Pragmatic Evolutions of the Kantian: From the Mental to the Bodily

Introduction

My aims in this paper are threefold: first, to show that William James and John Dewey expanded the Kantian project, even if somewhat unknowingly; second, to demonstrate that the pragmatic evolution of the *a priori* is an evolution from the mental to the bodily realm; and, third, to highlight applied merits of this evolution.

Kantian Frameworks in James: Copernican and Darwinian Evolutions

In the case of James, such claims can get lost because he was sometimes unappreciative if not flippantly dismissive of Immanuel Kant's "Copernican revolution" (e.g., 1890ii, p. 275; 1898, p. 1096). However, his knowledge of Kant was scant. So consequently were his remarks about Kant, and the negative ones are to be taken lightly. While James did, at certain points, break decisively from Kant's Copernican revolution, the two philosophical projects have noteworthy parallels. These breaks and parallels are worth considering, especially if, as Goodman suggested, Kant pioneered a movement that set the stage for pragmatic philosophies of world-making (see 1978, p. x).[1]

To begin with, British empiricists provoked both Kant and James. For Kant it was David Hume; for James it was Herbert Spencer. Kant of course respected Hume enough to recognize that the latter's well-known sceptical conclusions could not be

[1] In the pages that follow, I summarize claims from the second edition of Kant's *Critique of Pure Reason* that are relevant to issues addressed in this paper. No synopsis of Kant could be uncontroversial to anyone familiar with his work and its diverse receptions, but I shall presume—without argument—that readers who have long pondered both of them will recognize my approach as defensible. I will cite sections of Kant's *Critique* that are of especial weight, giving page numbers of the second edition as republished within the standard German edition of Kant's works, *Kant's Gesammelte Schriften*, edited by the Royal Prussian [later German] Academy of Sciences (Berlin: Georg Reimer [later Walter de Gruyter & Co.], 1900 -).

dismissed out of hand. Kant's solution was not to deny the British empiricist position by entrenching his heretofore rationalist standpoint, but to effect a reconciliation. In this regard Kant may be compared to James. By assimilating the Darwinian notion of indirect adaptation into his theory of mind, James was able to agree with empiricists that it is by experience that beliefs are justified, and yet also agree with rationalists that legitimate beliefs can arise independently of experience (see Crippen, 2010, 2011).

In responding to British empiricists, Kant and James both inverted the way that Western philosophers had looked at knowledge. According to Kant, thinkers before him had held that to know objects, "our cognition must conform to the objects" (Bxvi). Citing difficulties with this approach, Kant explored an alternative possibility, "namely that we can cognize of things *a priori* only what we ourselves have put into them" (Bxviii). In other words, we can only cognize and thus come to know what is brought into conformity with our cognition—a clear inversion of the traditional view just mentioned. Kant described his approach as analogous to that of Nicolaus Copernicus, who decided to assume that the Sun is at rest, and see what follows (Bxvi). This thought literally changes how we must picture planetary paths if we are to picture them coherently at all. Our cognition thereby pulls objects into an arrangement, makes them appear in conformity with it, rather than the reverse. Kant conjectured that the same occurs on a more basic level, arguing that there are *a priori* limits on how the mind can interpret the world, and that people have knowledge and coherent experience only insofar as the world is brought into conformity with these limits (see Bxvi-Bxix). Kant maintained, by extension, that knowledge and experience are actively constituted by the mind.

James advanced an analogous thesis. He maintained, first, that there are "*a priori* element[s] in cognition" (1878a, p. 897, fn.; also see 1900ii, Ch. 28), only where Kant named specific *a priori* forms such as "quality" and "quantity," James spoke of subjective interests. He maintained, second, that interests and functionally similar mechanisms limit what sorts of things we notice and how we proceed "*rationally* to connect them" (1879, p. 12; 1890i, p. 287). Similarly to Kant, therefore, who argued that the mind encounters the world through certain *a priori* structures—that is, structures logically prior to experience of the world—James suggested that "interests precede" our experience of "outer relation[s]" (1878a, p. 897, fn.).

