstein, theories that apparently do not rely upon any cosmic teleology but instead rest upon thick descriptions of a more down to earth “primordial and indissoluble involvement in . . . reality” (p. 18).

There are, of course, important ethical motivations that lend support to the mediational theory. According to Dreyfus and Taylor (2015), the disengaged, critical stance fostered by mediationalism contributed to the modern ideals of personal freedom, self-responsibility, the rejection of unjustified authority, and the technological mastery of nature. But, the authors cautioned, these ideals are double-edged, since they also function to cut human society off from a supposedly disenchanted and mechanized physical world, to alienate supposedly autonomous individuals from an increasingly mass-minded society, and to dissociate rational public personas from private emotional inner lives, thereby alienating individuals even from themselves.

Dreyfus and Taylor attempted to show the way out of the mediational frame by developing a contact-theoretical alternative to modern philosophy's bifurcated view of a deterministic nature passively apprehended by a spontaneously reflective mind. The intractability of the problem of how to account for experience in terms both active and passive is made especially evident in the extreme solutions proposed by post-Cartesian modern

philosophers: for example, the idealist Gottfried Leibniz posited that experience is actively constructed inside windowless monads, while the empiricist David Hume had it that experience is the result of passive sensations associated within a mind that is all window. Kant's transcendental turn was an attempt to find a middle path between the extreme positions of rationalists like Leibniz and empiricists like Hume. Dreyfus and Taylor turned to Heidegger's, Wittgenstein's, and Merleau-Ponty's elaborations upon the Kantian discovery that every particular sensory impression or bit of information presupposes the conceptual unity of a network of propositions and the holistic meaning of a spatiotemporal background. Kant brought the contextualizing conditions that had been hidden by Cartesian epistemology out into the open for the first time. Heidegger applied the Kantian form of argument to reveal the inadequacy of mediationalism's supposition that the subject initially encounters the world as a collection of neutral objects, and only subsequently projects meaning onto them based on its own subjective concerns. Instead, for Heidegger, *concernful involvement* with the world is the paradigmatic form of experience. This more primordial form of worldly embeddedness is the abiding condition making possible the disengaged, neutral descriptions of the natural sciences. Wittgenstein, for his part, extended Kant's critique of the atomism of sensory information by critiquing the atomic theory of linguistic meaning. The standard theory of linguistic meaning going back to Augustine held that the meaning of a word comes from the mediating role it plays in linking an internal mental concept with the external object that it signifies. Wittgenstein argued that the ostensive definitions upon which this theory is based presuppose the implicit grammatical workings of language and the pre-understandings baked into a culture's view of the world. It follows that the meaning of language is not rooted in concept-word-thing relations established by individual minds, but rather depends upon the shared *form of life* of the society within which language-speakers are enculturated. Finally, Merleau-Ponty took the mediational theory to task for ignoring the bodily, sensorimotor basis of experience. Rather than needing to formally represent or form explicit beliefs about the features of an environment in order to successfully navigate through it, Merleau-Ponty eloquently described how the lived body puts one in direct pre-conceptual touch with the surrounding world, such that one can skillfully cope with the affordances

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it provides for activities without having to consciously reflect upon or purposefully design action in advance of environmental engagements.

Contrary to the reductive computational or cognitivist theory of experience, wherein formal symbolic representations of atomistic sensory inputs (so-called) allow an internal picture of the world to be constructed as a basis for action (as so-called output), Dreyfus and Taylor built on Heidegger, Wittgenstein, and Merleau-Ponty to argue for a *gestalt* view of experience wherein reflective, representational, or conceptually attentive consciousness is always already embedded within and emergent from skillful embodied coping in everyday social situations. Here, Dreyfus and Taylor could have drawn upon the embodied or enactive approach of Francisco Varela et al. (1992; see also Evan Thompson, 2007). A complex holistic understanding of the world, an immediate grasp of its bodily affordances and social meanings, is not an internal representation inferentially constructed out of simple sensory inputs. As Whitehead (1979) remarked after critiquing the mediational view (though he did not call it that), "A young man does not initiate his experience by dancing with impressions of sensation, and then proceed to conjecture a partner" (pp. 315-316). The man is first of all in contact with his dancing partner, and only afterwards (if he is of an especially scientific bent) formulates skeptical epistemic conjectures about his partner's status as a collection of colorful shapes projected upon his retina (Whitehead's construal is unpacked in the next section in terms of his distinction between two modes of experience: presentational immediacy and causal efficacy).

