

Review of C.B. Martin's *The Mind in Nature**

Jessica Wilson[†]

Draft: September 9, 2009

C. B. Martin's *The Mind in Nature* is a manifesto in favor of a comprehensive powers-based ontology, aiming to treat the actual and the modal, the causal and the constitutive, the scientific and the mathematical, and the physical and the mental, all by primary appeal to the notion of an irreducible qualitatively informed disposition (with some substratum thrown in for good measure). Like many manifestos, it suffers from an irritating tendency towards baroque prose and underdeveloped argumentation. Nonetheless, *The Mind in Nature* is worth reading, as the presently only available survey of Martin's deeply interesting world-view—a legacy needing, but certainly deserving, further defense and development.

The first half of the book (Ch 1–7) canvasses many of Martin's past contributions. Here we have Martin's objections to competing ontologies that would reduce dispositions to conditional facts (Ch 2) or categorical features (Ch 5), or privilege dispositionality to the exclusion of qualitativity (Ch 6). We are presented with Martin's comparatively more robust ontology (Ch 1, Ch 7), where whatever fundamental substantialia there might be (space-time, fundamental particles or fields) have properties that are primitively both dispositional and qualitative. Here also Martin advertises certain ramifications of his view, including an account of dispositions rather than possible worlds as the truthmakers for modal claims (Ch 3), an account of composition eschewing commitment to multiple levels of reality (Ch 4), and an account of causation as the mutual manifestation of reciprocal dispositions (Ch 5). Most of this material is available (and better developed) elsewhere, but in addition to presenting the big picture, provides grounds sufficient for some retrospective assessment (see, e.g., below).

The second half of the book (Ch 8–15) presents Martin's "new view of mind", applying his ontology to the problem of intentionality. Roughly, on Martin's view mental intentionality involves the having, by certain kinds of complex dispositional system, of the capacity for use of sensory qualities or percepts in representation (Ch 15). As I'll discuss below, Martin's focus on intentionality is somewhat odd, and his proposed account treats this problem only by introducing the harder problem of mental qualitativity. I'll also suggest, however—reading between the lines—that Martin's ontology has resources to treat the hard problem, in a genuinely novel way.

Dispositions and ontology. Attributions of dispositions to entities, indicative of what the entities would do or produce were they to exist in certain circumstances, are key to science

*Please note that this is a work in progress. Thanks to John Heil, Benj Hellie, and Kristian Kemtrup for helpful comments.

[†]Department of Philosophy, University of Toronto; jessica.m.wilson@utoronto.ca

and ordinary language. What is the metaphysical ground for such claims? This cannot be the entity's relation to a manifestation, for dispositions can be truly attributed when not or never manifested. Nor is it plausible to ground disposition attributions in relations to possibilities. A feasible and natural alternative takes such attributions to be of an actually instanced (typically intrinsic) property or feature; and this is Martin's view.

Martin further observes that when a disposition is manifested, the conditions of its manifestation involve one or more "reciprocal disposition partners" (either intrinsic or extrinsic to the entity so disposed); manifestations are thus "mutual". So, for example, the soluble salt and the solvent water have distinct dispositions that mutually manifest in the salt solution, when salt and water are appropriately proximate. Dispositions are typically multi-track (are constituted by "multiple readinesses"): the same disposition, in different conditions, may give rise to different manifestations. Summing up:

An actual disposition or number of readinesses exists, here and now, and is projective for endless manifestations with an infinity of present or absent, actual or nonactual manifestations with an infinity of present or absent, actual or nonactual alternative disposition partners. We can think of this projectivity as constituting a complex line [...] what I have called a Power Net (Martin 1992). Dispositions differ just in case their disposition lines differ.¹ (p. 29)

A realist non-reductive account of dispositions has, broadly speaking, two main competitors. The first is a conditional analysis, according to which disposition attributions are analyzed in subjunctive terms, stating what would happen were the subject of attribution to exist in certain circumstances. Such a view is typically motivated by a neo-Humean rejection of irreducible modality, of which primitive dispositions or powers are paradigmatic; hence the operative account of conditionals is supposed to be modally reductive—as, e.g., Lewis's account of counterfactual truth as grounded in similarity relations between spatio-temporally and categorically (non-dispositional intrinsic) characterized worlds. The second competitor is one accepting that disposition attributions are grounded in actual features, but maintaining that these are reducible to non-dispositional categorical features (see, e.g., Armstrong 1996). As I'll now suggest, Martin fatally undermined the conditional analysis, but left a (version of a) categorical reduction standing, which in turn has provided an alternative neo-Humean route to the rejection of irreducible dispositionality.