That Kant and James shared this commonality led them to adopt analogous, though by no means identical, approaches to metaphysics—metaphysics here understood as a field concerned with the conditions under which anything can be said to have "reality" at all. Taking a cue from the burgeoning experimental sciences, Kant maintained that reality can only be registered through some sort of active manipulation of it (Bxii-Bxiv)—that the mind not only acts to impose form on reality, thereby reconfiguring it, but that the mind must act so in order to coherently register anything as reality at all. The mind does so, again, by operating within *a priori* limits that dictate how reality—which here means the phenomenal world—is put together, and thus how it shows up to the perceiving, experiencing and thinking mind (B161-B166). This "putting together" is an interpretive act; things are united or synthesized—albeit often automatically and pre-reflectively—by means of *a priori* conceptual forms; and acts by which things are united by means of concepts are, in effect, acts of judgment, that is, acts in which certain affirmations are made about certain things. Kant implied, accordingly,

that human experience of reality is necessarily judgmental: any consciously registered reality is always already constituted through interpretive and hence judgmental acts of mind. Kant's approach to metaphysics, then, was not to start with a theory about how reality is, and from there move to an account about what sorts of judgments can legitimately be made about reality. Rather, he began with the assertion that the human mind is limited to making certain kinds of judgments, and from there developed a theory about how reality must be for the mind—a theory, that is to say, about the structures to which reality must be made to conform if it is to be registered at all. His approach, therefore, to legitimating metaphysical judgments such as the principle of causality—that is, the judgment that all changes have causes—was not to show that the principle is a fact observed in reality, but that it is a necessary condition of humans experiencing reality as they do. For Kant, this meant that the experiential basis upon which empiricists challenge the principle actually presupposes the principle, thus rendering their refutation self-contradictory (B233-B248).

Where Kant justified certain metaphysical judgments on the basis that they are pre-conditions of having any experience of reality whatever, James justified them on the grounds that they are pre-conditions of particular kinds of experiences. James thus approached metaphysics from the same "inverted" direction as Kant, but understood metaphysical inquiry more narrowly as "nothing but an usually obstinate attempt to think clearly and consistently" about fundamental tenets that underlie a given field of human thought (1890i, p. 145). Put otherwise, he understood the task of metaphysics to be the elucidation of fundamental guiding beliefs that enable certain forms of life activity and therewith certain forms of experience, and underlying all this, for James, was subjective

interests. Oncologists, for example, encounter their world armed with an interested belief that cancer necessarily has causes. This means that in the same way that a statistician can only account for that which is quantifiable, oncologists can only explain that to which causes can be ascribed. This is where they focus there attention, accordingly. In Kantian terms, oncologic realities can only appear as realities insofar as they conform to the principle of causality. Thus the principle demarcates a boundary beyond which oncologists cannot see—a limit, it might be said, of the experiential world of oncology. The principle is justified, then, not because oncologists show it to be an observable fact in the realities they encounter, but because it is a precondition of them encountering and dealing practically with the reality of cancer as they do.

A point at which James very noticeably departed from Kant, therefore, was in his refusal to recognize any clear separation between what Kant calls "constitutive" and "regulative" principles. A constitutive principle is one such as the principle of causality, which, for Kant, is a necessary condition of anything appearing coherently to us. Because constitutive principles delimit how things must appear, they also delimit the sorts of objects about which one can have knowledge (B218-B21). A regulative principle, by contrast, is essentially a pragmatic principle (see Axinn 2006, pp. 84-88); it is a guideline for action, a teleological rule "*for seeking something we desire*" (Axinn 2006, p. 85). A regulative principle does not, on Kant's account, play a role in constituting how reality appears, and consequently does not postulate the existence of objects about which humans can have knowledge. Kant cited belief in God as an example (B647). The belief guides human action, particularly in moral spheres (B661-663). Yet God, Kant insisted, is not a reality about which one can have genuine knowledge (B667-B670). James

agreed that reliable knowledge about God is unavailable; and he agreed that belief in God can only be justified on pragmatic grounds. However, he also held this to be so of causality, especially the principle of causality (see 1890ii, p. 671). Against Kant, furthermore, he suggested that belief in God—indeed, any belief that affects human actions—is constitutive of human experience, and thus of how reality is experienced by us.