John McDowell's (1994) critique of the dualism between the space of reasons and the space of causes also partially aligns with Dreyfus and Taylor's (2015) approach in that both understand perception as actively engaged with and spontaneously responsive to the physical constraints of the body and its environmental affordances. Perception is thus not merely the passive reception or effect of causal stimuli. But their approaches differ in that Dreyfus and Taylor saw the affordance-attunement and engaged spontaneity of perception as a *preconceptual* skill, while McDowell argued that all worldly engagement presupposes "a propositionally structured totality of facts" (Dreyfus & Taylor, 2015, p. 84) such that human "perception is conceptual all the way out" (p. 77). Dreyfus and Taylor (2015) defended the notion of a meaningful preconceptual space irreducible

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to the supposedly non-teleological causes operating in the natural world by offering two compellingly concrete examples of it: first, a young boy learning the name for the “stepping stones” of which he already possessed a prereflexive, embodied understanding (since he used them to hop across the creek each day without having a name for them) provides an example of “prelinguistic perception” (p. 85); second, a professor lost in thought while driving to the office and later successfully reporting a detail about his trip provides an example of “prepropositional” perception (p. 86). While they admitted McDowell may have an adequate account for the second example (since the professor already knew the name for the detail in question), with the first example, the boy clearly had some kind of skillful understanding of the stepping stones prior to learning their name or even consciously reflecting upon them. He was thus preconceptually familiar with them as meaningful features of his world prior to being able to talk or form logical propositions about them.²

Richard Rorty engaged in a decades-long debate with Dreyfus and Taylor regarding the need for a more adequate account of knowledge to replace the mediational theory. Rorty preferred to just walk away from the mediational problem space by accepting rival philosophical theories as equally justified ways of talking about and coping within a diversity of social habitats, while Dreyfus and Taylor argued that the problem space can and must be recast so as to offer a more adequate account. From their perspective, philosophers need to decide whether the mediational or contact theory of knowledge is more adequate. Taylor and Dreyfus (2015) thus differentiate their “robust” realism from Rorty’s “deflationary” realism (p. 132). While Rorty found the idea of an objective view from nowhere unintelligible, they argued that the objects studied by natural science must constitute an independent reality, a world that exists entirely *in itself* and in no way *for us* (nor, presumably, *for itself*). They argued both that some version of the correspondence theory of truth can be salvaged that would grant objective knowledge of nature, and that this knowledge remained nonetheless dependent upon and emergent out of concerned engagement with the world. It is not clear that Dreyfus and Taylor were able to make these two claims hang together. As is unpacked below, realism can be retrieved without marshaling the idea of a *deworlded* reality of meaningless material objects. Dreyfus and Taylor (2015) went on to develop

an eleven-stage account of how “causal contacts with the physical world” become linked with the space of reasons and justified beliefs (pp. 88-89). In the earliest of these stages, they repeatedly referred to processes of *optimization*, *balancing*, and *sensitivity* as part of an explanation for how preconceptual contact with the physical world becomes conceptualized and linguistically articulated. These references are returned to below, as it is unclear what sense can be made of the occurrence of such preconceptual but nonetheless teleological and mentalistic processes given Dreyfus and Taylor’s apparent deference to the ontology of scientific materialism when it comes to the ultimate structure of reality.

Contact theorists all share a rejection of mechanistic reductionism, which attempts to explain thinking in terms of neurophysiological computations inside the brain. This sort of explanation, they argue, is still residually Cartesian and thus held captive within the mediational frame. Knowledge, for Dreyfus and Taylor, is not inside the mind or the skull of the knower and is not separated from the world in any way. If all knowing arises through embodied and socially embedded action in the world, then “the understanding I have of the world is not simply one constructed or determined by me”; rather, it “is a co-production of me and the world” (Dreyfus & Taylor, 2015, p. 93). Preconceptual understanding is thus said to occur in the transaction or *interspace* between subject and object, rather than in the subject alone. Dreyfus and Taylor were clearly aware of the need to overcome the gap between causal nature and conceptual thought, but for reasons unpacked in part 2, Whitehead’s philosophy of organism does the job in an even more compelling and coherent way.

Dreyfus and Taylor (2015) cashed out their contact theory in an argument on behalf of inclusive humanism: the idea that some embodied phenomenological fusion of horizons is possible that allows different cultures to coordinate their schemes according to the same underlying “target area” (p. 114). Even if the human species’ currently established diversity of cultural perspectives appear irreconcilable, all humans can at least agree upon the need to continue to improve their view of the way things are (i.e., *facts*) and on what matters most (i.e., *values*). Human capacities for “intercorporeality” and “linguisticity,” as well as openness to risking one’s own identity in order to understand others, together constitute something like a human nature, even if this essential humanness

remains aspirational rather than normal (i.e., an ideal description of our highest potential) (Dreyfus & Taylor, 2015, pp. 118-125). Despite Dreyfus and Taylor's (2015) optimistic "humanist faith" (p. 129), they admit that "the possibility of ultimate noncalibration [between different cultures] must be kept open" (p. 130). Nothing can assure in advance that efforts toward horizontal fusion or translation between any two or especially between all cultures will succeed. They therefore referred to their approach as a "plural realism" (Dreyfus & Taylor, 2015, p. 168): even if modern science must be said to come to grips with things as they exist in themselves, this still leaves open "the possibility that there are a plurality of revealing perspectives on the world (nature, cosmos, universe)" (p. 154).

