

Whitehead on Causality and Perception

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Whitehead discusses symbolism – among other reasons – in order to get a handle on the problem of *error*. This, of course, is something that has preoccupied Western philosophy for a long time. Descartes' *Meditations on First Philosophy* begins with his worries about “how numerous were the false opinions that in my youth I had taken to be true, and how doubtful were all those that I had subsequently built upon them.” Whitehead's erstwhile collaborator Bertrand Russell similarly opens his own volume on *The Problems of Philosophy* with the question: “Is there any knowledge in the world which is so certain that no reasonable man could doubt it?” Modern Western philosophy – from Descartes through Kant, and on to today – generally privileges epistemology over ontology. We cannot claim to know the way things are, without first giving an account of *how* it is that we know. We cannot consider the consequences of a proposition, until we have first assured ourselves that it is free from error.

Whitehead gives his own deceptively bland statement of the problem of truth and error towards the beginning of *Symbolism*:

An adequate account of human mentality requires an explanation of (i) how we can know truly, (ii) how we can err, and (iii) how we can critically distinguish truth from error. (S 7)

Despite this unexceptionable goal, however, Whitehead does not seem to think that the problem of error is of great importance. Indeed, he takes what most philosophers would consider a cavalier, and indeed irresponsible, attitude towards the whole question. For he holds that “in the real world it is more important that a proposition be interesting than that it be true” (PR 259). A scientific observation, a common-sense hypothesis, or even a rigorous philosophical formulation may have relevant and important consequences, despite the fact that it is erroneous. For this reason, Whitehead is less concerned with eliminating error than in experimenting with it, and seeing what might arise from it. Error is not an evil to be exterminated, but a frequently useful “lure for feeling” (PR 25 and passim). It is a productive detour in the pathways of mental life: “We must not, however, judge too severely of error. In the initial stages of mental progress, error in symbolic reference is the discipline which promotes imaginative freedom” (S 19).

It is worth underlining how rare this position is in Western philosophy. It may well be a cliché of educational method (a subject in which Whitehead himself was deeply

interested) that making mistakes is a necessary part of learning. But most philosophers overlook this. They are more concerned with the nature and content of truth, than they are with the question of how we may learn to attain it. Deleuze is the only other major philosopher I know who joins Whitehead in regarding the problem of error as in itself merely trivial (*Difference and Repetition* 148-151).

Western philosophy in general is so preoccupied with the question of error, because it is deeply concerned with the unreliability of immediate experience – or of the body and the senses. From Plato’s allegory of the cave, through Descartes’ radical doubt about the evidence provided by his physical organs, right on up to Thomas Metzinger’s claim that experience is nothing but an internal, virtual-reality simulation, philosophers have been haunted by the idea that sense perception is delusional – and that, as a result, our beliefs about the world might well be radically *wrong*.

Even if we trust the evidence of our senses, however, we may still be severely limited in the extent of what we can actually know. Hume is sceptical, not so much of the deliverances of the senses themselves, as of what we can legitimately infer from them. For Hume, “all events seem entirely loose and separate. One event follows another; but we never can observe any tie between them. They seem *conjoined* but never *connected*” (*Enquiry* 47). It is true that we often observe the “constant conjunction” of certain events. But correlation is not causation, and we cannot legitimately infer from the former to the latter. Hume concludes that the “idea of a necessary connexion among events” arises only because “the mind is carried by habit” to expect a second, associated event when it encounters the first.

Kant, of course, endeavors to overcome Hume’s scepticism by means of a transcendental argument. We cannot do without causality. If relations of cause and effect cannot be found in sense data themselves, as Hume maintains, then it must inhere in “our ways of thought about the data” (S 37). For Kant, causality is rescued as an *a priori* category of the understanding. If we were not able to organize the sense data we receive according to the laws of cause and effect, Kant says, then we would scarcely be able to have subjective experience at all.

Recent philosophy most often treats causality in a Humean spirit, rather than a Kantian one. Thus the late analytic philosopher David K. Lewis maintains that “all there is to the world is a vast mosaic of local matters of particular fact, just one little thing and then another” (*Philosophical Papers*, Volume II, ix). Relations of cause and effect may be observed to *supervene* upon these particular facts; but Lewis argues, following Hume, that we cannot make any inference from such observations to a deeper sort of necessity. For we can always imagine, without logical contradiction, counterfactual *possible worlds* in which events could have turned out differently. Analytic philosophers love to float scenarios in which, for instance, water is not composed of H₂O (Putnam, “Meaning and Reference”), or people devoid of sentience nonetheless act in ways that are indistinguishable from everyone else (Chalmers, *The Conscious Mind*, 93-122). Indeed, Lewis’s “modal realism” asserts that we must accept the reality of all these alternative possible worlds.

