

The Medial Character of Interdisciplinarity: Thinking in the Middle Voice

by

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Abstract: Little research has been done on philosophical implications of the middle voice of early Greek and certain non-Western indigenous languages. In particular, the potential of such a medial ontology has yet to be even explored, much less realized, within the context of interdisciplinary studies. As a linguistic structure indicating an ambiguous middle ground between active and passive voices, the middle voice suggests a medial ontology that I develop with reference to Plato's late dialogues. I argue that conceiving interdisciplinarity in medial terms integrates at least some otherwise disparate interdisciplinary approaches, approaches that themselves stem from different disciplinary spheres of influence. Rather than proposing a global theory of interdisciplinarity, this article defends the medial resolution of a tension within interdisciplinary studies between construction and discovery, thereby suggesting an ontological point of departure for the development of such a theory.

Keywords: middle voice, Plato, interdisciplinary studies, interdisciplinarity, ontology, science, humanities, learning

Introduction

There has been scant research done on the philosophical implications found in the middle voice of early Greek and certain non-Western indigenous languages. While it is ordinarily regarded as a linguistic structure situated ambiguously between the active and the passive, some have argued that it suggests a *medial ontology* that facilitates understanding certain kinds of phenomena that would otherwise prove to be difficult if not impossible to properly grasp (Bigger, 1996, 2005; Scott, 1989). While the potential of such a medial ontology has yet to be realized in many domains, philosophical appropriations of the middle voice have been made within hermeneutic, biological, historical, and ecological

registers (Eberhard, 2004; Kisner, 2014; La Greca, 2014; Llewellyn, 1991, respectively). However, its usefulness within the context of interdisciplinary studies has not yet been explored. In this article I argue that learning in general is an emergent phenomenon whose process can best be characterized in terms of a medial ontology. Such an ontology can account for possibilities of emergent novelty in the learning process that are encountered in an ambiguous “middle ground” between active mastery and passive reception. Drawing from Plato’s late dialogues, I then argue that conceiving interdisciplinarity in such terms opens a path toward the integration of the otherwise apparently disparate interdisciplinary approaches of the empirical sciences on the one hand and the humanities and social sciences on the other, on the basis that the tension between them is based upon metaphysical assumptions that we need not make. Rather than proposing a global theory of interdisciplinarity, this article defends the ontological resolution of a tension within interdisciplinary studies between construction and discovery and, in doing so, points toward a possible departure point for the development of such a theory.

A Tension in Interdisciplinarity

Angus McMurtry (2009) identifies two general orientations within interdisciplinarity as practiced: orientation to *the thing itself* and orientation to *human access to the thing*. He argues that interdisciplinary practice generally falls on either side of this divide between the phenomena-focused and the socioculturally-focused without bridging them. Whereas the “hard” sciences tend to engage in interdisciplinarity in order to solve a problem in the thing itself, the humanities and social sciences tend to engage in interdisciplinarity in order to assemble a useful variety of approaches to the thing itself. We might characterize these two orientations as involving a tension between discovery and construction. Put differently, this tension is a contemporary manifestation of the age-old opposition between realism and idealism.¹

Ted Toadvine has highlighted some of the problems that arise when construction and discovery are perceived as separate and respectively relegated to the humanities and sciences. Although he has in view primarily

¹ Although this tension is most visible in the modern contrast between the humanities and the empirical sciences, it is not always or only articulated in this way. With respect to art objects vis a vis history, philosophy, and linguistics, Mieke Bal observes that “both the respect due to the objects and the need to analyze critically whether and how they serve the people they address in the most adequate way are two requirements potentially in tension with each other,” leading her to conclude that tension per se “is indispensable and sometimes overrules the wished-for integration.” (Repko et al., 2012, p. 92) I argue that such tension, far from being indispensable, is in fact based upon a false dichotomy that is resolved through an ontological clarification suggested by the middle voice.

the kind of interdisciplinary practices associated with environmental issues, I believe they can be generalized to the field of interdisciplinary studies per se. According to him, many of the misconceptions of interdisciplinarity come down to two erroneous assumptions: that “‘problems’ are just given, independently of any context or values, and independently of any disciplinary assumptions,” and that “the methods specific to the humanities, which I call ‘hermeneutic’ methods in contrast to the empirical methods of the sciences, have no significant role to play of their own outside of a problem-solving context” (Toadvine, 2011, p. 3).

Revisiting the now commonly made claim that the way problems are identified and framed is not value free, Toadvine argues for the necessity of a more robust contribution to interdisciplinarity from the humanities in general and from the field of hermeneutics in particular. He rightly argues that framing problems exclusively in empirical terms serves to conceal normative issues that may also be operative, and if humanities scholars merely dress up such empiricist assumptions for public consumption then their critical function, and thereby the kinds of unique contributions they can make, have been lost.²

But above and beyond the normative issues that may be concealed by empiricist assumptions, I would also suggest that the way problems are identified and framed may conceal *ontological* assumptions that remain unquestioned both when empirical approaches are privileged *and* when the contribution of the humanities is conceived solely in terms of meaning and values.³ For this reason I remain unsatisfied with Toadvine’s conclusion:

² Robert Frodeman makes a similar assumption in his critique of Newell’s as well as Repko’s proposed interdisciplinary procedures (Frodeman, 2014, pp. 44 and 56, footnote 7).

³ “Ontology” is the study of existence or being, and by ontological assumptions I mean assumptions about the being of the matter of inquiry that are not made explicit and wind up embedded within the way that matter of inquiry gets framed in terms of problems. Hence consigning the determination of “the facts” to empirical research while relegating the determination of value to the humanities remains unsatisfactory to the degree that the “facts” are themselves tacitly understood in terms of uncritically adopted ontological categories. Such ontological categories determine the way those facts appear as well as what constitutes a “fact” in the first place. To inquire about how what are taken to be “facts” appear the way they do and what allows them to appear that way is to think at the ontological level, as opposed to taking such appearances at face value and then seeking to verify hypotheses about them. For example, one can empirically confirm or disconfirm statements about the chemical composition or market value of a painting by Mondrian. But when we step back and ask whether or not the being of this work of art is properly understood when framed as a physical object with measurable properties or as a commodity in terms of exchange value, we are engaging in an ontological inquiry about the nature or being of art. It is at such an ontological level that I wish to address interdisciplinary learning and research.

