

The Bipartite Nature of Attention: Implications for the Phenomenology of Skillful Coping

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Tain McGilchrist's book *The Master and His Emissary* has important implications for the field of phenomenology and the cognitive sciences. In particular, his work on the bipartite nature of attention provides a way by which we can better understand the nature of skillful coping, which paradoxically seems to require careful but relaxed attention. McGilchrist's book begins with the thesis that the division of the human brain is the result of the need to simultaneously bring two incompatible types of attention on the world. In a recent edition of *Phenomenology and the Cognitive Sciences*, Rupert Read reviews *The Master and His Emissary*, claiming that, "Besides being a brilliant work, this book is an event" (119), and concluding that "No one who is seriously interested in the focal subject-matter of this journal can afford to ignore his book. At least not, as the saying goes, anyone with half a brain" (124).

In this paper, I will discuss the implications of recent research in the cognitive sciences on Hubert Dreyfus' phenomenology of skillful behavior and John Searle's logical analysis of such behavior. Dreyfus describes the process of engaging in skillful behavior as *skillfully coping*. 'Coping' is a broad word, used in a variety of contexts to imply the ability to deal effectively with something. Skillful coping, within the context of skill acquisition, is a subject that has been examined by philosophers from Aristotle to Heidegger, but most recently and extensively explored by philosophers

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John Searle and Hubert Dreyfus at UC Berkeley, along with their former students Mark Wrathall and Sean Kelly.

While skillful coping requires spontaneity and creativity, it also involves a sort of mechanization through routine repetition and practice. This presents a paradoxical difficulty, though: spontaneity seems to require the alertness of mental intentional states—in the form of thought—but also requires flow, or ease, which is inhibited by “thinking too hard.” This paradox was pointed out by Diderot concerning the art of acting: highly skillful actors seem to perform creatively, and with finesse, but, as if by habit, without having to think much about what they are doing. I argue that a model of the bihemispheric brain in which the right hemisphere is alert, though passive, while the left exercises careful control, provides a means by which the apparent paradox of skillful coping can be explained. Essentially, the lateralization of the brain produces bipartite attention, giving rise to the perceptual-motor feedback loops that are developed through experience—without the need for insight or understanding.

I. Two Modes of Attention Explain the Evolution of Skillful Behaviors

In *The Master and His Emissary*, Iain McGilchrist argues that the primary difference between the two hemispheres lies not in *what* they do, but in *how* they go about it. The left hemisphere preferentially deals with pieces of information in isolation, while the right hemisphere addresses the gestalt of the whole. According to McGilchrist, “Things change according to the stance we adopt towards them, the type of attention we pay to them, the disposition we hold in relation to them,” and thus, “the most fundamental difference between the hemispheres lies in the type of attention they give to the world” (4).

The division of the human brain, McGilchrist explains, is the result of the need to bring to bear two incompatible types of attention on the world at the same time. The right hemisphere gives rise to global attention, which takes precedence in “exploratory attentional movements,” controlling where it is that attention is to be oriented, while the left hemisphere “assists focused grasping of what has already been prioritized” (44). For example, a bird needs to focus “narrowly and with precision” to distinguish food from the ground on which it lies, but at the same time, must remain broadly aware of its surroundings, able to detect potential friends and foes. While the left hemisphere yields narrow, focused attention, mainly for the purpose of getting and feeding, the right hemisphere yields a broad, vigilant attention, “the purpose of which appears to be awareness of signals

from the surroundings” (27). In general, lateralization of the brain produces evolutionary advantages in carrying out dual-attention tasks, not only for the individual, but for the group, carrying advantages in social cohesion. These two modes of attention are essential for the development of skillful behaviors.

II. Two Modes of Attention and Our Understanding of Skillful Behavior

Similarly, two modes of attention are evident in our understanding of skillful behavior, and are exemplified in Aristotle, Heidegger, Husserl, and Merleau-Ponty’s descriptions of such behavior. Aristotle’s theory is of particular importance, given the breadth of its influence. His theory of intellectual virtue distinguishes between practical and theoretical knowledge: *praxis* is developed through experience, rather than rule-adherence, while *theoria* must be taught. Aristotle defines the good as that which functions well, and skillful coping is just this—dealing with something effectively. To cope skillfully is to function well. Aristotle claims that all activity aims at some end, and when it achieves that end, it can be considered good (2004: 1098a14–17). The good, for Aristotle, is defined in terms of virtue. Of this there are two species: moral and intellectual. Moral virtues, like crafts, are acquired by practice and habituation, while intellectual virtues are acquired by teaching (1103a14–18).