As Jeff Bell has noted, there is a certain similarity between Lewis’s doctrine of Humean

Supervenience and the revival, by the speculative realist philosopher Quentin Meillassoux, of what he calls “Hume’s Problem” (AF 82-111). For Meillassoux, Hume establishes once and for all that neither experience (which only pertains to the past and present, never to the future) nor *a priori* reasoning (which can only exclude logical contradictions) is able to guarantee the necessity of causal relations. For “there is nothing contradictory in thinking that the same causes could produce different effects tomorrow” (AF 87). If the prospect of arbitrary change is not impossible, Meillassoux argues, then it cannot be excluded from the world as it is. Where Lewis affirms the reality of all possible worlds, Meillassoux argues for “the absolute necessity of contingency,” or of sheer ungrounded possibility, in our own world (AF 65).

Hume and Kant alike, as well as their followers, share what Whitehead calls the “naive presupposition of ‘simple occurrence’ for the mere data” – or better, of “simple location,” since it applies “to space as well as to time” (S 38). It little matters for Whitehead, therefore, whether “causal efficacy” is defined with Hume as “a habit of thought” or with Kant as “a category of thought” (S 39-40). In both cases, relations and forms of organization are abstracted away from the matrix of things themselves, and attributed only to the mind that observes these things. “Both schools find ‘causal efficacy’ to be the importation, into the data, of a way of thinking or judging about those data” (S 39).

Whitehead, however, rejects the presuppositions that underlie this whole history of argument. For Whitehead denies that events in themselves are ever merely “loose and separate,” or that the world can be reduced to “local matters of particular fact.” In the actual world, he says, “there is nothing which ‘simply happens’” (S 38). There are no isolated data, because in every act of experience “the datum includes its own interconnections” already (PR 113). In order to explain how this works, Whitehead distinguishes between two separate modes of perceptive experience: *presentational immediacy* and *causal efficacy*. These two modes, together with the ways that they are fused in symbolic reference, form the main subject of *Symbolism*. The distinction between these two modes is further elaborated in *Process and Reality*.

Presentational immediacy roughly corresponds to Descartes’ “clear and distinct perceptions,” to Hume’s “impressions,” and to Kant’s “sensible intuitions.” Whitehead defines it as “our immediate perception of the contemporary external world,” an appearance “effected by the mediation of qualities, such as colours, sounds, tastes, etc.” (S 21). Presentational immediacy is the great source of sensuous richness. But it only provides us with clearly demarcated representations; and it is confined to the present moment, without any thickness of duration. For these reasons, presentational immediacy is severely limited in what it reveals of the world. As Whitehead says, presentational immediacy is “vivid, precise, and barren” (S 23). It “displays a world concealed under an adventitious show, a show of our own bodily production” (S 44). But for this very reason, it leaves us with a hollow sense of depthless mere appearances. This is the root of philosophical scepticism, in Hume and throughout modernity.

According to Whitehead, the problem with standard philosophical accounts of perception is that these accounts are *only* concerned with presentational immediacy. They entirely ignore other modes of experience. They take it for granted that our empirical experience is limited to individual sense impressions, or to the “local matters of particular fact” that

correspond to these impressions. This assumption is what allows Hume to argue that objects are nothing more than hypothetical bundles of qualities. It is also what drives Kant to conclude that only the mind can bring order to what would otherwise be a chaos of unrelated impressions.

Whitehead, however, suggests that Hume and Kant do not even give presentational immediacy its proper due. For he insists that, even if we restrict ourselves to just this mode of perception, “the world discloses itself to be a community of actual things, which are actual in the same sense as we are” (S 21). When we are looking at a wall, for instance, “our perception is not confined to universal characters; we do not perceive disembodied colour or disembodied extensiveness: we perceive *the wall’s* colour and extensiveness” (S 15). Contrary to the empiricist assumption of separate, atomistic qualia, in fact “there are no bare sensations which are first experienced and then ‘projected’ into our feet as their feelings, or onto the opposite wall as its colour” (S 14). The supposedly atomistic, qualitative sense-data are not initially isolated from one another. Rather, Whitehead says, such qualities “can be thus isolated only by abstracting them from their implication in the scheme of spatial relatedness of the perceived things to each other and to the perceiving subject. . . the sense-data are generic abstractions” (S 22).