More broadly, James broke with Kant by extending—and some would say conceptually confusing—the *a priori* to include interests, inclinations and personally held beliefs. Kant tried to show that logical constraints delimit *a priori* how reality must appear to all conscious beings who encounter things under the spatiotemporal conditions that humans do. In calling these constraints "logical," Kant asserted that they are universal and necessary. In some sense, James recognized that *a priori* constraints limit how reality appears. Yet he suggested that while many of these constraints are necessary, relatively few are universal. That is to say, he suggested many constraints are only *a priori* or necessary in relation to particular purposes and activities and also in relation to particular biological and psychological constitutions (see 1890ii, chap. 28). Thus his task was not really one of establishing logical limits, but of breaking such limits down by denying their universality. This denial contributed to his anti-skeptical project, for a metaphysical judgment about all reality is a negative judgment. Materialism, for example, makes the universal claim that all real objects are physical. More formally, it states that for any x, if x is real, then x is physical ($\Lambda x[Rx \rightarrow Px]$), and this is equivalent to negating the existential claim that there is no x such that x is real and not physical ($\sim Vx[Rx \wedge \sim Px]$). Thus on a concrete or existential level, the universal statement is a

negative or sceptical judgement about certain kinds of reality. By denying the universality of metaphysical judgements, James did not abrogate sceptical judgments, but he did restrict how far we may cast our sceptical nets in a given instance.

Where James fundamentally agreed with Kant, however, and where he arguably amplified one of Kant's profound insights, was in his conviction that we add to reality. "In point of fact," he wrote, our world

> seems to grow by our mental determinations… Take the 'great bear' or 'dipper' constellation in the heavens. We call it by that name, we count the stars and call them seven, we say they were seven before they were counted, and we say that whether any one had ever noted the fact or not, the dim resemblance to a long-tailed (or long-necked?) animal was always truly there. But what do we mean by this projection into past eternity of recent human ways of thinking? Did an 'absolute' thinker actually do the counting, tell off the stars upon his standing number-tally, and make the bear-comparison […]? Were they explicitly seven, explicitly bear-like, before the human witness came? Surely nothing in the truth of the attributions drives us to think this. They were only implicitly or virtually what we call them, and we human witnesses first explicated them and made them 'real.' A fact virtually pre-exists when every condition of its realization save one is already there. In this case the condition lacking is the act of the counting and comparing mind (1904a, pp. 472-473).

Our judgments, James concluded, change reality; or "[our] judgments at any rate change the character of future reality by the acts to which they lead" (1904a, p. 473).

Kantian Frameworks in Dewey: Mind and the Motor-Body

As will later be discussed, interests overlap emotions, and on James's account, emotions are bodily. Darwinian theory, which radically influenced James's ideas about interests, also links motoricity and mind. It does so by stressing adaptation, something emphatically related to the body but also intelligence. Dewey picked up on this (see Crippen, 2017). Consequently, when it came to the world-changing nature of cognition, his shift to the body was even more explicit than James's.

Whereas British empiricists basically regarded perception as an outcome of environmental stimuli impacting us, Dewey regarded it as both an outcome of what we do to the environment and what it does to us, which often meant as an outcome of how it acts on us in consequence of actions we perform on it. For related reasons, he also rejected the empiricistic conception of sensations as individual "atomic units" out of which knowledge is composed. "Sensations," he wrote,

> are not parts of any knowledge […]. They are rather provocations, incitements, challenges to an act of inquiry which is to terminate in knowledge. . . . As interruptions, they raise the questions: What does this shock mean? What is happening? What is the matter? How is my relation to the environment disturbed? What should be done about it? How shall I alter my course of action to meet the change that has taken place in the surroundings? (1920, pp. 89-90).