Aristotle describes *praxis* as active, embodied, and engaged with the world. In the *Nicomachean Ethics*, Aristotle explains that, “Anything that we have to learn to do we learn by the actual doing of it: people become builders by building and instrumentalists by playing instruments” (1103a33–35). He goes further, explaining that, “Men will become good builders as a result of building well, and bad ones as a result of building badly” (1103b10–12).

This allows him to conclude that, “We must give our activities a certain quality, because it is their characteristics that determine the resulting dispositions” (1103b21–22). These same characteristics apply to the virtues, which are acquired by “exercising them”—by actually *acting* virtuously rather than merely intending to (1103a32). For Aristotle, mastery can occur for any action that requires *practical* knowledge and wisdom versus *scientific* knowledge and wisdom. Practical, how-to *knowledge* isn’t sufficient to develop masterful coping behaviors. Also needed is practical *wisdom*—the ability to apply practical knowledge to concrete situations. Mastery is something that Aristotle is broadly concerned with; in three separate works—the *Nicomachean Ethics*, *Rhetoric*, and *Poetics*—he describes the mastery of moral behaviors, the mastery of oration, and the mastery of playwriting and storytelling.

Theoria, on the other hand, is contemplative, aiming to produce truth rather than action. As he states in the *Nichomachean Ethics*, “To arrive at truth . . . is the function of the intellect” (1139a29–30). For Aristotle, the ability to theorize is an essential characteristic of humanity. To function well, or to cope skillfully, is to act in accordance with one’s nature. To act in accordance with one’s nature, for humans, is to use the faculty of reason. In this sense, Aristotle considers *theoria* superior to *praxis*. This is important because habituation and rationality are two very different things—two entirely different ways of knowing, or being in the world.

Praxis and *theoria* can be interpreted as a dual process by which skills are developed. In the *Poetics*, Aristotle provides an example of how this applies to playwriting. He advises authors to work out a brief statement of the main action in the plot and then flesh it out with scenes. If the plot is simple, it can be kept it in the periphery of attention, allowing for a primary focus on the scenes. This produces vivid characters that seem to take on a life of their own. He also suggests that authors visualize what is happening in each scene, even acting it out when possible. By incorporating character movements and gestures, actually delving into the action of the thing, authors are better able to follow the logic of the plot, actualize potentialities, and avoid incongruities—in other words, to cope skillfully (1947: 1455a22–30). This involves both rational analysis and habituation: the author first conceptualizes the task at hand, and then physically engages with the world he has created. Aristotle claims that a theoretical understanding is an essential component of skillful coping, but still provides a place for *praxis*: a type of skill that is developed through experience, rather than rule-adherence.

Heidegger’s philosophy is of particular interest to McGilchrist in his description of the bipartite nature of attention. McGilchrist claims that Heideggarian discovery requires a “highly active passivity . . . since *Da-sein* is ‘to be there’ in the world—the literal, actual, concrete, daily world—to be human at all is to be immersed in the earth, and the quotidian matter-of-factness of the world” (McGilchrist 153). Dreyfus, also, utilizes Heidegger’s theory in his description of skillful coping. Dreyfus claims that Heidegger distinguishes two levels of background practices: those for coping with particular things, called discovery, and those for coping with broad contexts, called disclosure. In disclosure, a general background “permits particular coping activities to show up as possible in the current world” (1991: 186). Disclosure makes coping with particular things—like discovery—possible. The characteristics of discovery and disclosure are consistent with McGilchrist’s description of the two modes of attention, rooted in the bihemispheric brain.

Like Heidegger, Husserl asserted that knowledge is more than just having an impression of something. He describes the process of categorial intuition, beginning with passive notification, followed by highlighting or zeroing in on a part, and finally, registering the whole as containing the part. His description of categorial intuition is discontinuous with perception in an important way: the state of affairs registered is a unity in a different sense than that identity given in perception; the categorical object is presented all at once. The whole and its constituent parts are given simultaneously, not as profiles sequentially following one another. This is symptomatic of the bipartite attention that McGilchrist describes, as will become more clear in section IV.