It is worth noting that Graham Harman, with his object-oriented ontology, also opposes what he describes as “the widespread empiricist view that the supposed objects of experience are nothing but bundles of qualities.” Harman rather insists that qualities are never isolable, but always “bonded to the thing to which they belong” (*The Quadruple Object* 11). Harman attributes this point to Husserl, for whom an “intentional object” is not the sum of its adumbrations, but always more than its multiple aspects or qualities (24-25). “According to Husserl we encounter the intentional object directly in experience from the start”; it does not have to be “built up as a bundle of perceptually discrete shapes and colors, or even from tiny pixels of sense experience woven together by habit” (25).

My reason for mentioning this is that Whitehead makes the same distinction as Husserl does – at least according to Harman’s reading of Husserl. Whitehead most likely makes this point without having encountered it in Husserl. It is true that Whitehead had students – most notably Charles Hartshorne – who had also studied with Husserl and were familiar with his writings. But I don’t see any evidence for Husserl’s influence upon Whitehead, even when – as here – they come to parallel conclusions. The comparison between phenomenology and Whitehead’s thought is too vast a subject for me to go over here in any detail. I will only state, quite flatly and perhaps unfairly, that, for me, one great advantage of Whitehead’s formulations is precisely that they come without the philosophical baggage of intentionality and the *epoché*. Such basic notions of phenomenology are still centered upon a transcendental subject. I would even argue – though I am well aware how controversial this is – that, despite Husserl’s theory of retention and protention, the phenomenological accounts of perception still don’t give a full enough account of the *thickness* of what William James called the “specious present.” Phenomenologists are aware of the defects what Whitehead calls “the naive assumption of time as pure succession” (S ?). But the theory of intentionality does not allow them

to break radically enough with the default assumption that presentational immediacy is the primary form of perceptual experience.

Be that as it may, for Whitehead the major defect in mainstream philosophical accounts of perception is that they leave out any consideration of causal efficacy. The physical sciences, on the other hand, are predominantly concerned with causal efficacy, but they treat it only as an objectified process, comprehended by a “view from nowhere.” In this way, the split between presentational immediacy and causal efficacy is a prime instance of what Whitehead calls the *bifurcation of nature*. The scientists, no less than the philosophers, neglect causal efficacy as a form of perception, or as a mode of experience. It is only by treating causal efficacy experientially, and understanding how it becomes entwined with presentational immediacy in the operations of symbolic reference, that we can overcome the opposition between phenomenology and natural science, or between “the nature apprehended in awareness and the nature which is the cause of awareness” (CN 31).

Whitehead goes to great lengths in *Symbolism* to argue, not only that causal efficacy is a mode of perception, but also that it is the most primordial mode of perception, far deeper than presentational immediacy. The latter “is only of importance in high-grade organisms” (S 16). But “the direct perception of causal efficacy” (S 39) operates everywhere. For it involves “the overwhelming conformation of fact, in present action, to antecedent settled fact” (S 41). Indeed, Whitehead says,

the perception of conformation to realities in the environment is the primitive element in our external experience. We conform to our bodily organs and to the vague world which lies beyond them. (S 43)

Without this conformation of the present to the past, this physical experience of causal efficacy, the clarities and intensities of presentational immediacy could not even arise for us in the first place. Even our most clear and distinct perceptions are grounded in a deeper sense that is “vague, haunting, unmanagable” (S 43). Our very awareness of sharp and delicious sensations, and our ability to make subtle discriminations among them – what Whitehead describes as our “self-enjoyment derived from the immediacy of the show of things” – is underwritten and made possible by “the perception of the pressure from a world of things with characters in their own right, characters mysteriously moulding our own natures” (S 44). A heavy otherness insinuates itself into even our clearest and most distinct perceptions, which is why there can be no “solipsism of the present moment” (S 29).