Dewey (1929) pointed out that we do not, as a matter of record, come to know the world by observing it from a static position, but rather by interacting with it, by introducing changes to it, by looking around corners, picking up things, prodding, hefting and otherwise altering the conditions under which we observe them (see p. 87). "Sensory qualities are important," but chiefly as provocations to action and as "consequences of acts intentionally performed" (p. 112).

Unlike British empiricists, wrote Dewey (1920), the opposing rationalist school at least denied "that sensations as such are true elements of knowledge" (p. 89). Rationalists also attended more to the fact that we bring certain structures to bear upon things, thereby working and arranging them into intelligible orders. Dewey complained, however, that rationalists overemphasized the mental side of all this. They did so either by regarding the aforesaid structures as innate features of mind or by regarding them as logical limits to which things must be made to conform if they are to be cognizable. It is

not that these positions were necessarily wrong. The problem, rather, was that rationalists failed to appreciate that "[e]xperience carries principles of connection and organization within itself" by virtue of arising out of "adaptive courses of action, habits, active functions, connections of doing and undergoing" and "sensori-motor co-ordinations" (p. 91). Indeed, wrote Dewey, "[s]ome degree of organization is indispensable to even ... an amoeba" (p. 91). It must interact with its environment, else perish; yet it cannot do so any way whatever. Its powers of locomotion, its capacity to move materials in and out of itself, its shape and size all limit its possibilities of action. So too do the materials it encounters. Consequently its activity has "organization," "continuity in time" and "reference to its surroundings" (p. 91).

That the amoeba's activity has these commonalities with what we call "experience" does not mean that the amoeba enjoys traces of conscious life. This way of thinking, quipped Dewey, would be akin to concluding that because plows "originated from some pre-existing natural production, say a crooked root or forked branch, the latter was inherently and antecedently engaged in plowing" (1925, p. 282). What the example does show, however, is that long before human experience arrives on the scene, conditions for coherent experience are already present by virtue of the fact that possibilities of action are limited by what organisms can do and by what environments allow them to do. With the arrival of human experience, new factors become involved. Dewey's intention was not to deny this, but to stress whatever else experience involves, "[t]he first great consideration is that life goes on in an environment; not merely *in* it but because of it, through interaction with it. No creature lives merely under its skin" (1934, p. 13).

To Dewey, this was patently obvious, and he occasionally apologized for emphasizing it. Yet he justified the emphasis on the grounds that many do speak as if experience goes on "merely under our skin." A case in point is the tendency to characterize sense organs as "receptors," while failing to emphasize that they are also vehicles through which we act. This perpetuates the view that perception is a matter of receiving the world, against which Dewey insisted "[p]erception is an act of ... going-out ... in order to receive" (1934, p. 53). This is so because perception is emphatically structured around actions in the world. It is so in the obvious sense that what we perceive relates to what we do and where we go, and also in the more nuanced sense that our perceptual faculties mobilize jointly with our motor capacities. This means that our perceptual capacities and therewith our experiences coordinate around objects in the same concrete manner that our hand coordinates around a bottle—"the same concrete manner" because perceptual faculties and motor capacities synchronize into joint action. Since these coordinations occur through us acting on the world and it pushing back, it follows that perception is an act of going out in order to receive. Even in periods of relative inactivity, our perception is still structured around actions in the world, for insofar as we perceive at all, we perceive possibilities of action that conform to our actual experience of acting in the world. In this scheme, the structure of bodily capacities and that of things encountered become something like transcendentals that limit possibilities of experience by limiting possibilities of action—points Dewey expressly acknowledged (see Dewey 1920, pp. 90-91), despite the common hostility to Kantian frameworks among today's pragmatists.