Merleau-Ponty was among the many thinkers that was influenced by Husserl's philosophy of intersubjectivity. His work focuses on the nature of "coping": how it is that one becomes an expert or develops skill and responsiveness to particular situations. Merleau-Ponty's major work, *The Phenomenology of Perception*, goes against the entire philosophical tradition, arguing that one doesn't need concepts or rules, that they don't guide action, that they don't organize your perceptual experience. Instead, coping is more a matter of the way your body has of immediately grasping (or failing to grasp) the gestalt of what's going on, and then doing it better next time. Merleau-Ponty placed emphasis on the body as the primary site of knowing the world, a corrective to the long philosophical tradition of placing consciousness as the source of knowledge. The basic idea from Merleau-Ponty is that we are always moving to get an optimum "grip" on the situation, even in perceiving. Skillful coping occurs, without thinking, when your body draws you to get this optimal grip on a situation. "For Merleau-Ponty truth is arrived at through engagement with the world, not through greater abstraction from it; the general is encountered through, rather than in spite of, the particular; and the infinite through, rather than in spite of, the finite" (McGilchrist 149). Objects cannot be understood in isolation, and meaning is a function of context. As Merleau Ponty explained, "Being lost before the object is being presented with the scene as nongestalted . . . Part of what it is to perceive an object as anything at all is already to be drawn to improve one's experience of it in some way or other." Before arriving at gestalt, I am "lost with respect to the scene before me" (Kelly, 2010: 151). Merleau-Ponty's descriptions of grasp and gestalt perception are essential to Dreyfus' phenomenological approach to skillful coping and can be understood via a model of bipartite attention.

III. Two Modes of Attention Underlie the Debate Between Phenomenology and Logical Analysis

The two modes of attention are a useful model by which we can understand the debate between phenomenology and logical analysis. McGilchrist states that the “type of attention you bring to bear dictates the world you discover, and the tools you use determine what you find” (133). Searle, with a primary focus on logical analysis, views “fully mental conditions of satisfaction” as necessary to support his view. Dreyfus, with his background in phenomenology, would say that this doesn’t account for the world as we experience it, arguing that skills don’t always develop through habituation to rational rules. According to McGilchrist, the left hemisphere prefers to conceive of the world along analytic, rationalistic, linear lines, while the right hemisphere gives rise to a more phenomenological approach, preferring to see things in their context, integrated in the world of meaningful human activity. To understand how McGilchrist’s work can make sense of this debate, it is important to understand the differences between Searle and Dreyfus’ approaches.

According to Searle, when we decide to do something, we have a sense that our “intention can succeed or fail” based on “conditions of satisfaction” (2004: 119). As Searle explains, all intentional states, and thus, all instances of skillful coping, have these conditions of satisfaction, determined by the conscious experience of trying or acting. Intentional states can overlap one another, with sub-actions or intentions comprising overall actions or intentions, each possessing their own conditions of satisfaction (2004: 121). Sub-intentions in action have conditions of satisfaction that play a role in more central intentional states, which, through habituation, will gradually drift to the periphery of attention. Some states will fade into the background through habituation, producing what Searle terms a “pre-intentional” background of capacities, allowing for actions to take place in a state of relaxed attentiveness (2004: 122). Searle defines the pre-intentional background as the capacity for intentional states themselves, and it is out of such a structural background that we generate new neural pathways and purposes.

According to Searle, background capacities (habits, dispositions, and abilities) evolve the way they do because of habituation to rules (2004: 175). As an amateur, one will require broader intentional states to accommodate new rules but will, with time, shift these rules to the periphery of attention. On the neuronal level, this will produce the structural capacities necessary to perform more adeptly. While the rules will fade from the forefront of attention, they will continue to govern behavior. While habituation will shift some intentional states to the periphery of intention, such

states will always include a mental component of some sort (2004: 147). While pre-intentional states are peripheral, they remain fully conscious. Our perception may have rapidly shifting focal points, with much of the perception kept in peripheral view.