This massive underlying pressure of causal efficacy is also what produces and accounts for our apprehension of things as more than just bundles of qualities:

These primitive emotions are accompanied by the clearest recognition of other actual things reacting upon ourselves. The vulgar obviousness of such recognition is equal to the vulgar obviousness produced by the functioning of any one of our five senses. When we hate, it is a man that we hate and not a collection of sense-data – a causal, efficacious man. (S 45)

The vagueness of the emotional experience of causal efficacy does not prevent, but rather actually calls forth, an awareness that things actually do exist outside us and apart from us. In other words, “we encounter the . . . object directly in experience from the start,” as Harman insists, rather than building up a representation of the object from a bundle of separate sense impressions. My direct experience of the object in the mode of causal efficacy subtends my identification of it in the mode of presentational immediacy. And it is only by abstracting away from causal efficacy, with its “overwhelming conformation of fact, in present action, to antecedent settled fact” (S 41) that we can enjoy the subtle and disinterested aesthetic pleasures of presentational immediacy.

This is why, following Whitehead, I dissent from Harman’s insistence that “real objects cannot touch” (*The Quadruple Object* 73), and that causation can only be “vicarious” (128). For this is only the case from the viewpoint of presentational immediacy. In causal efficacy, objects *do* literally touch one another. This immediacy of touch follows directly from “the principle of conformation, whereby what is already made becomes a determinant of what is in the making. . . . The present fact is luminously the outcome from its predecessors, one quarter of a second ago” (S 46). The principle of conformation applies equally to my own continuity with who I was a quarter of a second ago, and to my contact with things that have impinged upon me in the past quarter second.

Harman worries that all distinction would be lost if actual contact were possible. He argues that the idea “of indirect-but-partial contact cannot work. . . . *Direct* contact could only be all or nothing” (*Bells and Whistles* 34). Harman’s problem is to maintain separation at the same time that he accounts for causal influence. As Harman puts it, even when fire burns cotton, there is no direct contact between these two entities. The fire may well obliterate the cotton with no remainder. But even then, Harman says, “fire does not interact at all” with such qualities as “the cotton’s odor or color” (*The Quadruple Object* 44). Therefore fire and cotton remain ontologically separate, in accordance with Harman’s dictum that “the object is a dark crystal veiled in a private vacuum” (47).

Now, Isabelle Stengers insists that Whitehead always works as a mathematician, even when he is engaged in philosophical speculation. Whitehead does not posit absolute principles; rather, he always confronts specific problems, by producing a construction that observes all “the constraints that the solution will have to satisfy” (*Thinking With Whitehead* 33). In this sense, Whitehead’s distinction between presentational immediacy and causal efficacy is itself constructed as a way to resolve the problem of error, and scepticism about causality, that are found in the Humean and Kantian traditions.

I would like to suggest that, in this way, Whitehead offers a construction that resolves what I have just called Harman’s problem. He argues that, at one and the same time, “actual things are *objectively* in our experience and *formally* existing in their own completeness. . . . no actual thing is ‘objectified’ in its ‘formal’ completeness” (S 25-26). This allows him to assert both:

1. that things actually do enter into direct contact with other things, as they partially determine the composition of those other things; and

2. that no particular thing is entirely subsumed, either by the other things that entered into it and helped to determine its own composition, nor by the other things into which it subsequently enters.

In this way, Whitehead's construction satisfies – ahead of time – all the conditions of Harman's problem, without accepting Harman's vision of objects as inviolable substances. I will note as well that Whitehead's reappropriation of the old scholastic distinction between “formal” and “objective” existence has an affinity with Tristan Garcia's version of object-oriented philosophy, according to which a thing is defined as the difference between “*that which is in a thing* and *that in which a thing is*, or that which it comprehends and that which comprehends it” (*Form and Object* 11). Garcia, like Whitehead, refuses to explain away causal efficacy, while at the same time recognizing what Whitehead calls “the vast causal independence of contemporary occasions” which “is the preservative of elbow-room within the Universe. It provides each actuality with a welcome environment for irresponsibility” (AI 195).

The larger point here is that causal efficacy is at one and the same time a mode of perception and an actual physical process. It encompasses both “the perceived redness and warmth of the fire” and “the agitated molecules of carbon and oxygen. . . the radiant energy from them, and. . . the various functionings of the material body” (CN 32). In this double functioning, causal efficacy is irreducible to rigid determinism, but also impregnable to philosophical scepticism.

Whitehead notes, for instance, that Hume's own presuppositions contradict his assertion that causal efficacy cannot be directly perceived:

Hume with the clarity of genius states the fundamental point, that sense-data functioning in an act of experience demonstrate that they are given *by* the causal efficacy of actual bodily organs. He refers to this causal efficacy as a component in direct perception. (S 51)

That is to say, by Hume's own prior admission we get direct acquaintance with the world through the actions of the body. “In asserting the lack of perception of causality, [Hume] implicitly presupposes it.. His argument presupposes that sense-data, functioning in presentational immediacy, are ‘given’ by reason of ‘eyes,’ ‘ears,’ ‘palates’ functioning in causal efficacy” (S 51).