Contemporary Implications

The views discussed obviously mesh with recent cutting edge ideas about perception and cognition, whether in the form of J. J. Gibson's theory of affordances or more recent enactive accounts. Insofar as they parallel such views, they mark an evolution of Kantian philosophy from the mental to the bodily realm—or perhaps more accurately, an explanation of mental life in terms of the bodily. These views also have practical implications in fields such as artificial intelligence and robotics. I will conclude by discussing all of these points.

So recall that James argued that interests shape our worlds, chiselling our experience into coherent form. In the absence of interests, we would attend to everything at once; we would be unable to take anything in, and our experience might even be rendered contradictory. For example, in the case of Necker cubes, we might see opposing planes as simultaneously being front and back, thereby rendering something unpicturable (see Crippen, 2015). Notice, moreover, that interests are emotion-like, although James sometimes denied this. To be in love is to be intensely interested in somebody, for instance. In human physiology, there is functional overlap between emotions and interests (Damasio, 1999; Gregory et al., 2003; Matthias, 2009; Matthias at al., 2009; Buldeo, 2015). On James's account, emotion is bodily. To the extent that this is so, James's framework—which explicitly sides with the *a priorists*—is a kind of a bodily rendering of the Kantian. His account also meshes with and potentially adds to recent breakthroughs. To see why, let us look in more detail at what James said.

In addition to roots in Darwinism, James's account of interests had roots in the philosophy of C. S. Peirce. Peirce (1878) articulated the first formal pragmatic definition

of meaning when he advised that to ascertain the meaning of an idea, we need only "[c]onsider what effects, which might conceivably have practical bearings, we might conceive the object of our conception to have" (p. 266). An object conceptualized as "hard" conceivably has the effect of scratching things it comes into contact with; one that is "hard" and "heavy," to give a more Jamesian illustration, the effect of injuring toes upon which it falls. In "The Sentiment of Rationality" (1879), James adopted this view, but departed from Peirce by stressing the degree to which individual interests such as toes and their intactness—an example Peirce would have avoided—determine what effects get attributed to conceived objects. "One man conceives [oil] as a combustible, another as a lubricator," and yet another "as a darkener of wood," wrote James (p. 952). In other words, people note different effects according to what they value in the substance. James accordingly held that "essence"—that is, the key features making something what it is—"varies with the end we have in view" (p. 952). Hence essence amounts to those key properties that are "so *important for my interests* that I may neglect the rest, so that a concept "is a teleological instrument," that is, "a partial aspect of a thing which *for our purpose* we regard as its essential aspect" (p. 952). Although James did not emphasize it as much as he might have in "The Sentiment of Rationality," there are, as already argued, conceptual and neurobiological overlaps between interests and emotions, to which the word "sentiment" at least draws attention.

In "The Sentiment of Rationality" (1879), James also talked about how emotional feelings intertwine with decision-making and belief formation. Inconsistencies, for example, thwart thought; blocked thought, like clogged traffic, is an irritation we flee; and movement from inconsistent confusion to "rational comprehension" comes with

feelings of "relief and pleasure" (p. 950; also see Peirce, 1877, p. 247). Excessive complexity likewise annoys, whereas inordinate simplicity bores, so parsimony attracts us, yet not oversimplification (pp. 954-956). The point, here, is that we are emotionally driven to seek rational comprehension, and emotional feeling identifies when we have arrived.

In themselves, these claims are not original to James, for thinkers such as Hume (1740) and Friedrich Nietzsche (1888) have endorsed comparable notions. However, unlike these commentators who argued that many beliefs are therefore without basis, James maintained sentiments and feelings can help separate irrational beliefs from rational ones, and motivate us to seek the latter. After all, complex beliefs invoking unmanageable numbers of assumptions are not, all else being equal, as workable as ones depending on fewer. Inconsistency likewise tends to impede progress. All else being equal, moreover, it is rational to accept workable, progress-promoting beliefs over ones with contrary qualities. That a belief persists because of its agreeable emotional qualities can accordingly mean it persists because it is rational. To consider a related example, in some—but not all cases—things taste better because of reality, as when we prefer pathogen free foods to ones that are rotten, make us gag and motivate an emotional disgust reaction. Here our sense of agreeableness and disagreeableness is rational and grounded in reality. So similarly with James's ideas about concept formation. That the furniture maker conceives oil as a darkener of wood because this fits an emotional interest does not undermine the fact that oil is a darkener of wood and that this is important to the furniture maker.