Dreyfus, and those influenced by him, want to say that there is more to masterful coping than mere adherence to rules based on mental conditions of satisfaction. Unlike Searle, Dreyfus would argue that intentional states can be devoid of propositional content, giving rise to skillful coping behaviors that have more do with the body than the mind. Additionally, Dreyfus thinks that Searle's portrayal fails to account for the way in which things are encountered by us as already meaningfully integrated by a background of "coping practices," and isn't able to explain how rule-governed processing of bits of atomistic information can arrive at anything which approximates our understanding of the world. Dreyfus argues, importantly, that human skills respond not just to objects but to situations, and that, "familiarity doesn't consist of a vast body of rules and facts, but rather dispositions to respond to situations in appropriate ways" (Wrathall 97). Dreyfus believes that we are involved in a much more dynamic, immediate interaction than Searle's view describes.

Like Searle, McGilchrist distinguishes between focal and peripheral attention. He utilizes the concept of a periphery to describe the way in which the brain uses the left hemisphere to process those things at the center of attention while simultaneously using the right to maintain the periphery, resulting in the experience of the world as a unified whole. To operate focally is to suppress meanings or perceptual input that are not currently relevant; to operate peripherally implies the "widespread activation of related meanings" or attention (McGilchrist 41). The right hemisphere's broader mode of attention is primary, as Husserl's notion of categorial intuition suggests. It is only after we've registered the gestalt of the whole that the left hemisphere intervenes and breaks the whole into its composite parts. As McGilchrist describes, "We do not have to orientate our attention to each feature of an object in turn to understand the overall object; the features are all present without the need to combine the products of focal attention" (44). In keeping with Dreyfus' work, though, he suggests that this is possible without mental, rule-based representational content. McGilchrist makes this very clear when he cites Dreyfus himself, arguing that, "Skills are embodied, and therefore largely intuitive: they resist the process of explicit rule following" (121).

IV. McGilchrist's Work Legitimizes Phenomenological Models of Skillful Behavior

McGilchrist's work, drawing heavily from contemporary studies in the cognitive sciences, legitimizes the phenomenological models proposed by Dreyfus and his colleagues. I propose a model of the bihemispheric brain in which the right hemisphere is alert, though passive, while the left exercises careful control. Applying McGilchrist's work to phenomenological models of skillful coping reveals an underlying mechanism by which the apparent paradox of skillful coping could be explained. To understand his position, I analyze elements of skillful coping in terms of the bihemispheric differences: context dependence vs. independence, mental vs. non-mental representation, flexibility vs. grasp, and activity vs. passivity. This will allow me to show how the lateralization of the brain produces bipartite attention, giving rise to perceptual-motor feedback loops which are developed through experience—without the need for insight or understanding.

A. Context Dependence vs. Independence

Dreyfus argues that logical analysis is insufficient to account for context, for which phenomenology is necessary. In "The Primacy of Phenomenology over Logical Analysis," Dreyfus critiques Searle's method of logical analysis, arguing that "he covers over an important logical and phenomenological distinction between *context-independent* and *context-dependent* representations, and that this distinction is crucial for understanding the causal role of intentionality" (2005: 2). Dreyfus argues that one of the principle differences between novice and expert levels of skill development lies in the shift from context-independent rules to context-independent maxims to a full contextual understanding. For the novice, an instructor presents *context-free* features of the skill, "along with *rules* for determining actions on the basis of these features" (2004: 2). The advanced beginner begins to "note additional aspects of the situation" forming an awareness upon which he can formulate context-dependent maxims for action, though learning is still "carried on in a detached, analytic frame of mind." Competence introduces the element of *choice of action*, with some degree of emotional investment. As the student progresses from competence to proficiency, the detached, rule-following stance of the novice is replaced by involvement, and "the proficient performer, immersed in the world of his skillful activity, *sees* what needs to be done, but must *decide* how to do it" (4). This process culminates in expertise, a level of skillful coping behavior in which "the expert not only sees what needs to be achieved; thanks to a vast repertoire of situational

discriminations he sees immediately what to do" (6). Thus, the ability to make more subtle and refined discriminations is what distinguishes the expert from the proficient performer.