“Empirical research is needed to establish facts, while hermeneutical research interprets the broader implications of those facts for the meaning and value of our lives”(Toadvine, 2011, p. 4).⁴ The problem here is that the wedge indicated by McMurtry remains firmly in place – science tells us what the facts are, and the humanities and social sciences critically assess the way these given facts are framed in terms of problems.⁵ One side addresses the thing itself, while the other side addresses our access to it in terms of the normative values and meanings that frame it. Reality is seen to be given independently of any contribution on our part, with respect not just to the purported problems themselves but also to the way they get framed as problems in the first place. So whereas McMurtry and Toadvine focus on interdisciplinary practices, I want to look at the ontological understanding of the world that informs these practices. As I will show, such an inquiry also responds to William Newell’s call for addressing interdisciplinarity at the process level:

Unlike disciplines, interdisciplinary studies as we now understand it is characterized not by a particular subject matter, but rather by its distinctive approach or process, which both embraces and transcends the disciplines. Any theory of interdisciplinary studies, then, needs to explain that process. (Newell, 2013, p. 31)

Although the tension between discovery and construction has certainly taken on a modern twist in the context of an academic division between the hard sciences on the one hand and the humanities and social sciences on the other, it has ancient roots. In Plato’s *Sophist*, the tension appears as one between the sophist who constructs an appearance of being through the art of rhetoric and the philosopher who discovers real being through knowledge.⁶ The paradigmatic exemplars are Protagoras, for whom “man is the measure of all things” and therefore constructs for himself what counts as true, and

⁴ To be fair, given Toadvine’s leanings toward Merleau-Ponty, it’s not difficult to imagine that he would be sympathetic to drawing out ontological implications above and beyond normative assessments of the facts presented by empirical science, but such considerations may have simply fallen outside the scope of his relatively short essay. Certainly the phenomenological tradition not only questions how facts are framed “after the fact,” but also questions what counts as “fact” in the first place.

⁵ Although Toadvine limits his argument to the humanities, the social sciences also engage in the kind of normative evaluation discussed here and to that degree fall on the same side of the division between the facts themselves and the way they get framed – hence my inclusion of it here.

⁶ Stanley Rosen characterizes the tension as one between acquisition and production that yields two versions of Platonism (Rosen, 1983, pp. 5, 14-15). Since the middle voice does not appear anywhere in his radar, however, Rosen remains saddled with what in my view had already become a false dichotomy for Plato.

Socrates, for whom one discovers truth by leaving the shadows of the cave to see things as they truly are in the light of the sun (Plato, 1969: *Republic* 514a-516b). In Plato's treatment, this neat division between philosophy and sophistry is called into question by the failed search for the true form of that which renders problematic the very relation between forms and their images, that is, the "form" of the sophist. When the search for the form of the sophist reaches its culmination, that form turns out to be indistinguishable from a description of Socrates, thereby rendering problematic the very distinction between creation and discovery upon which Platonism had been founded. As Gilles Deleuze put it, "The final definition of the Sophist leads us to the point where we can no longer distinguish him from Socrates himself – the ironist working in private by means of brief arguments" (Deleuze, 1990, p. 256). I will return to Plato and the ambiguous middle ground between creation and discovery below, but first I wish to clarify the modernist form this tension has taken, in which it has come to pervade academic discourse.

The Kantian Paradigm

In the *Critique of Pure Reason*, the German philosopher Immanuel Kant (1929) recasts the tension between discovery and construction in the modernist terms of a post-Cartesian opposition of consciousness to the external world. On one side lies human consciousness with its various concepts through which it tries to understand the world, and on the other side lie the multitude of sensory things in the world that have no necessary relation to our concepts about them. This opposition generates the modern epistemological problem of how our consciousnesses "in here" can get over to a reality "out there" so as to ensure that the way we represent the world to ourselves in our heads matches that reality. Whereas Descartes famously appeals to God as the sole assurance that our thought can come into accord with reality, Kant, having rejected Descartes' argument for God's existence, cannot take this route. Instead, Kant overcomes the dualism by bringing both sides of the opposition into consciousness itself. What the things we experience actually are, he argues, is the result of a multiplicity of sensory impressions getting organized by categories that belong to our ways of understanding the world. Hence the things we encounter in our experience are actually constructions resulting from the unification of pregiven sensory stimuli with concepts in our heads. These concepts then act as "filters" that present a coherent world to us. The sensory multiplicity is simply given and plays a passive role with respect to the activity of the understanding that organizes it under concepts.

Does this mean that we construct the world? Yes and no. We do indeed construct the world *as it appears to us*. This is the world of “phenomena” or things “for us.” Since for Kant it makes no sense to speak of appearance without also thinking of it as the appearance *of* something, there must be something behind the appearance. But we have no access to what this “something” might be in itself, since we only have access to it through our filters. Whatever things are *apart* from how they appear to us through our filters we can never know, since “knowing” is always already an experience of the world through our categorial filters. Thus Kant calls whatever things might be apart from our filters “things in themselves,” and he consigns them to a realm of “noumena” to which we have no access whatsoever. All we have access to are “phenomena,” which are in part the givenness of sensory plurality and in part conceptual organization. So there is a reality out there that we do not construct, but we can never know what it is in itself – we only know it as it appears to us through our filters, and that appearance is what we call “experience.” In short, we only know the reality we construct and, while there is a reality we don’t construct, we can never know it.⁷ But since, according to Kant’s argument, knowledge has never been nor will ever be anything other than the construction of what constitutes objectivity, replete with criteria of evaluation distinguishing it from the capriciousness of subjective contingencies, it makes no sense to talk about an “objectivity” outside of that framework. In other words, for Kant, such construction doesn’t compromise what objectivity means since that’s all “objectivity” has ever meant, and there is a necessity to the way objectivity gets constructed that gives it its objective character.⁸

⁷ Strictly speaking, Kant cannot even say that things in themselves actually exist, since that would be to presume to know something about them. Hence his argument is that the *thought* of things in themselves is a thought that *we must think* insofar as we cannot think of appearance in any other way than as *something that* appears. Of course, as anyone acquainted with phenomenology knows, and as we will see from the perspective of the middle voice, that imperative is hardly one we need recognize. From the perspective of this article, at any rate, we can indeed think of appearance in medial terms without positing a something-or-other that “does” the appearing.