Martin's objections to conditional analyses (Ch 2) mainly turn on the notion of a "finkish" disposition. According to the simple conditional analysis, the disposition attribution in (a) 'The wire is live' is equivalent to the counterfactual conditional in (b) 'If the wire is touched by a conductor, then electrical current flows from the wire to the conductor'. This equivalence is falsified by an "electro-fink", a machine rendering the wire live when and only when it is so touched: when the wire is untouched by a conductor, it is (by hypothesis) dead, so does not satisfy (a); but it satisfies (b); hence the analysis is not sufficient. A reverse electro-fink, rendering the wire dead when and only when it is touched, similarly shows the analysis to be unnecessary. Attempts have been made to amend the conditional analysis, by appeal either to *ceteris paribus* conditions or to intrinsic properties (as in Lewis 1997); but as Martin compellingly argues, *ceteris*

¹Martin sometimes seems to use 'disposition' and 'power' interchangeably, but his talk of powers is really talk of dispositions as focused on specific disposition lines.

paribus conditions invoke the notion of dispositionality, and Lewis’s amended analysis is also subject to finkish counterexample. Epicycles and retreats aside, Martin killed the conditional approach.

Martin’s arguments against a categorical reduction (Ch 5) are, ultimately, not as compelling. He first notes that, notwithstanding common scientific practice of explaining dispositions in terms of underlying structure (e.g., explaining fragility in terms of crystalline molecular structure), attempts to reduce dispositions to structural features fail, since it remains to reduce dispositions of the entities so structured to enter into the structure. He also notes that there might be entities without any structure (electrons, perhaps) but having dispositions; then concludes:

[I]t is misleading to try to explain dispositionality in terms of structural states, as the reductive account does, because such structural states are dispositional themselves, and the search for a purely qualitative, nondispositional property, structural or nonstructural, is unlikely to succeed. It appears then that we must see dispositionality as a real feature of the world. (p. 50)

Martin is surely right that structural features can have dispositional aspects and that unstructured entities can have dispositions, but a categoricalist can accommodate these claims. Taking the latter claim first: the categoricalist need not suppose that all dispositions are reducible to structural features, since they need not suppose that all categorical properties are structural. In cases where a non-structured entity has a disposition, the categoricalist may take this to be reducible to a non-structural categorical property of the entity, understood as governed by whatever Hume-friendly laws of nature there might be (involving, on Armstrong’s account, relations between universals). Hence, note, on an “amended categoricalist account” dispositions are reduced not to (just) categorical features, but to categorical features plus Hume-friendly laws. Relatedly, the categoricalist can accept that structural states are “dispositional themselves”, so long as these dispositions are ultimately just a matter of categoricity coupled with Hume-friendly laws. As with Hume, the original categoricalist, the question is not whether dispositionality is real (or pervasive), but whether irreducible dispositions are required in order to metaphysically explain it. To be sure, Armstrong’s commitment to an implausibly strong principle of instantiation renders it hard to see how the laws forming the reduction base for unmanifested dispositions might be in place, but that’s a separate issue, potentially addressed by rejection of the principle or a different account of laws.

Indeed, here we have a new strategy for the neo-Humean, who may endorse a categorical reduction as a replacement for the failed conditional analysis, as coupled with their preferred Hume-friendly—e.g., Best System—account of laws. After all, the neo-Humean is happy to admit actual features, so long as they are not irreducibly modal. As it happens, most contemporary neo-Humeans (including Lewis, as per his doctrine of “Humean supervenience”) endorse this route of late. Martin’s arguments against alternative accounts of dispositions thus won a battle but not the war against neo-Humeanism.

That said, and granting Martin’s arguments against pure dispositionalism or “Pythagoreanism” (Ch 6)—though these inappropriately target Shoemaker, who is not charitably read as a pure Pythagorean—there is something plausible in Martin’s claim that “We need to see the world as consisting of properties that are at once dispositional and qualitative” (p. 51), and something pleasingly organic in taking properties to each incorporate these

distinctively general *ways things are or can be*. Still, Martin’s implementation of the view is perplexing. He earlier characterized properties as having dual necessarily co-occurring aspects, but later endorsed taking dispositional and categorical aspects to be strictly identical, here following Heil (2003, Ch. 11) in modeling the suggestion with a Necker cube, whereby a single substrate admits of two “gestalt” perceptual interpretations. I agree with Armstrong (2004) that the analogy fails, since unlike the small change associated with different Necker cube readings, “the apparent difference between qualities (with their just-there-ness) and powers (with their pointing to their possible manifestations) is immense. As well identify a raven with a writing desk” (p. 141). As I would put it: informative identifications proceed by way of establishing appropriate isomorphisms; here, the appropriate isomorphisms do not seem to be in place. Besides the contrast Armstrong notes, it is unclear how the different disposition lines constituting a disposition are to map onto a single categorical basis (note that Martin can’t always appeal to structure here!). Evidently Martin forwarded this atypically implausible view in response to Armstrong’s concern that a dual-aspect view invokes a supposedly mysterious necessary connection between distinct aspects of properties: if the aspects are identical, then they do not violate Hume’s Dictum, according to which there are no metaphysically necessary connections between distinct existences. Martin would have better rejected the dictum, which for all its influence is poorly motivated (see Wilson forthcoming), maintaining that necessary connections between dual aspects are not all that mysterious: is it such a mystery, after all, that the shape of a ball and its disposition to roll are modal partners?