Although James did not have access to resources driving modern neuroscience,

his ideas parallel findings advanced in that field nearly 100 years after his death. Repeating James's idea, albeit seemingly without knowing it, Antonio Damasio (1994) has asserted that having a piece of knowledge in awareness is possible only on the condition that one is "able to draw on mechanisms of basic attention, which permit the maintenance of a mental image in consciousness to the relative exclusion of others" (p. 197), and in Damasio's scheme this requires emotion. As a case in point, he cited a patient known as Eliot, a young man, highly intelligent, who underwent surgery for a brain tumor. Both prefrontal cortices and the axons beneath were damaged, with the right more so than the left. One of the more noticeable outcomes was that Eliot had a severely reduced subjective experience of feeling emotions. He also lost the ability to make rational decisions. Eliot discussed the pros and cons of options. He still scored high on IQ tests, and otherwise appeared rational. In fact, he appeared normal until asked to make a decision. Despite detailing advantages, disadvantages and consequences, he still said he knew not what he would do if actually faced with a decision. He seemed to have little to guide him in choosing one option over another, somewhat analogous to being unable to choose items from a menu because of lack of preference and hence emotional pull. As of 1994, Damasio had 12 other patients with similar damage, all displaying comparable deficits in emotion and decision-making.

One such patient had suffered a stroke compromising medial and dorsal areas in the frontal lobe of both hemispheres. Based on her lack of speech, movement and expression, one might have supposed she had locked-in syndrome, but upon interviewing her after she recovered somewhat, Damasio (1994) discovered this was not the case. She reported having felt little. For example, she had not found her disabled state troubling

when experiencing it, and hence had accordingly little to say or express about it during that time. Her inexpressiveness was therefore appropriate to the deadening of feeling she underwent. In this condition, moreover, "[i]t appears that there had been no normally differentiated thought and reasoning[…], and naturally no decisions made and even less implemented" (p. 73). Thus her inexpressiveness also seems to have reflected the degraded level of thought she experienced.

Elaborating on the problems that these patients faced, Damasio (1994) almost exactly repeated James's hypothesis. With Eliot, for example, he reported that

> I began to think that the cold-bloodedness of [his] reasoning prevented him from assigning different values to different options, and made his decision-making landscape hopelessly flat. It might also be that the same cold-bloodedness made his mental landscape too shifty and unsustained for the time required to make response selections (p. 51).

It seems, in Jamesian language, that Eliot was unable and uninterested, through lack of emotional engagement, to selectively assign values to different options, and accordingly had no basis for making decisions.

Thus where James regarded mind as a teleological mechanism and thinking as teleologically, that is, goal driven, Damasio (1994) similarly concluded that "there appears to be a collection of systems in the human brain consistently dedicated to the goal-oriented thinking process we call reasoning, and to the response selection we call decision making" (p. 70). This group of systems, he added, is also connected with emotion and feeling, and, in turn, reasoning. From James and Damasio's standpoint, then, we can say—extrapolating just a little but justifiably to connect emotions and interests—that we cannot think in the absence of emotionality or interests.