⁸ Although empiricists may object that independently gathered empirical evidence converging on a similar result indicates something about reality in itself apart from our representations, Kantians will reply that whatever the object of such research may be, it will still be conceived in terms of unity, plurality, substance, causality, etc. – viz., all the categories that belong to the understanding. We cannot *not* conceive of an object of research in terms of the categories, and so it will invariably appear to us in terms of those categories. Hence whatever it may be outside of those categories we can never know. But for Kant this doesn’t compromise objectivity since that’s all objectivity is and has ever been. Any attempt to describe reality as it may exist apart

Now even though for Kant our filters are ahistorical categories such as unity, plurality, substance, causality, and so on, they need not be conceived as ahistorical. In this respect the hermeneutical approach to knowledge is still essentially Kantian insofar as it posits historical, cultural, and sociological filters. In other words, as soon as we say that our only access to reality is through a set of filters, whether those filters be conceived as ahistorical, historically determined, or even hardwired in our DNA, we are still in a quasi-Kantian universe.⁹ That universe can also be recognized in McMurtry's contrast between the thing itself and our access to the thing itself.¹⁰

from the necessary structure of what constitutes objectivity (which is a unification of sensory plurality under categories) makes little sense, since the terms used in the description will belong to the way things are given through categories. Objectivity is secured by the necessary structure governing the way sensory plurality is unified under concepts, not by access to things in themselves. For Kant, there is no end-run around this. At any rate, it is not my intention to defend the Kantian position here. The postmodern twist is that when the categories are historicized, the necessity that objectivity presupposes is lost, and we land in relativism. To that, empiricists may rightly object. My own objection to it, as will be seen below, is that it is based upon ontological assumptions we need not make.

⁹ To be sure, Kant is not the only example of this kind of thinking, which I call "transcendental thinking" and which consists in positing a privileged variable as a determiner that is not itself determined in the process. Hence the "filters" have a transcendental function whereby they determine without themselves being determined in the act of determining (which is not to say that they are not historically determined at all). But in the Western philosophical tradition it was Kant who first systematized it as a form of philosophical thought, and who was for that reason targeted by the Hegelian critique. For a further development of this argument about transcendental thinking with respect to a specific example, see Kisner, 2017. For accessible glosses on the critique of transcendental philosophy in general, see Houlgate, 2006, pp. 103ff; Kolb, 1986, pp. 222ff. and passim; and Winfield, 1989, pp. 16ff. and passim.

¹⁰ Although Kant would say that the "thing itself" in this opposition is really a thing "for us" insofar as it can only appear to us at all through the categories that make it an accessible object of scientific investigation, scientific researchers in practice don't worry about such metaphysical matters and proceed *as if* direct access to the thing as it is in itself is unproblematic and subjective contingencies can be eliminated or at least minimized by the scientific method. Nonetheless, to the degree that science is concerned about the thing itself while the humanities and social sciences are concerned about access to it, the entire opposition falls within a post-Kantian framework, even if from a Kantian perspective it may appear to be metaphysically naïve.

But a truly robust interdisciplinarity cannot be limited in focus to one side of this contrast while excluding the other. As interdisciplinarians, we can neither reject the humanities or social sciences in positivistic zeal nor be satisfied with giving up on a reality that lies outside human constructions. Nor again can we settle for the kind of pseudo-interdisciplinarity in which one side subsumes the other, which would be disciplinary hegemony rather than *interdisciplinarity*¹¹ (e.g. the current trend in everything “neuro” that translates all socio-cultural phenomena into physiological terms, or the belief that there are no universals because everything is culturally determined, etc.).¹² Expressing dissatisfaction with the opposition between construction and discovery, William Newell states, “I am increasingly frustrated by either/or ontological thinking that presumes we either have full, direct access to reality or no knowledge of reality at all. As interdisciplinarians, we need to get past such dichotomies”(cited in McMurtry, 2009, p. 10).

I will now turn to a few key passages in Plato’s late work in order to sketch the contours of a medial ontology, suggested by the linguistic category of the “middle voice,” in terms of which such either/or ontological thinking is shown to presuppose a false dichotomy by limiting itself to the categories of activity and passivity. A medial ontology will be shown to facilitate understanding the learning process in general and hence also interdisciplinary learning. Then I will return to the dichotomy between the thing itself and our access to the thing itself, indicated by McMurtry with

¹¹ For a more developed argument regarding such pseudo-interdisciplinarity, see Robert Pippin’s lecture “Transdisciplinarity, Interdisciplinarity, Reductive Disciplinarity, and Deep Disciplinarity,” available at <https://www.youtube.com/watch?v=X31J9gm1KXM> (retrieved August 2017). For a critique of certain conceptions of interdisciplinarity that relegate the humanities to public relations for the sciences, in which the humanities can learn about reality from the sciences but not vice versa, see Toadvine, 2011.

¹² The problem here is not so much that one particular discipline (e.g. neuroscience or biology) subsumes another (e.g. philosophy or sociology), but rather that ontological assumptions drawn from the general sphere of empirical science with all of its subdisciplines are reductively taken to “explain” the phenomena traditionally addressed by the humanities and social sciences, or, conversely, that ontological assumptions drawn from the general sphere of humanities/social science are reductively taken to “explain” the phenomena addressed by the empirical sciences. Thus an ontological paradigm of physicalism or mechanism drawn from empirical science informs the reduction of phenomena traditionally addressed by the humanities and social sciences (ethics, aesthetics, etc.) to neurological “mechanisms,” or the objectivity claimed by science is reduced to being an effect of forms of social or economic domination. It is precisely because such ontological assumptions are at work that ontological clarity is needed. Such clarity, I argue here, can be gained through the middle voice.

respect to interdisciplinary studies, to show the relevance of medial ontology to interdisciplinarity.