Ramifications of Martin’s powers-based ontology. The most promising and important of the advertised ramifications are, first, that dispositions serve as the truthmakers for counterfactuals and modal claims more generally, and second, that causation may be understood as the mutual manifestation of reciprocal disposition partners.

Early on (Ch 1), Martin gestures towards a disposition-based account of modality:

Salt in a world lacking H₂O would have many of its readiesses unfulfilled. Among the non-actual reciprocal disposition partners for which it would have actual readiesses would be ones that would be simple and very different or complex with a very different mix from those in our world. There could be a realist model for what we need for modality in this (p. 6).

The gesture is suggestive, especially as regards characterizing what is possible and necessary for broadly scientific entities. Unfortunately, in the chapter devoted to the topic (Ch 6), Martin never gets much beyond such gestures: e.g., “A disposition line is what the disposition is for, what it is not for, and what it is prohibitive against with alternative actual or nonactual reciprocal disposition partners. In this way, a disposition line encompasses a bounded infinity of readiesses. These readiesses are all actual, although non-existent disposition partners and non-existent manifestations are not” (p. 32). One searches such passages in vain for elucidation of basic features of the view. As above, Martin takes dispositions to be individuated by disposition (“readiness”) lines, but provides no account of identity conditions for disposition lines (“Stating identity conditions for the identity of readiness lines poses a problem”; p. 47), nor of how such lines are to be assigned to a single disposition. Nor does Martin address the seeming circularity in the proposed account, due to dispositions’ being “for, not for, and even prohibitive against”

certain mutual manifestations, such that, for example, certain dispositions *could not* partner with certain others. Perhaps the categoricity of dispositions can do work here, but it remains unclear how.

Martin's primary application of a disposition-based account of modality doesn't help his case. He claims that "Dispositionalism provides a basis for a naturalistic realism in logic and mathematics", on grounds, to start, that if there is anything at all ("even just a quark or two") we can extract mathematical infinities from the associated dispositions: "The directedness to the infinity of manifestations, with an infinity of different disposition lines, are actual in the quark itself. Therein lies the mathematical reality of infinities" (p. 30). But why couldn't the dispositions at issue be directed to only a finite number of (actual or possible) manifestations? Perhaps the entities around here have infinitely directed dispositions, but that won't help gain infinities at dispositionally abrupt worlds. Even less clear (much less clearly true) are Martin's claims that self-identity or overlapping of disposition lines provides a basis for entailment or mathematical necessity, and that incompatibility of disposition lines provides a basis for inconsistency. Even ignoring the lack of identity conditions for disposition lines, all this seems a stretch.

Martin's claim (Ch 3) that "dispositionalism provides all we need for an understanding of causal phenomena" (p. 48) is somewhat better developed. He plausibly observes that there is a natural priority here, reflecting that while a disposition can exist without manifesting any manifestation, an effect cannot exist without the relevant dispositions of which it is a manifestation's existing. He addresses the concern that the reciprocal disposition partners jointly cause the manifestation; rather, they jointly constitute the manifestation (p. 51). He notes the most striking consequence of a view of causation as involving the mutual manifestation of reciprocal disposition partners—namely, that cause and effect are, at the crucial juncture, contemporaneous; and he suggests that temporal and/or spatial gaps render the diachronic model is problematic, and well-rejected. Still, much remains unexplained and undefended. If cause and effect are not temporally asymmetric, then can the intuitive typical asymmetry of causation (such that if a causes b , then b does not cause a), and ordinary causal claims presupposing such asymmetry, be accommodated, and if so, how? More generally, Martin's account is along lines of certain singularist accounts (e.g., Salmon's 1977 "at-at" account) and inherits certain of their difficulties. For example, suppose a thrown baseball shatters a window. But wait—a photon from a distant star hit the window at the same time as the baseball. Why, on Martin's account, isn't the cause of the window's shattering not just the mutual manifestations of dispositions of ball and window, but those of ball, photon, and window? Here again it is hard to see how Martin's account is supposed to make sense of ordinary causal claims. Or are the ordinary claims typically false? Either way, more needs to be said.