With just a little more extrapolation, it can be added that we cannot perceive

without emotions or interests either. For example, we might perceive a river as an obstacle, as navigable, perhaps drinkable, cooling, freezing or dangerous. This means that we see it in terms of possible actions we might take and their effects on us, which again means in terms of use-value and hence interests. If we did not see a rushing river as dangerous and therefore emotionally threatening, and waded heedlessly in, or a wall as an obstacle, smashing into it, observers might conclude we are blind. On the premise that interests are emotion-like, it follows that emotion is critical not only in cognizing, but also perceiving the world, more so in light of Gibsonian theories of perception, which are pragmatically inspired (see Reed, 1988; Heft, 2001; Chemero and Käufer, 2016). None of this should be surprising since, as Colwyn Trevarthen (2011) observed, when "sensing the world in relation to the form and displacements endowed with their bodies," even infants "are curious about their surroundings" and especially "how to use objects, feeling with intrinsic emotional values how to avoid hurt or fear and to gain pleasure from what life needs, seeking a state of active security or well-being" (p. 122). From these perspectives, Gibson's theory of affordances might be regarded as a tacit theory of values insofar as possibilities of action relate to use and therewith to what we value at a given time (see Crippen, 2016). This is also broadly in keeping with James's teleological conception of mind and later, Damasio's.

Dewey arguably went beyond James in emphasizing affective aspects of perception in works such as *Art as Experience* (1934). There he wrote that we do not "project emotions into the objects experienced. Nature is kind and hateful, bland and morose, irritating and comforting, long before she is mathematically qualified or even congeries of 'secondary' qualities" (16). Dewey thereby suggested that the perceptual

world is emotional all along and that we would not perceive as we do—or as fully—were it not. Consider, for instance, the emotional tug that pulls us immediately to familiar faces in crowds; or how we perceive serene or angry cloudscapes, the dull atmosphere of a classroom or a cozy setting with a Christmas tree and cat warming itself by a fire. Later in the same book, Dewey was more explicit, describing how emotionality, interests and values pervade our experience of space and time:

> Space is room, *Raum,* and room is roominess, a chance to be, live and move. The very word "breathing-space" suggests the choking, the oppression that results when things are constricted. Anger appears to be a reaction in protest against fixed limitation of movement. Lack of room is denial of life, and openness of space is affirmation of its potentiality. Overcrowding, even when it does not impede life, is irritating. What is true of space is true of time. We need a "space of time" in which to accomplish anything significant. Undue haste forced upon us by pressure of circumstances is hateful (209).

The emotional tones of lived space and time, in turn, qualify our perception, as when overcrowding frustrates our way, our destination appears further away and minutes slows down.

Reinforcing James's views, which are echoed in Dewey's above-cited work, and connecting them back to Gibson are experiments conducted by Mukal Bhalla and Dennis Proffitt (1999; Proffitt, 2006) in which participants judged distant grades steeper when wearing heavy backpacks, fatigued or in poor health. Perceived steepness, which often comes with emotional deflation or possibly excitation if one is a good hiker, relates to the ease or difficulty of navigating one's body, which is to say, the overall worldly context, which is characterized both by the environing surroundings and by what one can do. Accounts from phenomenological quarters—both philosophical and psychological—reinforce comparable points. Martin Heidegger (1927) suggested that the world is

qualified by care and concern and that this shapes pre-reflective encounters with it, and therewith how we conceive and perceive it, though Heidegger would not have put it this way. Nico Frijda (1986), a ranking psychologist who has occasionally cited phenomenologists, stresses such ideas as well, asserting the emotional "'to me' or 'for me' dissolves into the propert[ies]" of things, people and events (188).

Because our attitude is nearly always one of wanting to do, get or avoid something and therefore one of concern or interest, the world is emotionally qualified all along, with Gibson (1979) noting that "[t]he value is clear on the face of it, as we say, and thus it has a physiognomic quality in the way that the emotions of a man appear on his face." Quoting Kurt Koffka's *Principles of Gestalt Psychology*, Gibson added: "Each thing says what it is. ... a fruit says 'Eat me'; water says 'Drink me'; thunder says 'Fear me'; and woman says 'Love me'" (138). Lending credence to the point is neuroimaging research cited by Prinz (2014) that simultaneously detects activity in brain areas associated with emotion and motor-response when people viewed art (see Cela-Conde et al., 2004; Kawabata and Zeki, 2004; Vartanian and Goel, 2004). These studies relate back to those of Bhalla and Proffitt, and they make sense in pragmatic frameworks—not to mention phenomenological ones. All these views suggest that are worlds are defined, perceived and cognitively grasped through habit structures, while emphasizing the interested or emotional aspects of us seeing and performing possibilities of action—here a rough substitute for Kant's *a priori*.