More generally, Whitehead says,

We see the picture, and we see it with our eyes; we touch the wood, and we touch it with our hands; we smell the rose, and we smell it with our nose; we hear the bell, and we hear it with our ears; we taste the sugar, and we taste it with our palate. (S 50)

The functioning here of experience in the mode of causal efficacy is antecedent to, and necessary for, the very experience in the mode of presentational immediacy within which, Hume says, no causation can be discerned.

Whitehead recapitulates and expands this critique of Hume in *Process and Reality*. Hume argues that our expectation that a certain effect will follow a cause is merely a product of habit. But Whitehead notes that

it is difficult to understand why Hume exempts ‘habit’ from the same criticism as that applied to the notion of ‘cause.’ We have no ‘impression’ of ‘habit,’ just as we have no ‘impression’ of ‘cause.’ Cause, repetition, habit are all in the same boat. (PR 140)

Once again, Hume presupposes the power of causal efficacy in his very attempt to explain it away. I am tempted to describe Whitehead’s mode of argument here as a precise inversion of Kant’s. Kant opposes Hume by insisting that we cannot, in principle, escape causality, because it must be imposed transcendently from above. Whitehead instead opposes Hume by observing that, in point of fact, we do not escape causality because it is always already at work empirically, from below. Whitehead turns Kant around and puts him on his feet, we might say, in the same way that Marx put Hegel on his feet.

Whitehead shows that causal efficacy is always already at work in our perception, as a physical functioning of the bodily organs. This would remain the case even if we were brains in vats, getting delusive sense impressions by means of direct stimulation of the neurons. The actual physical functioning of causal efficacy must still be presupposed, even if the picture presented through presentational immediacy does not correspond to an actual state of affairs in the world.

This is why Whitehead says that “direct experience” in itself “is infallible.” This assertion is in fact a tautology: “what you have experienced, you have experienced” (S 6). The delusion of a brain in vats, like the delusion exhibited in “Aesop’s fable of the dog who dropped a piece of meat to grasp at its reflection in the water” (S 19), is a failure of symbolic reference, rather than of direct experience in itself. It results, not from any defect of perception *per se*, but from the way in which “the various actualities disclosed respectively by the two modes are either identified, or are at least correlated together as interrelated elements in our environment” (S 18).

In other words, the dog’s error is a mistake of interpretation, or a failure to respect the limits of abstraction. Whitehead tells us that we cannot live without making abstractions, even though we go wrong when we take our abstractions too seriously, or push them beyond the limits within which they are useful. This is what Whitehead famously calls “the fallacy of misplaced concreteness” (S 39); we find it at work not just in a dog’s misjudgement, but also in the most refined examples of philosophical reasoning. It is not the perception of meat in the water that is at fault, but rather the dog’s failure to understand that this meat – which he truly perceived – is a reflection rather than an edible substance. This is why Whitehead remains so relaxed in his treatment of error: “Aesop’s dog lost his meat, but he gained a step on the road towards a free imagination” (S 19).

We experience causal efficacy not only because we are bodies, but also because we feel, and subsist within, the passage of time. Whitehead argues that Hume’s sceptical

conclusions “rest upon an extraordinary naive assumption of time as pure succession” (S 34). This notion of “pure succession,” or time as an empty form, “is an abstraction from the irreversible relationship of settled past to derivative present” (S 35). In actual concrete experience, we feel time as “the derivation of state from state, with the later state exhibiting conformity to the antecedent. . . . The past consists of the community of settled acts which, through their objectifications in the present act, establish the conditions to which that act must conform.” (S 35).