For McGilchrist, the left hemisphere specializes in abstraction, "the process of wresting things from their context," while the right presents a gestalted whole. The left hemisphere's capacity allows it to categorize things once they have been abstracted, producing "abstracted types or classes of things" upon which it can form predictions (50). McGilchrist also emphasizes the passive right brain's role in skill development, noting that "the more expert we are at something the less we will see brain activity" (35). This is essential to understanding the apparent paradox of skillful coping in which we observe both careful control and a more passive spontaneity, characterized by performers who describe a sense of flow, which is inhibited by overthinking or rationally cognizing their actions. McGilchrist also describes the significance of context in early childhood learning. For example, a child comes to understand the world "by seeing the shapes . . . that stand forward in its experience, using a form of Gestalt perception, rather than by applying rules" (171). Children come to understand language, not by learning rules, "but by imitation, a form of empathic identification, usually with his or her parents . . . or with members of the group who are perceived as more proficient" (121). In highly skillful activity and early childhood learning, the right hemisphere is broadly and contextually aware while left hemisphere plays a secondary role, exercising careful control when necessary. While the left hemisphere plays an important role in the early stages of adult-level skill development, the right hemisphere is more active in the adaptive processes of children and for more proficient performers.

B. Mental Representation vs. Non-Representational Motor Intentionality

McGilchrist cites the *Chuang Tzu*, a classic of Taoist literature, in illustrating his point that a "skill cannot be formulated in words or rules, but can be learnt only by watching and following with one's eyes, one's hands, and ultimately one's whole being: the expert himself is unaware of how he achieves what it is he does" (121). McGilchrist provides a passing reference to Dreyfus' work, citing a passage from *Mind over Machine* in which Dreyfus claims that "an expert's skill has become so much a part of him that he need be no more aware of it than he is of his own body" (McGilchrist 121). According to McGilchrist, the right hemisphere specializes in the sort of non-representational motor intentionality that is essential for skill development. The left hemisphere, by contrast, produces the representational, propositional content that may not always be essential to expertise.

Dreyfus provides a model of how this could actually occur, citing Berkeley neuroscientist Walter Freeman's "attractor-landscape model" of learning. Freeman's model demonstrates a way in which the brain "could cause a movement that achieves success without the brain in any way representing its success conditions" (2005: 6). Applying Freeman's model to action, Dreyfus contends that, "through exposure to satisfactions and frustrations brought about by certain actions in a series of situations, the sensory-motor system forms an attractor landscape that is shaped by the possibilities for successful action in that type of situation" (2004: 14). Under this model, "A new perception moves the system state into the vicinity of a specific attractor," reminiscent of Merleau-Ponty's concept that, for the system to "produce appropriate comportment" it must somehow already be at its object, "causing the organism, "to move so as to bring the system-state closer to the bottom of that basin of attraction" (2005: 6). This system would lead the tennis player, in Dreyfus' famous example, "to make those movements that result in his brain-state approaching the lowest accessible point in its current energy landscape, without his needing to represent where that lowest point is or how to get there." Under Freeman's model, once the input is in the system, producing the attractor landscape, "the stimulus can be, as Freeman puts it, 'thrown away'" (2004: 20).

C. Flexibility vs. Grasp

McGilchrist distinguishes between flexibility and grasp, arguing that these concepts are reflective of hemispheric distinctions. The right hemisphere specializes in the former, and the left hemisphere in the latter. According to McGilchrist, it is not an accident that we talk about 'grasping' what someone is saying. It is by grasping things that we produce "certainty and fixity"; when we cannot grasp something, we use phrases like "I can't put my finger on it," or, "I haven't got a hold of it." McGilchrist argues that, "the idea of 'grasping' implies seizing a thing for ourselves, for use, wresting it away from its context, holding it fast, focusing on it" (112–113). Language (a specialty of the left hemisphere) brings this "precision and fixity, two very important features if we are to succeed in manipulating the world." But, claims McGilchrist, "its losses are in the picture as a whole. Whatever lies in the realm of the implicit, or depends on flexibility, whatever can't be brought into focus and fixed, ceases to exist as far as the speaking hemisphere is concerned" (114–15). While the right hemisphere exercises breath and flexibility, the left specializes in focus and grasp.