Jorge Ferrer's (2002, 2008, 2017) participatory understanding of religious and cultural difference is especially relevant to Dreyfus and Taylor's search for a plural realism. Like Dreyfus and Taylor, Ferrer's participatory approach seeks a third way between the two extremes of scientific or religious dogmatism and cultural relativism. Ferrer's (2017) participatory theory has thus far focused more on religious pluralism, construing the various forms of human religious belief and practice in terms of the participatory "interaction of all human attributes [rational, imaginal, somatic, aesthetic, contemplative, etc.] and an undetermined mystery or creative dynamism of life or the cosmos" (p. 227). From the perspective of Ferrer's participatory pluralism, while some sort of planetary ethos to regulate intercultural encounters may be necessary (an ethos rooted in a shared commitment to overcoming selfishness and striving to embody and integrate the full suite of human potentials), the sort of horizontal fusion of cultures sought by Dreyfus and Taylor is no longer the aim, and so the lack of such calibration is not considered a failure. Rather, Ferrer (2017) envisions the cosmic mystery and its human cocreators "as moving from a primordial state of undifferentiated unity toward one of infinite differentiation-in-communion" (p. 239). The aim, therefore, is not to collapse difference into sameness, but to celebrate open-ended "processes of cosmological hybridization" (Ferrer, 2017, p. 239).³ The "ultimate unity of the mystery" at the heart of all religious cosmologies is thus not only preserved from "the reductionisms of cultural-linguistic, psychological, and biologically naturalistic explanations," its "ontological richness" is enhanced by the open-ended potential for the cocreative emergence of new spiritual worlds

(Ferrer, 2017, p. 228). Ferrer (2017) pointed to the "metaphysical or *deep* pluralism" (p. 226) articulated by a number of Whiteheadian process theologians, including John Cobb, Jr. (1999) and David Ray Griffin (2005), as a potential alternative to shallower forms of postmodern cultural relativism. But Ferrer (2017) quickly rejects these attempts to interpret the variety of religious ultimates in terms of Whitehead's dipolar divinity (i.e., God is conceived as a process including both a primordial/transcendent pole and a consequent/immanent pole) because, he argues, such "procrustean theistic molds" do violence to the rich diversity of spiritual enactments of the ultimate mystery (p. 227). As is unpacked in part 2, alternative interpretations of Whitehead's process-relational theology are possible that may bring it more into alignment with participatory theory.⁴

The participatory approach could just as illuminatingly be applied to more general ontological questions of ultimate reality. Indeed, Ferrer's approach builds on the work of Richard Tarnas (1991, 2006), whose third way beyond dogmatism and relativism (the twin dangers of the mediational frame) converges with Dreyfus and Taylor's (2015) sense of reality as "a co-production of me and the world" (p. 93). "The human spirit does not merely prescribe nature's phenomenal order," writes Tarnas (1991):

rather, the spirit of nature brings forth its *own* order through the human mind when that mind is employing its full complement of faculties—intellectual, volitional, emotional, sensory, imaginative, aesthetic, epiphanic. In such knowledge, the human mind "lives into" the creative activity of nature. Then the world speaks its meaning through human consciousness. Then human language itself can be recognized as rooted in a deeper reality, as reflecting the universe's unfolding meaning. Through the human intellect, in all its personal individuality, contingency, and struggle, the world's evolving thought-content achieves conscious articulation. Yes, knowledge of the world is structured by the mind's subjective contribution; but that contribution is teleologically called forth by the universe for its own self-revelation. Human thought does not and cannot mirror a ready-made objective truth in the world; rather, the world's truth achieves its existence when it comes to birth in the human mind. (p. 435)

While Dreyfus and Taylor (2015) express skepticism of the sort of “cosmically embedded teleology” (p. 168) affirmed by Tarnas, their own contact theory appears to presuppose it, if not at the macro scale, then at least at more local levels. Whitehead’s cosmological scheme reinterprets micro and macro scale teleological processes as fully consistent with the evidence of contemporary natural science, thereby alleviating Dreyfus and Taylor’s concerns that such processes have been ruled out by modern scientific findings.