In other words, experience does not only happen in the present moment, in the Now. It also comprehends the past, and projects toward the future. Even the most “primitive living organisms. . . . have a sense for the fate from which they have emerged, and for the fate towards which they go” (S 44). Time is not so much the measure of change, as it is the force of “conformation”; and it is only against the background of this force of conformation that change is even possible:

The present fact is luminously the outcome from its predecessors, one quarter of a second ago. Unsuspected factors may have intervened; dynamite may have exploded. But, however that may be, the present event issues subject to the limitations laid upon it by the actual nature of the immediate past. If dynamite explodes, then present fact is that issue from the past which is consistent with dynamite exploding. (S 46)

In this way, perception and judgment are themselves temporal instances. They are nested within the broad span of “conformation” or causal influence. To perceive something is to be affected or influenced by that something. And willed action – or more generally, what Whitehead in *Process and Reality* calls *decision* – can itself only take place within a given framework of causal efficacy. This is the source of Whitehead’s distinction, in *Symbolism*, between “pure potentiality” and “natural potentiality” (S 36-37) – which is recast in *Process and Reality* as a distinction between “general potentiality” and “real potentiality” (PR 65). Pure or general potentiality is mere logical possibility; while natural or real potentiality takes account of “stubborn fact,” or of the actual “components which are *given* for experience” (S 36).

From a Whiteheadian point of view, Lewis’ modal realism and Meillassoux’s principle of contingency both fail because they ignore this distinction. Since they only recognize presentational immediacy, they abstract “the mere lapse of time” from “the more concrete relatedness of ‘conformation’” (S 36). In consequence, they regard sheer logical possibility – what Whitehead calls pure or general potentiality – as if it were natural or real potentiality. “According to Hume,” Whitehead says, “there are no stubborn facts” (S 37); and the same must be said for Lewis and Meillassoux. The error of these great thinkers, we might say, results precisely from their endeavor to eliminate error on grounds of epistemological consistency.

For the mainstream of modern Western philosophy, causality is an example of a relation that must be put into doubt, because it is supposedly not given in perception. Whitehead counters this, by showing that causality is not just an abstract condition for perceptive experience (which Kant had argued already), but also an actually given component of

experience. Causal efficacy is in fact directly experienced – even though this direct experience is not necessarily conscious. In *Process and Reality*, Whitehead gives this in the form of an example. When “occasions A, B, and C enter into the experience of occasion M,” this means that

there is thus a transmission of sensation emotion from A, B, and C to M. If M had the wit of self-analysis M would know that it felt its own sense, by reason of a transfer from A, B, and C to itself. Thus the (unconscious) direct perception of A, B, and C is merely the causal efficacy of A, B, and C as elements in the constitution of M. (PR 115-116)

Causal efficacy is itself experienced in a vague and limited way: it is thus a primordial form of perception. But beyond this, experience of any sort materially depends upon the functioning of causal efficacy. Therefore, causality is more than just an *example* of something whose status in perception we may argue about. In fact it is central to the whole theory of perception. Perception is itself a sort of causal relation – rather than causal relations being instances that we may perceive or not.

In this way, Whitehead’s account of causal efficacy provides a bridge from epistemology to ontology, or to what Whitehead calls cosmology. For Hume, Kant, and their modern successors, we cannot talk about causality without first accounting for *how we know* that causal relations between ostensibly independent entities can exist. But Whitehead argues that even to raise the question of *how we know* is already to have accepted the operation of causal efficacy, in the form of the “conformation of present fact to immediate past” (S 41). Whitehead thus cuts the Gordian knot of Kantian critique; he frees speculation from the grim Kantian alternative of either

1. being subjected to critique, which is to say to prior epistemological legitimation, or
2. being rejected as simply “dogmatic.”

It should be noted that Quentin Meillassoux also seeks to escape this infernal alternative. He claims to establish the possibility of “non-dogmatic speculation” (*After Finitude* 79), as a way of stepping outside the Kantian “correlationist circle” (5) without thereby performing a “*pre-critical* . . . regression to the ‘naive’ stance of dogmatic metaphysics” (3). Whitehead describes his own speculative philosophy as “a recurrence to that phase of philosophic thought which began with Descartes and ended with Hume” (PR xi). Nonetheless, I do not think that Whitehead’s constructivist proposal for solving the riddles of perception and causality can be categorized as “dogmatic” in the pejorative Kantian sense. Rather, Whitehead’s speculative “flight in the thin air of imaginative generalization,” together with his subsequent return to the ground “for renewed observation rendered acute by rational interpretation” (PR 5), allows him to perform what he describes, in another act of setting Kant on his feet, as “the self-correction by consciousness of its own initial excess of subjectivity” (PR 15). This is why I have sought to establish a dialogue between Whitehead, on the one hand, and recent

speculative realist thinkers like Meillassoux and Harman, on the other. It seems to me that Whitehead anticipates many of the goals of the speculative realists. At the same time, Whitehead offers an alternative both to Meillassoux's excessive rationalism, and to Harman's grounding in phenomenology.