Sean Kelly, a former student of Dreyfus, distinguishes between pointing and grasping behaviors. While pointing involves an abstract

determination of the objective world, grasping doesn't require extensive visual feedback (2000: 173). He argues that a grasping movement can begin only by anticipating its end, and is a much more sophisticated way of identifying the object than merely picking out its location in space, since it is dependent on many more aspects of the object in question. Analyzing grasping behavior, he explains that new intentions in action are continually forming by actualizing potentialities, creating a movement between gaps that provides a broad sense of whether an action is being performed well or not. Rather than regarding the broadest intentional state as fixed, with each sub-state 'called up' when its moment arrives, we should think of even the broadest intentional states as evolving as each sub-action takes place. This produces the sort of fine-tuned responsiveness we witness in the skillful behavior of experts. By explaining motor behavior in terms of network relaxation toward a fixed point attractor, Kwan and Barrett's models can be interpreted as reproducing the central phenomenological characteristics of the understanding of place that is inherent in the skillful grasping of objects. No sensory feedback loop is required for motor intentionality, because "the initial conditions of the model, like the initial intention to grasp, are sufficient to ensure that the limb will reach the appropriate endpoint in the appropriate way" (176). The sort of perceptual-motor feedback loop that emerges through experience does so without the need for insight or understanding.

D. Activity vs. Passivity

Finally, McGilchrist also distinguishes between activity and passivity. He emphasizes the passive right brain's role in skill development, noting that "the more expert we are at something the less we will see brain activity" (35). He writes that "There is a wise passivity that enables things to come about less by what is done than by what is *not* done, that opens up possibility where activity closes it down" (174). The 'apparently passive' right hemisphere is open to whatever is. The left hemisphere, in contrast, sees passivity as "loss of control, loss-of self-determination, loss of the capacity for effective, that is to say, useful, interaction—a failure of instrumentality" (174). The hyperactive left hemisphere is inadequately equipped to respond skillfully to the nuances of individual situations—something that the right hemisphere specializes in. It is the perspective of the left hemisphere that characterizes logical analysis, and fails to address the need for the right hemisphere's passivity, or openness to situational discriminations. Skillful coping is made possible through the right hemisphere's ability to remain alert, though passive, while the left exercises careful control.

Wrathall addresses the passivity involved in skillful coping, noting that “Within our set of abilities, tendencies, and capacities, there will be some capacities which will be primed or ready according to the temporal structure of the situation.” In other words, the process of skill acquisition culminates in an ability to recognize and manipulate the “wave of possibilities” that arises in the moment. These potentialities, or as he terms them, forms of “readiness to action,” are not internal in intentional states, but merely *implicit*. They are not themselves “the object of an intention [we] hold” (112). As Aristotle explains in the *Poetics*, it is the place the mind—what he calls the soul—to make explicit the possibilities that are implicit in the previous action or situation (1451a35–37). These potentialities provide us with a *readiness* to respond to situations appropriately and adeptly. This readiness is reflective of the right hemisphere’s role in skillful coping.

IV. Conclusion

In summary, the bipartite nature of attention (I) explains the evolution of skillful behaviors, (II) is evident in our understanding of skillful behavior, (III) underlies the debate between phenomenology and logical analysis, and (IV) legitimizes phenomenological models of skillful coping. Skillful coping necessitates a delicate balance between both modes of attention, and evolves from a primarily left-hemispheric activity to one that draws increasingly from the right. Skillful behavior is essentially context-dependent, non-representational, flexible, and “passive” (in the sense of *open* or *aware*), reflective of the right hemisphere’s dominant role in highly skillful activity. The left hemisphere, by contrast, deals preferentially with decontextualized, representational, “active,” grasping-type general rules that are essential in the initial stages of skill development. By situating recent research in the cognitive sciences within the phenomenological tradition, I’ve argued that skillful coping should be understood through a model that acknowledges the bipartite nature of attention. This process can be described in terms of perceptual-motor feedback loops that are developed through experience—without the need for insight or understanding.