The Middle Voice

Let's take the following passage from Plato's *Theaetetus* as our introduction to the middle voice:

Now when the eye and some appropriate object which approaches beget whiteness and the corresponding perception – which could never have been produced by either of them going to anything else – then, while sight from the eye and whiteness from that which helps to produce the color are moving from one to the other, the eye becomes full of sight and so begins at that moment to see, and becomes, certainly not sight, but a seeing eye, and the object which joined in begetting the color is filled with whiteness and becomes in its turn, not whiteness, but white, whether it be a stick or a stone, or whatever it be the hue of which is so colored. And all the rest – hard and hot and so forth – must be regarded in the same way: we must assume, we said before, that nothing exists in itself, but all things of all sorts arise out of motion by intercourse with each other; for it is, as they say, impossible to form a firm conception of the active or the passive element as being anything separately; for there is no active element until there is a union with the passive element, nor is there a passive element until there is a union with the active; and that which unites with one thing is active and appears again as passive when it comes in contact with something else. And so it results from all this, as we said in the beginning, that nothing exists as invariably one, itself by itself, but everything is always becoming in relation to something, and “being” should be altogether abolished, though we have often – and even just now – been compelled by custom and ignorance to use the word. (Plato, 1921: *Theaetetus* 156d-157b)¹³

¹³ Charles Bigger also cites this passage as an illustration of mediality (Bigger, 2005, p. 217). If one reads this account of vision in the context of Plato's metaphor of sight as knowledge of being, with the eye being the most “sun-like” (*Republic* 508b), ontological implications become apparent. Even though in the *Theaetetus* Plato will have Socrates disavow the relativism of identifying being with perception (associated with the Protagorean claim that the human being is the measure of all things), the medial account of perception is allowed to stand. See Cornford's discussion (Cornford, 1935, pp. 48ff.).

With respect to perception, Plato here addresses the active/passive binary in such a way as to render any clear boundary between them ambiguous. Rather than regarding either perceiver or perceived as originary in the act of perceiving, he frames perception as a process in which the active and passive elements each come to be in and through their mutual interrelation. This divests the agent of the initiator role that is customarily regarded as the very definition of agency, and at the same time it elevates the passive element to a participatory role that is customarily denied to passivity *per se*. Neither passivity nor activity is an adequate concept for understanding the nature of perception, and in their interdependence the active side only exercises agency as a response to something it doesn't initiate, while the passive side only receives action to the degree that it solicits agency. The active is brought a little closer to the passive and vice versa, and in the entire process, as Plato puts it in the above citation, it is impossible to have any "firm conception" of either. Activity and passivity thereby take a back seat to a medial process out of which both first emerge, and making the medial character of that process explicit lends conceptual clarity to the interdependent emergence Plato suggests here while avoiding the temptation to posit agent initiators prior to that process.

Lingual roots to Plato's medial thinking can be found in his Attic Greek language. According to linguist Jan Gonda, the opposition of passive and active verb forms belongs to the classic post-Latin period and simply did not exist in proto-Indo-European languages. Rather, there were only active and middle voices. The middle voice indicated an event or occurrence without any implication that it came about through a prior causal agent (Gonda, 1960, p. 49). Although the Greek language retained the middle voice, it eventually lost much of its function, and this loss became complete in the prehistoric period of ancient Latin (Gonda, 1960, p. 41). The challenge is how to understand the middle voice without interpreting it in terms of the later active/passive dichotomy.

The middle voice indicated a process ambiguously experienced with regard to someone or something. Gonda cites the example of a Sanskrit phrase ordinarily translated as "he touches his mouth with water." When translated in a way that respects its middle voice, however, it would carry the sense that "in, with regard to, him the process of touching water takes place, with regard to his mouth" (Gonda, 1960, pp. 55–6). We might take playing an instrument as a less archaic example. If I were to talk about playing the guitar in the active voice I might say, "I play music on the guitar." On the other hand, if I were to phrase it in terms of the passive voice I'd say, "Music is being played on the guitar." However, the middle voice would require

something like: “Music happens through the guitar and myself.” As in Plato’s account of perception above, we see the passive and the active sides of the process arising mutually in and through their interrelation.

Revisiting the middle voice a few years after Gonda initially thematized it, Emile Benveniste calls attention to the fact that γίγνεσθαι, the Greek verb for “becoming,” *only* appears in the middle voice. Whereas the notion of “becoming” had no active form, the verb “to be” (εἶναι) appeared in the active voice only (Benveniste, 1971, p. 145).¹⁴ Even though the “subject” plays a role neither of active initiator nor passive recipient in processes characterized by “becoming,” it is nonetheless involved in some way: The subject “achieves something which is being achieved in him – being born, sleeping, lying (helpless or dead), imagining, growing, etc.” If a medial verb were to be given an active form, Benveniste suggests that the relation between subject and process would change such that “the subject, in becoming exterior to the process, will become the agent of it” (Benveniste, 1971, p. 149). The logic Benveniste finds implied in the transformation of the middle into the active voice seems to be that if the subject is to be the active agent-initiator of a process, s/he must in some sense be *outside* that process. Not only is a subject posited outside the process, but transitivity is also “a necessary product of this conversion from middle to active.” Hence the move from middle to active is a move from a subject inside an intransitive process to a subject outside a transitive process, thenceforth “to govern it as an agent” (Benveniste, 1971, p. 149). Through such a transformation in language, one might also be led to assume the real existence of subject-agents as initiators of processes in the world.

In spite of the fact that most modern languages lack a morphological middle voice, one can find examples of attempts to think in medial terms without making mediality explicit and perhaps without even realizing that the middle voice best characterizes what is being thought. Merleau-Ponty, for instance, writes of the creative process of painting as “the question of someone who does not know to a vision that knows everything, a vision that we do not make but that is made in us,” thereby calling attention to an “inspiration and expiration of Being, respiration in Being, action and passion so slightly discernible that we no longer know who sees and who is seen, who paints and what is painted” (Merleau-Ponty, 2007, p. 358). Or, as William Butler Yeats put it, “How can we know the dancer from the

¹⁴ For additional studies of the middle voice, see Allan, 2003 and Kemmer, 1993. For an account of the middle voice in a non-Western Aboriginal language that also indicates its temporal implications, see Beck, 2000.

dance?”¹⁵

Learning as a Medial Process

In attempting to clarify the meaning of interdisciplinary learning in medial terms, we first need to clarify the meaning of “learning.” Thus rather than begin from a theory of interdisciplinarity that presupposes what learning is, I propose to begin with an account of learning that is informed by the concept of the middle voice, and from there show its relevance to interdisciplinarity with respect to construction and discovery.