Dreyfus and Taylor’s book partially succeeds not only because it makes the inadequacy of the modern mediational picture evident, but because it reveals the way this picture continues to covertly dominate the anti-foundational and anti-representational postmodern thinking that purports to have escaped it. By building on Heidegger, Wittgenstein, and Merleau-Ponty’s “reembedding of thought and knowledge in the bodily and social-cultural context in which it takes place” (Dreyfus & Taylor, 2015, p. 18), the authors lucidly articulated how and why the engaged mode of coping with an affordance-rich world of meaningful bodily concern developmentally precedes the disengaged stance that natural science employs in its attempt to neutrally describe, as if from nowhere, a meaningless world of material particles. Where their book fell short was in its attempt to articulate a metaphysically coherent contact theory that would release us from the epistemic captivity of the bifurcated conception of nature. They clearly saw that a more adequate picture would need to overcome the bifurcation between the traditional concepts of mental spontaneity and physical necessity. But by effectively ceding physical ontology to the mechanistic world picture of post-Galilean science, their proposed compromise leaves philosophy stuck, despite all their protestations against it, in the same old conceptual grid separating human meanings (even if these are said to emerge from embodied coping and worldly attunement) from natural mechanisms.

That they end up ceding this territory to mechanistic science is strange, since Dreyfus and Taylor themselves are careful to warn philosophy against the reification that results “from ontologizing the canonical procedures of modern epistemology” (p. 33). The ontologization of the disengaged method of access during the modern period, such that it became an all-encompassing theory of reality, led philosophers (including materialists, idealists, and dualists) to pose

all the wrong questions, chief among them the primary problem of mediationalism: how do meaningful mental images *in here* relate to neutral material impacts *out there*? The “hard problem of consciousness,” despite tremendous advances in the neurosciences, remains as salient today as it was for Descartes in the 17th century (Chalmers, 1995). Modern philosophers have put the wrong end first in their attempts to know the world, as though knowledge was produced inside the mind through the internal representation of an external reality. On the contrary, “my first understanding of reality is not a picture I am forming of it, but the sense given to a continuing transaction with it” (Dreyfus & Taylor, 2015, p. 70). Humans are first of all beings-in-the-world, participants in cosmic becoming, and only later become capable of abstract theorization about the possibility of an “external” world.

Faced with such poorly posed problems, Wittgenstein and Rorty’s prescription is that philosophers simply change the subject. But this is insufficient, since, as Dreyfus and Taylor make clear, the question remains as to whether the embedded or the disengaged conception of knowledge is more adequate. Certainly, the empirico-mathematical methods of modern science have proven exceedingly *useful* by increasing humanity’s ability to predict and control many physical processes. But to ontologize the mediational premises of the instrumental method into a picture of what the universe is supposed to be *in itself* is to commit Whitehead’s (1967) famous “fallacy of misplaced concreteness” (p. 51) by substituting an abstract mechanical model for the living cosmos encountered in our embodied experience. Indeed, in many instances acting on knowledge provided by mechanistic models actually does violence to the ecology of organisms it is supposed to have explained. In truth, modern scientific epistemology (or “technoscience”⁵) gives us more *power over* than *knowledge of* nature. When it claims mechanistic knowledge of nature, natural science puts the wrong end of the epistemic cart first. If Dreyfus and Taylor (2015) were serious about the “necessary sequence in the genesis of modes” (p. 36) that places the learning processes of embodied coping before and beneath the knowledge produced by disengaged scientific theorizing, they cannot then go on to insist that the disengaged mode somehow conceptually transcends or is logically independent of the embedded mode and thus justified in its claims to a view from nowhere. If the goal is to imagine an ontology that avoids the

paradoxes and quandaries of mediationalism, then that ontology must avoid metaphysically dividing scientific logic from the physics it is supposed to be describing. Somehow or other, the physicist's knowledge must itself be an expression of physical processes. An experiential continuity must link knower with known. No scientist, not even Galileo or Newton, constructs their models of nature entirely out of clear and distinct logical premises. All scientific knowledge not only presupposes bodily engagement and energetic transaction with concrete natural processes, *it is itself an expression of these energetic processes*. So while their protests against the dominance of Cartesian epistemology can be applauded, Dreyfus and Taylor were too quick to cede all authority on the ontology of nature to a still residually Cartesian construal of scientific naturalism.

Having sketched Dreyfus and Taylor's admirable but incomplete attempt to overcome mediationalism, this essay now turns to examine Whitehead's radical approach to overcoming the mediational frame.

Part 2: A Whiteheadian Wager

Whitehead's organic realism provides an ontological grounding for the embedded, embodied, and engaged phenomenological account offered not only by Dreyfus and Taylor, but by kindred thinkers like Francisco Varela, Evan Thompson, and Eugene Gendlin. Dreyfus and Taylor's account would have benefited from an encounter with Gendlin's (1962) process modeling of the relation between concepts and their "implicit experiential context" (p. xii). Like Dreyfus and Taylor, and in line with Whitehead's radically empirical panexperientialism, Gendlin reverses the epistemic hierarchy typical of Western philosophy by reminding philosophers that living experience precedes and grounds reflective cognition: "Rather than giving some cognitive system priority and reading it into experience," Gendlin (1962) writes,

our philosophy recognizes the priority of making experiential sense (as in metaphors or in speaking from a felt sense). Once that has occurred, we can explain it by interpolating cognitive units in retrospect (but this is a further experiential process which brings new further implications). The reversal makes a new and more radical empiricism possible...It leads to an empiricism that is not naive. (p. xix)

Gendlin went on to align himself with Whitehead's re-imagination of Western philosophy's erroneous bifurcation between pure sensory qualia (colors and sounds, etc.) and pure logic (concepts and propositions). In place of the old qualia/logic duality, Whitehead references (in Gendlin's words) the "many, many organismic feelings" (p. 94) that compose our ongoing experiencing. Logic, too, becomes a form of organismic feeling, an expression of our subtlest contacts with the contours of reality.