I will conclude by mentioning some further consequences of this discussion, even though I lack the time to fully explore them here. Whitehead argues both that causal efficacy is directly perceived, and that the causal conformation of the present to the immediate past is a general process, of which direct perception in either mode is just an example. There is therefore a curious chiasmus between perception and causality, which intersect in something like a feedback loop. This also implies, among other things, that there is no clear dividing line between perception proper, and causal influence more generally. I "perceive" something whenever I am affected by that something – even in cases where this does not happen consciously. For instance, Whitehead notes that

the human body is causally affected by the ultra-violet rays of the solar spectrum in ways which do not issue in any sensation of colour. Nevertheless such rays produce a decided emotional effect (S 85).

This "emotional effect" may well be a modulation of my mood: I always feel better when I am outdoors on a sunny day. But it may also consist in my getting sun tanned, or sunburnt, or even developing skin cancer. Any physical response of this sort is in some sense an "emotional" response as well. Even below the threshold of consciousness, a physical change is also a change of some sort in affective tone. This is not only the case for human experience, but also for organisms that Whitehead calls "low grade": as when "a flower turns to the light," or even when "a stone conforms to the conditions set by its external environment" (S 42).

A lot of this has been covered in recent writings on Whitehead under the rubric of what he calls, in *Adventures of Ideas*, "nonsensuous perception" (AI 180ff). "In human experience," Whitehead writes, "the most compelling example of non-sensuous perception is our knowledge of our own immediate past" (181). All this is consistent with what Whitehead says in *Symbolism* about perception in the mode of causal efficacy. But Mark B. N. Hansen, in his forthcoming book *Feed Forward*, argues that such an understanding of Whitehead's expanded field of perception sells him short. Hansen urges us to consider the causal efficacy of "nonperceptual sensibility" beyond the confines of personal memory, referring to the ways in which causal efficacy extends "beyond perception" to a domain that "does not and cannot appear through (human perception)," but that human beings are now for the first time able to access "indirectly... through the technical supplement afforded by biometric and environmental computational sensing." Whitehead's expanded theory of perception is thus crucial, Hansen says, for grasping our emerging 21st-century media environment. I have serious disagreements with Hansen's particular interpretation of Whitehead, but I think his overall point is enormously important, and it can be grasped in the terms that I am working through here: the chiasmic relation between perception and physical causality.

On my reading of Whitehead, perception is a subset of causal processes more generally, while at the same time causal processes are themselves "felt," even unconsciously, as

they are fed back into direct perceptual experience. This is the basis for what David Ray Griffin calls Whitehead's *panexperientialism* – though I prefer to use the more provocative word *panpsychism*. This means that differences in mentality, or in levels of what Whitehead calls “feeling” (using this word as “a mere technical term” – PR 164), are always differences of degree, rather than of kind. There is no clear boundary line between the different modes of feeling or sentience, just as “there is no absolute gap between ‘living’ and ‘non-living’ societies” (PR 102).

But I think that we can go further than this. Whitehead says that “life lurks in the interstices of each living cell, and in the interstices of the brain (PR 105-106). But feeling – or perception as conformation – doesn't need to lurk in the interstices; it happens everywhere. This is why I do not think that Whitehead is really a vitalist. Whitehead's conflation of perception with causal efficacy also implies the priority of sentience over vitality. In other words, perception and feeling are among the necessary conditions of possibility for life, rather than life being a necessary condition of possibility for sentience.

Why is this important? As Eugene Thacker has demonstrated at length in his great book *After Life*, all our attempts to reinvent vitalism, to explore the possibilities of what Deleuze and Guattari call “inorganic life,” and in general to theorize “Life” in general, come up against a series of crippling antinomies. In the actual practices of contemporary biotechnology, as well as in philosophical argumentation, Thacker says, “thought and life approach a horizon of absolute incommensurability; the thought of life becomes increasingly disjunctive with the vague set of phenomena we call ‘life itself’ ” (*After Life* ix-x). There are contradictions both between particular instances of life and “life” as an essence or overall concept, and between all these iterations of life and the thought, itself alive, which tries to grasp and conceptualize it. I suspect – though it is only a hunch at this point – that approaching life from the point of view of sentience or feeling, rather than taking sentience as an attribute of life, might help to offer us a way out from these confusions.