Ever since the ancient world, the phenomenon of learning has presented a quandary unresolvable in terms of the active/passive dichotomy. Once again, Plato introduces us to the problem. In the *Meno* dialogue, Meno, an erudite Athenian scholar and lecturer, asserts that the search for knowledge is paradoxical, to which Socrates responds,

Do you see what a captious argument you are introducing—that, forsooth, a man cannot inquire either about what he knows or about what he does not know? For he cannot inquire about what he knows, because he knows it, and in that case is in no need of inquiry; nor again can he inquire about what he does not know, since he does not know about what he is to inquire. (Plato, 1967: *Meno* 80e)

This conundrum of learning prompted Plato’s well-known recourse to the fanciful story of recollection, according to which all learning is a matter of remembering what we already learned in previous lives but have forgotten in this one. The takeaway for Socrates is that we’re better off “if we believe it right to look for what we don’t know than if we believe there is no point in looking because what we don’t know we can never discover.” Of course, those who take the story of past lives literally and assume Plato actually believed in some variant of reincarnation overlook the ironic disclaimer put in the mouth of Socrates when Meno immediately embraces the story: “Most of the points I have made in support of my argument are not such as I can confidently assert” (Plato, 1967: *Meno* 86b).¹⁶

But the conundrum of learning only arises if we assume that learning is

¹⁵ William Butler Yeats, “Among School Children” (<https://www.poetryfoundation.org/poems/43293/among-school-children>, accessed August 2017). Charles Bigger first called my attention to the paradigmatic character of this example.

¹⁶ Although the story reappears in a slightly different context in the *Phaedrus* dialogue, in my view a convincing case for a hermeneutical rather than literal interpretation can also be made there.

a matter of either actively seeking or passively receiving knowledge. That is, the tendency is to do one of two things – the learner is seen as an active subject and “knowledge” is information to be mastered, or the learner is seen as a passive recipient into whom information is introduced by active instruction. As an illustration of how learning falls outside this dichotomy, Socrates guides a young boy in Meno’s household to discover the solution to a geometrical problem. That process of discovery, however, can be characterized neither as passive reception of information from instruction nor as active mastery through effort. Plato tries to capture this ambiguity between active seeking and passive reception in the story of recollection.

Similarly, in a parallel account in the *Theaetetus*, we see the well-known claim of Socratic ignorance in the context of an analogy:

For I have this in common with the midwives: I am sterile in point of wisdom, and the reproach which has often been brought against me, that I question others but make no reply myself about anything, because I have no wisdom in me, is a true reproach; and the reason of it is this: the god compels me to act as midwife, but has never allowed me to bring forth. (Plato, 1921: *Theaetetus* 150c)

Socrates insists that if those who associate with him learn anything, it’s only because whatever they learned was discovered and “begotten” or brought into the world from within themselves, while he merely provided a service of facilitation like a midwife (Plato, 1921: *Theaetetus* 150d).¹⁷ Unlike the recollection story, the midwife analogy makes the role of the teacher explicit. Although in the *Apology* Socrates famously denied ever having been anyone’s teacher (Plato, 1966: 33a), he was likely distancing himself from the common perception of the teacher as a professional sophist who imparts a predetermined body of knowledge to passive students – that is, precisely the misperception of learning dispelled by understanding it in medial terms. The teacher’s role is not one of conveying information or training, but rather is one of aiding learners in giving birth to an understanding drawn from within themselves. The teacher stands in the medial interstices between activity and passivity, thereby enabling the learner to enter into the medial process of learning.

From the perspective of the learner, we do not begin to understand something by adopting the position of a determinate agent of action in control of the process. Nor do we begin to understand something as a passive recipient into whom a teacher introduces information like pouring

¹⁷ The sense of *τίκτω* is to “bring forth from within oneself” as in begetting or giving birth. Cornford also calls attention to the correspondence of the midwife analogy in the *Theaetetus* to the story of recollection in the *Meno* (Cornford, 1934, pp. 27ff.).

water into a potted plant (indeed, educators will be intimately familiar with the challenge of getting students to relinquish such passivity in order to participate in their own learning process). These conceptions of learning posit the learner outside the process either as agent or recipient. If there is a sense of agency relevant to the learning process, it is medially emergent as in the Platonic account of perception, as opposed to something assumed to exist in advance as a causal origin. The medial process is primary, and it is in terms of this process that agency and passivity emerge. Something like proto-agents and proto-patients may *result* from medial processes, as the “seeing eye” and the colored thing result from medial perception, but if we keep their medially emergent character in view we need not first conceive of them as substrata.

Such rigid conceptions of agent and recipient, however, may well have been invited by the decline of the middle voice in favor of the passive voice that was already well underway by Plato’s time. Once we are limited to the passive and the active voices for expressing the nature of events, a subject/object polarity may be suggested by the conceptual representation of an active subject of action and a passive object acted upon as both prior and external to any process that takes place with respect to them. Experience may more readily lend itself to being characterized in terms of such dualism when the structure of one’s language no longer has a voice for medial emergence.¹⁸

Plato’s Medial Ontology

Plato, however, had already indicated a path beyond these dichotomies. In the *Theaetetus* dialogue, which provided the medial account of perception above, the sophist, as exemplified by Protagoras, is cast as a partisan of becoming who identifies knowledge with perception. The medial character of perception means that the perceiver and the perceived do not first exist independently of each other and then subsequently come into the perceptual relation. Rather, it suggests that perceiver and perceived each mutually emerge through the medial process that perception is.¹⁹ In a world of constant becoming in which, according to the saying attributed to Heraclitus, I cannot step twice into the same river, I also never perceive the same thing twice. This is because the perceiver and the perceived, activity and passivity, have no firm being that persists independently of the flux. Hence no given perception can be shown by a better one to be mistaken, since it will never

¹⁸ For a development of this argument, see Scott, 1989.