From a Whiteheadian point of view, bringing forth a robustly realist cosmological scheme no longer held captive by the mediational frame first requires overcoming the bifurcation of nature. This entails re-imagining experience as decidedly *not* just an epiphenomenal ghost caged within skulls or hidden beneath skin, nor even as a mysterious interspace that emerges between human subjects and objective constraints. It is necessary, rather, to develop a more generic conception of experience as intrinsic to and pervasive throughout the micro- and macro-processes composing the physical world. It is not enough to pose the question of whether a third preconceptual experiential space might be carved out between the space of natural causes and the space of human reasons and then punt the ontological football by declaring that we always implicitly "live" the answer to this question without being able to explicitly think it (Dreyfus & Taylor, 2015, p. 125). If this were an adequate answer to the question they posed, Dreyfus and Taylor would have had little need to spend 168 carefully argued pages attempting to make the inexplicable explicit. Surely not prosaic philosophy but poetry would have been the more appropriate medium in this case. Even after forgiving this shortcoming in their argument, a further issue remains: upon what realistic or ontological (i.e., non-phenomenological) basis can they establish their preconceptual interspace? Part of their way around the aporia of mediational dualism requires presupposing human agency (intentions, purposes, aims, desires, optimizations, balancings, and so forth), but such agency is precisely what is forbidden by the anti-teleological understanding of the space of causes claimed by modern scientific materialism. Either everything—including organic life and human consciousness—is explainable in terms of physical causes as scientific materialists currently conceive them, *or the mechanistic world picture of scientific materialism is mistaken*. Dreyfus and Taylor (2015) are unwilling to challenge the "solidly

established” (p. 68) Galilean-Newtonian conception of nature, even while they show no restraint demolishing the mediational stance that provided this conception with its philosophical justification. If their own convincing argument regarding the ontological inadequacy of the mediational conception underlying the Galilean-Newtonian picture of nature was not enough on its own to call this picture into question, then it is unclear (especially given their reliance on a supersessionist interpretation of scientific paradigms) why the complete demolition of the 17th century mechanistic cosmology by 20th century relativity, quantum, and complexity theories did not warrant even a mention in their book.⁶

It could be that Dreyfus and Taylor did not detect the relevance of these new scientific revolutions to their attempted retrieval of realism. Whitehead, one of the most capable mathematicians in the world at the start of the 20th century, was especially well-positioned to understand the significance of the breakdown of the old Galilean-Newtonian framework. For Whitehead, the newly emerging scientific understandings of spatio-temporal relativity, quantum non-locality, and the complex causality of self-organization had inescapable philosophical implications.⁷ He was thus led into the philosophy of science in search of a more participatory epistemology than the disengaged rationality inherited from Descartes and Kant. It was not long before he was forced all the way into the riskier adventure of full-blown metaphysics. “The recourse to metaphysics,” according to Whitehead (1920), “is like throwing a match into the powder magazine. It blows up the whole arena” (p. 29). Thinking with Whitehead requires accepting his wager that blowing up the mediational frame that modern and postmodern philosophers have agreed (consciously or not) to play their dualistic conceptual games within is the only viable path forward, at least if a comprehensive and meaningful picture of the world is to be sought. The entire confused conceptual edifice that isolates minds from things behind signs must be demolished before a more coherent, integral vision of reality can be imagined. Meaning runs far deeper than designation. Philosophers will never be able to think the mind’s connection to nature if they conceive of the latter as a collection of isolated things. This is because meaningful experience cannot be composed out of independent things. Experience, as Whitehead re-imagines it, is constituted by *interrelated events*. The ontology of an event cannot be captured by the mental representation of material things or structures;

rather, Whitehead’s process-relational ontology replaces the mediational framework of substance dualism and mental representation with novel concepts of processual polarity and prehensive unification. Mind and matter are thus not conceived of as separate substances but as poles in dynamic tension with one another, each one contributing to the unification of every actual occasion of experience in the creative advance of nature. The distinction between mental thoughts and physical things is not denied by Whitehead, but shifted from a spatial and substance-based framework into a genetic and process-relational one. Meaningful experience is constituted by the growing together (or, in Whitehead’s terms, the *concrescence*) of the stubborn facts of the past with the novel possibilities for the future that these facts afford the present. The past lingers in our physical feelings and corporeal habits, even in the very morphology of our skeletal muscles (reflecting the decision of our human ancestors to walk upright), while the future goads us ever onward, quickening the mind with youthful ideals as yet unrealized. “Science is concerned with the facts of bygone transition,” that is, with the past, while “[it] is the religious impulse in the world which transforms the dead facts of science into the living drama of history”; it is for this reason, Whitehead (1968) continues, that “science can never foretell the perpetual novelty of history” (p. 105). A new world-picture must acknowledge the scientific evidences of past facts as well as the religious evidences of future values. It must account for the meaning of experience, of *being here*, in its full temporal depth.