Works Cited

- Aristotle. *Nichomachean Ethics*. Trans. J. A. K. Thompson. London: Penguin Books, 2004.
- . *Introduction to Aristotle*. Trans. Richard McKeon. New York: Random House, Inc: 1947.
- Diderot, Denis. *The Paradox of Acting*. Trans. Walter H. Pollock. London: Chatto & Windus, 2007.
- Dreyfus, Hubert. *Being-in-the-World: A Commentary on Heidegger's Being and Time, Division 1*. Cambridge: The MIT Press, 1991.
- . “Heidegger’s Critique of Husserl’s (and Searle’s) Account of Intentionality.” *Social Research* 60.1 (1993): 17–38.
- . “A phenomenology of skill acquisition as the basis for a Merleau-Pontian non-representationalist cognitive science.” *University of California, Berkeley*. n.p. 2004. Web. 2013.
- . “The Primacy of Phenomenology over Logical Analysis.” *University of California, Berkeley*. 21 Jan. 2005. Web.
- Dreyfus H. and Stuart Dreyfus. *Mind Over Machine: The Power of Human Intuition and Expertise in the Era of the Computer*. New York: The Free Press, 1989.
- Freeman, Walter. “The Physiology of Perception.” *Scientific American* 264 (1991): 78–85.
- Kelly, Sean. “Grasping at Straws: Motor Intentionality and the Cognitive Science of Skilled Behavior.” *Heidegger, Coping, and Cognitive Science: Essays in Honor of Hubert L. Dreyfus*. Eds. Mark A. Wrathall and Jeff E. Malpas. Vol 2. Cambridge: MIT Press, 2000.
- . “The Normative Nature of Perceptual Experience.” *Perceiving the World*. Ed. Bence Nanay. London: Oxford UP, 2010.
- Hon C. Kwan, et al., “Network relaxation as biological computation,” *Behavioral and Brain Sciences* 14.2 (1991): 354–356.
- Lally, Philippa. “How are habits formed: Modeling habit formation in the real world.” *European Journal of Social Psychology* 40.6 (2010): 998–1009.
- McGilchrist, Iain. *The Master and His Emissary: The Divided Brain and the Making of the Western World*. London: Yale UP, 2009.
- Read, Rupert. “Iain McGilchrist, *The Master and His Emissary: The Divided Brain and the Making of the Western World*.” *Phenomenology and the Cognitive Sciences* 11.1 (2012): 119–124.
- Searle, John. “The Limits of Phenomenology.” *Heidegger Coping and Cognitive Science: Essays in Honor of Hubert L. Dreyfus*. Eds. Mark A.

- Wrathall and Jeff E. Malpas. Vol 2. Cambridge: MIT Press, 2000.
- . “Neither phenomenological description nor rational reconstruction: Reply to Dreyfus.” *University of California Berkeley*. n.p. 1999. Web. 2013.
- . *Mind: A brief introduction*. New York: Oxford UP, 2004.
- Wrathall, Mark. “Background Practices, Capacities, and Heideggerian Disclosure.” *Heidegger, Coping, and Cognitive Science: Essays in Honor of Hubert L. Dreyfus*. Eds. Mark A. Wrathall and Jeff E. Malpas. Vol 2. Cambridge: MIT Press, 2000.

Works Consulted

- Adkins, A.W.H. "Theoria versus Praxis in the Nichomachean Ethics and The Republic." *Classical Philology* 73. 4 (1978): 297–313.
- Altmann, Megan E., "Praxis and theoria: Heidegger's "violent" interpretation." *Scholar Commons: Graduate School Theses and Dissertations*. University of South Florida, 2009. Web. 2013.
- Belfiore, Elizabeth. "Aristotle's Concept of Praxis in the Poetics." *The Classical Journal* 79.2 (1984): 110–124.
- DePaul, Michael and Linda Zagzebski. *Intellectual Virtue*. Oxford: Oxford UP, 2003.
- Guignon, Charles. "Authenticity, Moral Values, and Psychotherapy." *The Cambridge Companion to Heidegger*, 2nd Ed. Cambridge: Cambridge UP, 2006.
- Ruspoli, Tao. *Being in the world*. Mangusta Productions, 2010. Film.
- Stanislavsky, Constantin. *An actor prepares*. New York: Routledge, 1989.
- Taylor, Alex H., Brenna Knaebe and Russell D. Gray. "An end to insight? New Caledonian crows can spontaneously solve problems without planning their actions." *Proceedings of the Royal Society* 279.1749 (2012): 4977–4981.