¹⁹ See also Cornford’s gloss on this (Cornford, 1935, pp. 49ff.).

be a perception of the same thing. And if perception can never be mistaken, then Protagoras would be right to say that the human being is the “measure of all things.”

While Plato accepts the medial account of perception, the *Theaetetus* is concerned with demonstrating that knowledge cannot be simply identified with perception. Since knowledge presupposes at least some degree of stability in order to have something to know, in a world of pure becoming no knowledge would be possible, and hence even Protagoras’ statement could not be asserted as true since it would depend upon things remaining at least relatively stable in order to make a truth claim about them.²⁰ Insofar as the dialogue is occupied with becoming, however, it does not explicitly address the status of being. However, with the emergence of activity and passivity out of medial process, the account of perception *does in fact yield at least a relative constancy*. Indeed, as a result of this account a new form of nominalization was even introduced into the Greek language: ποιότης, “quality,” or the “ness” attached to adjectives like “heaviness” or “hotness,” etc.²¹ Hence the argument really only refutes the claim that an extreme and perhaps caricatured version of Heraclitus can yield knowledge, not that knowledge may be possible through a perception in which what we “know” are the relative constancies of medial emergence.

It is in the *Sophist* dialogue, however, that the hard division between eternal Platonic forms in the realm of pure being and the sensory flux of experience in the realm of becoming is deconstructed – which means that what we commonly think of today as “Platonism” was first deconstructed by Plato. In our terms here, it means that the hard separation between construction, associated with the sophist, and discovery, associated with the philosopher, is rendered untenable. The deconstruction is prepared by

²⁰ This is the well-known problem of self-refutation: if all things are relative to each person’s point of view, then to state that “all things are relative to each person’s point of view” is to state a universal claim as true irrespective of particular points of view. To say that “all truth is relative” is to claim a non-relative truth. See Cornford (1935) for an elaboration of the argument specifically with respect to Protagorean relativism as treated in the *Theaetetus*. Where I part company with Cornford is in the latter’s insistence that the constancy required for truth points back to the middle period doctrine of the eternal forms. In my view the *Theaetetus* actually points forward to the modified account of the relation between being and becoming we get in the *Sophist*, the *Timaeus*, and the *Philebus*.

²¹ According to Cornford, “This is the first occurrence in Greek of the substantive ποιότης,” which is a nominalization of “the adjective ποῖος, ‘of what sort’ or ‘nature’ or ‘character’ ... The word was coined as a general term for all characters like ‘hotness’, ‘whiteness’, ‘heaviness’ etc., the termination -της corresponding to ‘ness’ in English” (Cornford, 1935, p. 97, footnote 1).

a redefinition of being as the power to affect or be affected (Plato, 1921: *Sophist* 247e). In the terms we've been using in this article, we might say that being is redefined as the power to produce the active and the passive. On the one hand, the "giants," who appear in the *Sophist* as empiricists recognizing only sensory things as real, are brought to see that non-sensory things such as justice and virtue can have effects and be affected (and so are real in the redefined sense of being). On the other hand, the "gods," who appear in the dialogue as idealists recognizing only immutable being, are brought to see that their refusal to admit change into reality leaves it devoid of life and intelligence (Plato, 1921: *Sophist* 246a-249d). Hence the choice between being and becoming is a false choice, and the conclusion is that the seeker of knowledge must reject both changeless being and sheer becoming, each of which is shown to be a one-sided abstraction when taken by itself as the fundamental characteristic of reality (Plato, 1921: *Sophist* 249d).²²

This resolution of being and becoming is one example of Plato's metaphorical revamp of the Hesiodic *Theogony*, which relates a mythic story of the primal separation of *Gaia* and *Ouranos*, earth and sky, and the emergence of the human world in the gap between them. American philosopher Edward Ballard (1978, pp. 11ff.) argued that, for the ancient Greeks, the earth is associated with fertility, growth, change, and power, while the sky and its regular movements are associated with order, measure, and direction. Earth is the source of creative forces but, without direction, as sheer becoming it is self-destructive. The sky for its part provides direction but, without the powers of the earth, remains the empty formality of pure being. As with being and becoming, taken by themselves in mutual isolation they are the abstract limits of a single process, and the tension plays out between them as a battle between the Olympian sky gods and the earthly Titans. Plato turns this *Gaian/Ouranian* tension to philosophical use in the metaphorical battle between the giants, who stand in for the realist partisans of becoming, and the gods, who stand in for the idealist partisans of being. They are made to settle their differences in terms of a concept of being now defined as power to affect or be affected.

²² I am using the term "abstraction" in its etymological sense of "to draw away" in order to indicate the *movement* whereby one "draws away" terms and concepts from a process that can then be mistakenly or misleadingly employed to characterize the entire process, resulting in a one-sided or at best incomplete account. This is also the way Hegel would commonly speak of such terms, and is common usage in Hegelian scholarship. An abstraction is a one-sided concept whose deficiencies are not apparent as long as it is taken to represent the whole from which it is drawn. For a brief synopsis of its etymology see http://www.etymonline.com/index.php?allowed_in_frame=0&search=abstraction (retrieved August 2017).

The Greek word for “power” in this definition of being is δύναμις, also translatable as “capacity,” from the verb δύναμαι, which as a capacity to do or suffer is medial insofar as such a capacity is neither something I actively do nor something that happens to me. We also find this word employed in the *Republic* to denote the power of seeing and being seen (Plato, 1969: *Republic* 507c). As such a power of perception, it is the virtual capacity within medial process to generate the seeing eye and the seen thing, the perceiver and the perceived. In the *Sophist*, the notion of “participation” (κοινωνέω) is employed where the idealists admit that we participate in being through the soul and in becoming through the body, and such participation is said to be a “passive or active condition arising out of some power which is derived from a combination of elements” (Plato, 1921: *Sophist* 248b). Here again we see activity and passivity arising from a power of participation, which itself is neither active nor passive but is rather medial.

If we now bring all these concepts together, we have a new definition of being as the medial power to bring about the emergence of activity and passivity with respect to perceiver and perceived as well as knower and known. If the celebrated Platonic forms still play a role, they are no longer seen as the sole constitution of truth and reality, but are now understood within the larger framework of this new definition of being.²³ Hence Plato’s mature ontology is complex and no longer reducible to the dualism traditionally ascribed to Platonism.