Dreyfus and Taylor (2015) are not wrong in their assurance that the continued success of the natural sciences (success measured, presumably, in the instrumental terms of prediction and control) “depends on [their] not being so out of touch” with reality (p. 56). The cosmological questions that Whitehead allows philosophers to ask by demolishing the Galilean-Newtonian world-picture are not at all predicated upon a denial of natural science’s contact with actual nature: “I assume as an axiom that science is not a fairy tale” (Whitehead, 1920, p. 40). The scientific method indeed puts the mind in touch with a real world. Given the ontogenetic priority of engaged coping over disengaged reflection, how could this not be the case? Scientists have never simply been modest and withdrawn observers reflecting upon reality, but always active experimenters engaged in reality. Further, they are themselves expressions of the reality they experiment

upon and theorize about. Acknowledging natural science's practical engagement with and predictive control over nature is not the same as saying that its mechanical models of nature are identical to nature, are the way nature *is*. It cannot be repeated enough that a coherent world-picture requires that the nature known to science be capable of producing scientific knowledge as one of its expressions. If science's idea of nature is not so capable (as is the case with the mechanistic picture, for which the emergence of living organisms and especially of intelligent minds remains an incomprehensible miracle), then clearly the picture is too abstract and has failed to account for what has actually occurred in our universe. The analytic methods of Descartes, Galileo, and Newton did not really sever the embodied continuum linking the meaningful emotions of the soul to the supposedly mechanical motions of nature. What happened is that a convenient method of parsing experience was falsely reified into a bifurcated ontology, leading modern Western people to believe, tragically, that they had disenchanted the world (Latour, 1993, p. 114ff). Moderns convinced themselves that the whole universe comes to nothing through the anthropocentric conceit that all meaning is lodged within the human skull.

Whitehead's cosmology is an invitation to consider an alternative vision that is not only compatible with but also more coherently integrates what natural science has revealed about the universe over the last century. Philosophers need not continue to commit what Whitehead diagnosed as "the fallacy of misplaced concreteness" by mistaking abstract models of reality for concrete transactions with it. Philosophers still always inhabit a universe of inextricably meaningful relationships, "acting in and on a world that also acts on us," as Dreyfus and Taylor (2015) put it (p. 18). The classical scientific concept of causality makes it impossible to understand how the physical world's action on minds could be anything but the impact of blind forces devoid of intrinsic meaning or value, thereby opening an unbridgeable gap between the deterministic space of causes and the voluntaristic space of reasons. Whitehead's philosophy of organism is a protest against this way of constructing the metaphysical arena. "What I am essentially protesting against," Whitehead (1920) explains,

is the bifurcation of nature into two systems of reality . . . , namely into the nature apprehended in awareness

and the nature which is the cause of awareness. The nature which is the fact apprehended in awareness holds within it the greenness of the trees, the song of the birds, the warmth of the sun, the hardness of the chairs, and the feel of the velvet. The nature which is the cause of awareness is the conjectured system of molecules and electrons which so affects the mind as to produce the awareness of apparent nature. The meeting point of these two natures is the mind, the causal nature being influent and the apparent nature being effluent . . . Thus there would be two natures, one is the conjecture and the other is the dream. (pp. 30-31)

Whitehead (1920) did not just protest against the bifurcation of nature, he articulated an integral cosmological vision that accounts for "the all-embracing relations" (p. 31) active in a human person's felt experience of warmth as much as in the energetic vibrations of photons radiating to them from the Sun. What does the experience of warmth have in common with photons radiating from the Sun? How do the two aspects of reality hang together? Whitehead's bold re-imagining of the mediational frame beckons us to inhabit a world wherein experience as such—James' "pure experience" (1904)—is the all-embracing relation that permits transmission across the chasm that only seems to separate physical nature from meaningful mind. The cosmos is not composed of bits of material scattered in empty space obeying fixed, externally imposed laws, but an evolving community of experiential agencies, or what Whitehead calls organic societies of actual occasions, actively and sensitively engaging in an ongoing "choreography of coexistence," to use Varela and Maturana's (1992, p. 248) wonderful turn of phrase.