Application to mind. I turn now to Martin's naturalist, gradualist treatment of the problem of mental intentionality. Dispositions are intrinsically intentional, being directed towards certain manifestations rather than others; however, representational intentionality differs from the non-representational sort in that (for a start) the former, unlike the latter, has its directedness only contingently, reflecting how the representation is used by some complex dispositional system. Martin's first aim is thus to identify the characteristic features of representational use, and show that such use is clearly found in nonconscious systems (e.g., the autonomic nervous system): "The way to break the intentionality logjam is straightforward. The directness of dispositions and use can be found in systems

of dispositions that are not essentially psychological. This means that we can appeal to directness and use in giving an account of mental directedness and agent use without fear of circularity” (p. 178). The features at issue are broadly functional and, Martin convincingly argues, not essentially linguistic (Ch 8); Martin also provides good, though empirically belabored, reason to think that representational use is at work in various nonmental systems (Ch 9, 10, 11).

Martin’s second aim is to explain the difference between how conscious and non-conscious representational systems process representations: “Explaining how a project-ness, directedness, or use has significance or import for agents [...] will divide our knowing selves from the rocks and trees, and even from wonderfully complex and innovative things such as our own nonconscious autonomic nervous system” (p. 185). Martin takes this difference to lie in the “material of use” of a representation: “For the making of significance, the material of use must be sensate. To make the mind knowing, it must first be made sensate through sensory input, experience, and imagery” (p. 186). Here Martin interestingly speculates on the roles of sensation, imagery and introspection in the development and life of the mind (Ch 13, 14). Putting the previous results together: mental intentionality involves the capacity, had by certain kinds of complex dispositional systems, to use sensory representations, where the notion of ‘use’ of a representation involves certain characteristic functions (Ch 15).

This account is creative and not implausible, but there remain two oddities about Martin’s treatment. First is the focus on intentionality as core to “the problem of the mental”; these days, mental intentionality isn’t seen as much of a problem, being commonly understood in broadly functionalist and physically acceptable terms. Indeed, in the main Martin’s view takes the form of a sophisticated functionalist account. Second, beyond such refinements what is genuinely new, and non-functionalist, about Martin’s account is that the use of such representational functional structures proceeds by way of processing sensory percepts or their imagistic correlates, which percepts or images are explicitly qualitative, and whose connection to underlying physical phenomena Martin never makes clear. Martin’s solution to the problem of intentionality thus explicitly raises the trickier problem of the mental, of explaining how qualitative mental experience arises from physical phenomena presumably incapable of such experience. Martin’s failure to explicitly treat the problem of qualitativity is strange, especially since he is so lengthily concerned to establish ‘gradualism’ so far as the functionalist aspects of intentional mentality are concerned.

Martin’s underlying ontology may have the resources, however, to provide a genuinely novel response to the harder problem, by appeal to a certain natural extension of his theses that whatever (relatively) fundamental properties there might be would have (like all properties, on Martin’s account) qualitative as well as dispositional aspects, in combination with the thesis that causation involves mutual manifestation of reciprocal dispositions. How so? As a first pass, the suggestion is that, just as non-conscious dispositionality and intentionality may serve as constitutive or causal components of mental intentionality, so may non-conscious qualitativity serve as a basis for mental qualitativity, via causal and constitutive pathways linking relatively non-complex (ultimately physical) entities and dispositions to compositionally complex, experiencing entities and their dispositions. As a second pass—and here is where, reading between the lines, Martin’s account of causation may come in—the form of the proposed ‘gradualism’ may be distinguished from any

account on which the relatively non-complex entities at issue are themselves conscious or in any way capable of qualitative mentality. Rather, the alternative gradualist basis is to be understood in whatever clearly non-mental terms are at issue in explaining *the sensibility of reciprocal disposition partners to each other in instances of mutual manifestation*. My proposal on Martin's behalf, in other words, is that a natural way of understanding causation as involving the mutual manifestation of reciprocal disposition partners involves the supposition that such partners have a kind of 'felt' sensibility to each other's presence, that is in no way mental (or even "proto"-mental), which sensibility provides a promising starting point for a naturalistic and physically kosher understanding of mental sensibility.

References

- Armstrong, David M., 1996. *Dispositions: A Debate*. Routledge.
- Armstrong, David M., 2004. *Truth and Truthmakers*. Cambridge: Cambridge University Press.
- Heil, John, 2003. *From an Ontological Point of View*. Oxford: Clarendon Press.
- Lewis, David, 1997. "Finkish dispositions". *Philosophical Quarterly*, 47:143–158.
- Salmon, Wesley, 1977. "An "At-At" Theory of Causal Influence". *Philosophy of Science*, 44:215–214.
- Wilson, Jessica, forthcoming. "What is Hume's Dictum, and Why Believe It?" *Philosophy and Phenomenological Research*.