A Medial Departure Point for Interdisciplinarity

In this new ontological framework, the hard and fast opposition between construction and discovery is rendered unstable. The thing in itself is known, but in being known it is affected, and the knowledge thereby gained is an emergent phenomenon resulting from the mutual participation of knower and known, each of which is medially emergent in a way that does not preexist that participation. The truth is discovered through the medial participatory

²³ Although Cornford claims that Plato did not accept the definition of being as power because the question about the meaning of being still seems to be regarded as unanswered at 249d (Cornford, 1935, p. 239), we could easily interpret this as a manifestation of Socratic ignorance, of which I do not believe Plato ever lost sight in spite of the presumptions to knowledge of the Eleatic stranger, thereby keeping the ontological question open. Indeed, even after the refutation of Protagoras in the *Theaetetus* Plato leaves open the possibility that, were Protagoras to suddenly stick his head out of the grave and speak to them, he might refute all of their arguments (*Theaetetus* 171c).

process that constructs it, and it is simultaneously constructed as a response to its emergent discovery. There is no noumenal “thing in itself” lurking behind this process, because the object of knowledge only emerges as such through the medial process that discloses it. Conversely, reality cannot be an ideal construction of the subjective knower, whether that be an individual consciousness or a cultural worldview, precisely because the “knower” as such only emerges through the same medial process. Insofar as both are medially emergent, neither can be posited in advance as the origin of the other or as independently given. Indeed, to “know” the object of knowledge *as independently given is itself only given within this medial structure* – that is, its very *appearance of independence* is itself a result.²⁴

In his late dialogues Plato was expressing a *medial logic* in which what emerges participates in the process of its own emergence, a participatory emergent process that can be characterized as medial. If we stay with this medial logic, we see that it’s a matter neither of pure discovery nor of pure construction. We disclose the matter of inquiry insofar as we allow ourselves to be called by it. The matter of inquiry, in turn, takes shape and reveals itself only through our questioning and the manner of our questioning. In our search for the truth, we are neither passive observers of something pregiven (naïve realism) nor active agent initiators of a purely constructed reality (naïve constructivism). Thought that is limited to the active/passive dichotomy always wants to push things to one side or the other. Those on the realist side may say, “If you don’t admit of unequivocal objective facts given independently of human consciousness, then you’re saying it’s all just made up.” Those on the constructivist side may say, “If you don’t admit that socio-cultural variables determine how you see the world, you’re a naïve realist blissfully unaware of your prejudices.” If we merely construct reality as we know it, as the constructivists say, it doesn’t exist independently of us and any reality beyond it is purely noumenal. On the other hand, if reality exists independently of us, as the realists say, then our constructions are irrelevant.²⁵ Either we actively construct reality, or we passively observe it.

But if our relation with the world is medial, the above opposition is shown

²⁴ In a way Kant already understood the process of knowing in a similar fashion, except that he had to posit a noumenal realm as that which appears in appearance and yet which can never be known insofar as all we know are appearances. With the medial account, we give up the belief that appearance must be an “appearance of” something, and rest content with appearance, having no need to posit anything behind it.

²⁵ Bruno Latour has criticized this view in the way the appeal to “nature” as a realm only accessible to scientific expertise functions to undermine the legitimacy of politics (Latour, 2004).

to be a false dichotomy, and we become world builders only by responding to the world that we have yet to build. To put it another way, we are solicited by the world we have yet to build, and we only become builders to the degree that we heed that call. There is an undecidable ambiguity between call and response, initiating and receiving, construction and discovery, an ambiguity that cannot be simply resolved in terms of activity or passivity without falsifying the situation.²⁶ But unlike the complexity theory Newell and McMurtry favor, a medial understanding of interdisciplinarity explicitly includes the researcher/learner in the interdisciplinary process. That is, it's not just about the complex phenomena that constitute the *objects* of study, but it's also and equally about the process of learning whereby we come to understand anything at all.

To be sure, Newell seems to include such a process when he asserts that interdisciplinary studies differs from the disciplines in that "it is characterized not by a particular subject matter, but rather by its distinctive approach or process" (Newell, 2013, p. 32). But that "approach or process" is itself understood as something rendered appropriate by the object of study, given its complexity. The latter, for its part, is not understood as something that might itself be determined by the approach or process. According to Newell, the "central insight" of his proposed theory of interdisciplinarity "is that the objects of interdisciplinary studies are all complex – indeed, that complexity is both a necessary and sufficient condition for interdisciplinary studies." Hence the process of interdisciplinary studies is grounded in the complex phenomena that require it. As he puts it, "To explain interdisciplinary process, then, one must understand the inherent nature of complexity itself" (Newell, 2013, p. 32). In other words, his approach still falls on the side of the "phenomena-focused" orientation in McMurtry's polarity. The process of interdisciplinarity is only called into play as a response to the kind of object that calls for it. But the other side to that polarity is the human contribution. To what degree does an interdisciplinary understanding participate in what the object of study is in itself? If we need not posit anything behind or beyond appearances in order to ground them (such as a Kantian noumenal realm), how might the process of coming to understand something affect how it appears? These kinds of

²⁶ My indebtedness to Heidegger is apparent in this formulation, which is an attempt to capture the futural dimension of medial events. When Heidegger asserts that the work of art "belongs, as a work, uniquely within the realm that is opened up by itself" (Heidegger, 2001, p. 167) he is thinking in medial terms of a future that is only made possible by the response to it even though it is "not yet." In such an advent that can only be heard in the response, call and response each mutually emerge in one medial process. In opening up interdisciplinary possibilities we project a world to come, one whose possibility is opened up by responding to it even though it is not yet.

questions extend complexity to the entire phenomenal field of study, including the one studying as well as what is being studied.