Varela's autopoietic paradigm in biology (Weber & Varela, 2002), and he, Thompson, and Eleanor Rosch's (1992) enactive paradigm in cognitive psychology (see also Thompson, 2007) provide examples of organic as opposed to mechanistic approaches to the natural sciences. Such approaches follow James, Whitehead, and Gendlin in taking the embodied roots of experience seriously. Varela and Weber (2002) have argued that "organisms can be said to transcend the neutrality of pure physics and to create . . . an intentional world"; organisms are thus "subjective in the strong sense of the word" (p. 118). Thompson (2007) once denied that single cells have anything like intentionality (p. 161).

In conversation with the present author, Thompson has come to describe his more recent work as “a rethinking of the concept of ‘nature’ in a post-physicalist [and post-dualist] way,” cautioning, however, that this “doesn’t entail that nature is intrinsically or essentially experiential” (Segall, 2013b). Whitehead’s cosmological scheme’s most important divergence from embodied or enactive phenomenology is that it affirms nature’s intrinsic experientiality. From Whitehead’s perspective, not doing so leaves philosophy with no less profound an ontological gap than that left by Descartes. If this is no longer a gap between mental and material substances, then it is still a gap between supposedly neutral physical processes and the values and concerns of biological organisms. Whitehead’s panexperientialism goes beyond the still residually bifurcated autopoietic paradigm by denying the supposed purity of physics: organismic feelings are as intrinsic to physical processes as they are to psychical processes.

Whitehead sometimes referred to his philosophy of organism as a *speculative* form of realism. Indeed, this seems to be the reason for Thompson’s resistance to it (“I [Thompson] don’t think we are in a position to know [what panexperientialists claim we can know]” (Segall, 2013b). But Whitehead’s ontological wager is simultaneously a *radically empirical* approach, the main motivation for which is to provide a more coherent account of living experience than that offered by scientific materialism or transcendental phenomenology. Following Friedrich Schelling (2007), Whitehead’s organic realism could be described as a form of “higher” or “metaphysical empiricism” (p. 169; see also Segall, 2016a, p. 71). Whitehead grounds experience in energetic processes that run deeper than the collisions between the spatialized surfaces of material bodies that the mind is supposed to gain access to through nothing but the outward facing senses. Whitehead (1979) refers to this more superficial mode of experiential access through the outward facing senses as “presentational immediacy” (p. 121ff). A more deeply rooted form of *temporal* experience, what Whitehead (1979) refers to as “causal efficacy” (p. 121ff), puts the mind in direct contact with, and is itself an expression of, physical processes. By rooting experience in energetic transmission itself, Whitehead thereby overcomes the bifurcation between psyche/life and physics that is intrinsic to the mediational frame.

Where Dreyfus and Taylor (2015) extend Merleau-Ponty’s “unmediated body-based intentionality”

(p. 48) only to humans or animals, and where other embodied phenomenological thinkers go only so far as to allow biological intentionality, Whitehead’s panexperientialism grants to every society of actual occasions in nature—whether electromagnetic, cellular, neural, or stellar—at least “prehensional” contact with its surroundings (Segall, 2016a, p. 143ff). The concept of prehension is Whitehead’s attempt to resolve what Dreyfus and Taylor (2015) call the most “notorious problem of the tradition of modern philosophy” (p. 29) by articulating a truly amphibious account of the apparent boundary between spontaneity and receptivity. Whitehead’s new concept of prehensive unification is offered as a replacement for the more abstract concept of causal impact and its associated view of a dead and disconnected nature whose final real constituents are fully and inertly present “at an instant.” Instead, prehension entails a process-relational view of the concrete passage of living nature, where the final real creatures composing nature are not inert material things but actual occasions of experience. Concrete nature is thus “a complex of prehensive unifications,” with space and time “[exhibiting] the general scheme of interlocked relations of these prehensions” (Whitehead, 1967, p. 72). Each actual occasion “arises as an effect facing its past and ends as a cause facing its future” (Whitehead, 1933, p. 194). Each occasion of experience’s concrescence of past effects with future possibilities breathes life into the present moment again and again, providing the eternal pulse driving nature’s becoming. Whitehead (1979) writes:

The oneness of the universe, and the oneness of each element in the universe, repeat themselves to the crack of doom in the creative advance from creature to creature, each creature including in itself the whole of history and exemplifying the self-identity of things and their mutual diversities. (p. 228)

“We find ourselves in a buzzing world, amid a democracy of fellow creatures,” as Whitehead (1979) puts it elsewhere (p. 50). The most concrete reality of the cosmos is thus not a static structure but a creative and relational process, more an open-ended “Creality” (Segall, 2016a, p. 25) than a finished reality. Living nature is thus described most concretely by Whitehead (1933) as “the throbbing emotion of the past hurling itself into a new transcendent fact” (p. 177).