These outlooks also connect to more squarely embodied approaches, including Dewey's but also more recent views. On Dewey's account, to repeat, we spend most of our waking life handling and ambulating. Insofar as this is so, it is not surprising that we

develop habits of seeing bottles as graspable, walls as obstacles and hallways as traversable. If we do not perceive things so; if we fail, for example, to perceive walls as obstacles, bottles as graspable and so forth, then we do not really perceive at all. In many ways echoing and elaborating on Dewey's views, Herbert Simon (see 1996, p. 51) offers a well-known example in which the complexity of an ant's movement is a function of the complexity of the surface over which it strides. Simon's observations, like Dewey's earlier ones about the ameba, mesh with recent work by John Long, who in a 2011 book recounted experiments involving simple light seeking robots he called Tadros. Long varied the robots' tail stiffness, allowing them to compete in a kind of evolutionary game. He reported that they developed "better feeding behavior than their parents had—in a real sense, they got smarter. But ... they did so by evolving their bodies, not their brains" (p. 95). Without claiming that his robots are going to win Nobel Prizes, Long insisted "that Tadros—by virtue of being goal directed, autonomous, and physically embodied—have intelligence" (pp. 95-96); and Long, in line with Noë (2009), who argued that "[m]eaningful thought arises only when the whole animal is dynamically engaged with the environment" (p. 8), predicted further that if AI is ever to achieve human-like intelligence, "the AI has to be an embodied robot, and human-level intelligence is only achievable with a body and a brain" (p. 97).

In this scheme, bodily capacities would set limits on what can be done, and by setting limits, allow for the possibility or at least preconditions of something functionally similar to human cognition and thought. At the same time, bodies fall into coordinated behaviours by dealing with things in the world, as Dewey and Merleau-Ponty, among others, have pointed out. Thus in in situations such as that described by long, "part of the

'processing' is done by the dynamics of the agent-environment interaction, and only sparse neural control"—or the electronic CPU analogue—"needs to be exerted when the self-regulating and stabilizing properties of the natural dynamics can be exploited" (Pfeifer *et al*., 2007, p. 81). The body, Long (2011) elaborates further, "[b]y virtue of being in the real world, interacting with real water, automatically solves … intensely complex" physical problems (p. 104), just as the human knee does when interacting with contours of terrain (Chemero, 2009, p. 27). Long went on to say: "In response to the tail's coupled internal and external force computations, the body, to which the tail is attached, undergoes the yaw wobbles—recoil and turning maneuvers." Its body accordingly calculates and performs patterns of "acceleration that interact to produce the overall motion of the Tadro according to Newton's laws of motion (p. 104). It might therefore be said the bodily mechanisms stand in for logical ones, and by structuring activity, structure cognitive engagement.

Conclusion

Though Long, who is not a philosopher, exhibits no awareness of Kant, James or Dewey, his work displays practical insights generated by all three. His work also illustrates how Kantian philosophy can be rendered bodily, and by this means, go further in explaining the nature of intelligence. James, Dewey, Damasio and like-minded scholars do something comparable by connecting the visceral to the rational and also to perception, albeit with a little extrapolation in some cases. What I hope to have done in this paper is to not only outlined pragmatic variants of Kantianism, but also to have suggested applied merits and continued relevance of such outlooks. I have endeavoured

to do this by pointing to how everything from rationality to enactivism to affordance theory to AI can be understood and developed more richly through an understanding of pragmatic evolutions of the Kantian from the mental to the bodily.