McMurtry, for his part, refers to “complexivist thinkers” who “emphasize that . . . knowledge, or knowing, is always a construction based on knowers’ own personal, social, and cultural history” (McMurtry, 2009, p. 9) which comes down on the side of constructivism. More in line with what I am advocating here, he further suggests that complexity science can “help to frame not only the phenomena ‘known’ or studied by disciplines, but also the disciplinary ‘knowers’ doing the studying ” (McMurtry, 2009, p. 9). But by this he seems to mean that the knowers themselves form a complex system that can and should be an object of study in its own right along with other complex phenomena. Granting this, complexity science then may offer the possibility of an over-arching discipline or approach that can effectively study socio-cultural phenomena as well as the natural phenomena of the hard sciences. But the “as well as” still partitions them off as separate objects of study – I can study a forest ecosystem in Guatemala and I can also study the internal socio-cultural dynamics within an academic humanities faculty, but what I’m not thereby addressing is the relation of such socio-cultural dynamics to the givenness of phenomena or to learning and knowledge per se. Even if I were to conduct a comparative study, in terms of complexity, of a group of humanities scholars and a team of biologists, ‘I’ who conduct the study remain outside the field of study, and the two groups are themselves regarded as given phenomena, albeit complex ones, that constitute the objects of study.

Although McMurtry suggests that complexity science might provide a “conceptual bridge” between sociocultural perspectives and physical/biological perspectives on learning, it’s not clear how that relation can be articulated or what it might mean. In the end we’re left with a normative claim that leaves the integration of construction and discovery unresolved, namely, that “a robust and generative understanding of interdisciplinarity (and interprofessionalism) should acknowledge both strands: that they exist, that they are different, and that each offers valuable insights,” but a realization of his suggestion that “interdisciplinary theorists need to start thinking about integrating these perspectives” seems a bit more elusive even in terms of complexity theory itself (McMurtry, 2009, p. 11).

But what he considers to be “most promising” with respect to such integration “are perspectives on how knowledge is enacted in dynamic and evolving couplings between knowers and the more-than-human world – rather than something isolatable in either the knowers or the

world” (McMurtry, 2009, p. 12).²⁷ This is precisely the kind of thing I am arguing for here with respect to understanding the learning process, and in particular the interdisciplinary learning process, in medial terms. Such an understanding is not merely a matter of epistemology, which lands us back in the two orientations McMurtry identifies insofar as either “perspective” could merely belong to the perceiver (what things are “for us”) rather than to the thing itself.²⁸ Rather, medial process must be understood ontologically insofar as perceiver/perceived, learner/learned, knower/known, etc. first emerge from that process. As long as we separate these emergent aspects of the process – on one side the thing as it is in itself, and on the other side our approach to it – we remain mired in a post-Kantian paradigm that makes the integration McMurtry calls for difficult if not impossible. But if interdisciplinarity is understood as a medial process, then there is no bridge to build between the phenomena-focused and socioculturally-focused tendencies McMurtry identified within it, because there is no ontological gulf in the first place between things themselves and human access to them. We need not settle for a position that appreciates both as different and independent in a *détente* in which each is accorded its rights. Understood medially, interdisciplinary engagement in order to solve a problem in the thing itself on the one hand and interdisciplinary engagement in order to assemble a useful variety of approaches to the thing itself on the other hand both belong within the same medial process of learning. The appearance of opposition is merely the result of neglecting to think outside of the active/passive binary. We don’t need to build a bridge between them because both kinds of interdisciplinary engagement are emergent moments within a more encompassing medial ontology.

In previous work I’ve attempted to show at least one way in which such a more encompassing medial ontology might be actualized – specifically, in terms of understanding what “life” is through both a philosophical derivation of ontological categories and an empirical model of autopoiesis generated within theoretical biology (Kisner, 2014). Limited to a strictly disciplinary perspective, biologists could all too easily view the former as at best simply lying outside their field or at worst an example of armchair metaphysical speculation having little basis in empirical reality. Viewed from within the

²⁷ McMurtry concludes by suggesting a few potentially fruitful directions for future research with respect to “a more useful and sophisticated way of thinking about disciplinary knowledge and interdisciplinary integration,” most notably Dewey’s theory of transactional realism, Merleau-Ponty’s phenomenology, and Maturana and Varela’s theory of enactivism (2009, pp. 12-13).

²⁸ Hence I believe we need more than “a more productive and integrated epistemology of interdisciplinarity” (McMurtry, 2009, p. 11).

disciplinary perspective of philosophy, the biological perspective could all too easily be seen as a naïve empiricism that fails to clarify the ontological categories framing its interpretations. Each discipline would thereby leave the other to itself. When the issue is seen in terms of the space opened up by drawing out the implications of the middle voice, however, philosophers need neither dismiss nor ignore biologists for failing to recognize their own hermeneutical frameworks, and biologists need neither dismiss nor ignore philosophers for failing to test their armchair speculations against the facts. As medial, reality includes both in a single process, and it is in that medial space that the two disciplines converge upon the truth of what “life” is, a truth disclosed through the middle voice of interdisciplinarity. Understanding the thing as it is in itself along with our approach to it as both emerging within a medial space of creation/discovery opens the partisans of sociocultural perspectives to physical/biological perspectives and vice versa – thereby replaying, in modern form, Plato’s battle between the gods, who hold to ontological ideas, and the giants, who will accept nothing but empirical realities (Plato 1921: *Sophist* 246a-247d). Put differently, through the middle voice the “common ground” sought by interdisciplinarians can be both indicated and ontologically clarified.²⁹

Precisely how such a medial space gets negotiated is a project yet to be determined, and in each case its specific character will have to take shape in relation to the phenomenon that is the object of the interdisciplinary study itself and the approaches to it. My intention in this article is simply to show that driving a wedge between creation and discovery is neither necessary nor productive, and the middle voice implies the possibility of a shared interdisciplinary space that opens up the (inter)disciplines to a disclosure that only takes place through their mutual participation within that space.

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²⁹ One cannot but notice the absence of ontological clarity in Szostak’s reference to such a “common ground” in his introduction to *Case Studies in Interdisciplinary Research* (Repko et al., 2012, p. 10). Indeed, ontology is entirely missing from the “four broad types of knowledge” he indicates (relying upon other authors) as necessary for determining which key disciplines should be consulted with respect to a given research question (Repko et al., 2012, p. 16).

in terms of Hegelian dialectic and the middle voice. He lives in the Canadian Rockies and ventures often into the mountains to experience the wonder that Plato called the beginning of philosophy. He can be reached at wendellk@athabascau.ca.

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