Whitehead’s unbifurcated interpretation of the relationship between the physical nature known to

science and the conscious human doing the knowing is a systematic cosmological extension of James' radical empiricism. James is another thinker not mentioned by Dreyfus and Taylor whose more than century-old efforts to overcome the mediational picture by way of a radical return to experience are more than relevant to the successful navigation of their dilemma. It is hardly an exaggeration to say that James already traversed the territory Dreyfus and Taylor (not to mention Heidegger, Wittgenstein, and Merleau-Ponty) tried to cover. James' radical empiricism was an attempt to dissolve the mediational epistemology's abstract, dualistic conception of the relation between knowing subjects and known objects. For much of Western philosophical history, James (1904) wrote in his essay "A World of Pure Experience," the process of knowing reality

has assumed a paradoxical character which all sorts of theories had to be invented to overcome. Representative theories put a mental "representation," "image," or "content" into the gap, as a sort of intermediary. Common-sense theories left the gap untouched, declaring our mind able to clear it by a self-transcending leap. Transcendentalist theories left it impossible to traverse by finite knowers, and brought an Absolute in to perform the saltatory act. All the while, in the very bosom of the finite experience, every conjunction required to make the relation intelligible is given in full. . . . Knowledge of sensible realities...comes to life inside the tissue of experience. It is *made*; and made by relations that unroll themselves in time. . . . That is all that knowing . . . can be known-as, that is the whole of its nature, put into experiential terms. (pp. 539-540)

Dreyfus and Taylor's attempt to heal the mediational wound alienating moderns and postmoderns alike from contact with reality fails as soon as they cede the *in itself*—the known objects of a bifurcated nature—to the falsely ontologized methods of instrumental science. Furthermore, by restricting the *for itself* structure of subjectivity exclusively to humans, or at most extending it to animals or cellular life, their approach remains anthropocentric and residually Cartesian.⁸ Whitehead's cosmological generalization of Jamesian radical empiricism does not challenge Dreyfus and Taylor's (2015) conviction that "natural science describes the structure of the universe in itself with which our coping is, from the start, in direct contact" (p. 144). It just asks

what the structure (or, better, the creative process) of the universe must be like at the most primordial level such that the evolution of creatures capable of adaptive and intelligent coping makes any sense. How is it that the universe over which humans think they are gaining progressively more technological control has generated experiential agencies capable of getting such a handle on it? What sort of primordial conditions could have allowed for such increasingly conscious consequences? To accept the problem space of this question as one in which blind causality must somehow be understood to transact with, and even to have produced consciousness, is to wander right back into the thicket of the mediational frame. Whitehead's cosmological scheme demolishes the mediational frame once and for all, allowing philosophers to step back into a full-blooded reality within which vibrating photons and beautiful sunsets carry equal ontological weight. Whitehead (1968) invites philosophers to imagine a world wherein "the energetic activity considered in physics is the emotional intensity entertained in life" (p. 168). It is a bold and radical ontological wager that might just be worth the risk.

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Notes

1. Several critical reviews of *Retrieving Realism* have been published. These include articles by Godfrey-Smith (2015) and by Roth (2015), as well as a blog review by Gerlach (2015).
2. Keeping in mind that the discussion of propositions in *Retrieving Realism* fails to distinguish between verbalizable logical judgments and the sorts of non-conscious “propositional feelings” described by Whitehead (1979), it seems clear enough that Whitehead would have had more sympathy for the spirit of Dreyfus and Taylor’s perspective than for McDowell’s. Whitehead articulated a generalized theory of propositional feelings that distinguishes unconsciously prehended propositions from linguistic judgments by conscious subjects (a distinction most logicians fail to consider). He thus extends the role of propositions in the universe far below the level of human thought and perception all the way down to the fundamental processes of the physical world.
3. See Segall, 2013a for an alchemical approach to cosmological hybridization.
4. See Segall, 2016a, p. 247ff for a less procrustean, Schellingian-Deleuzian rendering of Whiteheadian theology. See also Segall, forthcoming 2017 for a Whiteheadian account of the evolutionary history of human religious expression.
5. The term was originally coined by Gaston Bachelard (1953), but is now widely employed in scholarly literature to refer to the modern entanglement of scientific knowledge, technological power, and society (see also Latour and Woolgar, 1979).
6. To be fair, Dreyfus and Taylor (2015) do mention the “Gaia principle” (p. 156) in passing as an example of a nascent view of nature arising to challenge the still dominant view of nature as a dead resource to be exploited (on the philosophical implications of Gaia theory see also Segall, 2012). But they fail to recognize the significance of the full spectrum of new paradigm sciences that have emerged over the last century.
7. See Segall, 2016b for a more detailed treatment of Whitehead’s novel philosophical interpretations of these 20th century scientific paradigms.
8. This is because the gap between life and dead matter is no less ontologically profound than the gap Descartes inserted between extended bodies and thinking minds.

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