

CONSCIOUSNESS AND CAUSATION IN WHITEHEAD'S PHENOMENOLOGY OF BECOMING*

Excerpted below are sections 1–3 of this paper, which set up the problem the paper deals with and outline the solution it offers.

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Consciousness and Causation in Whitehead's Phenomenology of Becoming

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Consciousness and causation are topics that intersect in two obvious ways. We can ask what the cause of consciousness is and we can ask how we become conscious of causation. Both questions take us back to seminal figures in the history of modern philosophy and both questions continue to be the subject of intense debate.

Early in the twentieth century, Alfred North Whitehead proposed a radical solution to both questions by treating them as the *same* question. It is lamentable that Whitehead's elegant solutions are so little discussed in the intellectual mainstream. Like the philosophy of Aristotle, Ockham, or Kant, Whitehead's is no doubt in the final analysis all wrong. Nevertheless, like theirs, Whitehead's system of thought possesses a degree of rigor and analytic nuance, as well as a comprehensiveness of scope that makes it an ideal tool for exploring the structure of philosophical problems, which—just because they are philosophical—reveal their contours only through our failed attempts to solve them.

This investigation seeks to make Whitehead's consolidated answer to these two important philosophical questions more accessible to the intellectual mainstream by carefully relating his theorems to well-established issues and ideas in Continental and Anglo-American philosophy and the history of philosophy as they understand it. I limit my discussion to the concepts of consciousness and causation as we have inherited them from the early modern tradition: consciousness as a form of seemingly private self-presence attending all our encounters with objects, real and imaginary; causation as a logically necessary or somehow physically impelled diachronic sequence of empirical phenomena, that is, efficient causation.

This focus on Whitehead's account of efficient causation (and our consciousness of it) also serves a secondary purpose. There is a not uncommon tendency among Whitehead enthusiasts to be lopsidedly concerned with human freedom, which they seek to preserve through an interpretation of his cosmology that amounts to eliminating physical necessity and efficient causation from the world. But Whitehead was as concerned to solve the problems of induction and the necessary connection between cause and effect as he was to vindicate freedom and personal responsibility. He did not seek to vindicate one side at the expense of the other. On the contrary, he expressly sought an integrated solution, the general structure of which he thought could be gleaned from a phenomenon such as consciousness, which he thought was a coherent nexus of both action and passion. By focusing primarily on Whitehead's defense of necessary causal connection rather than on freedom, this investigation hopes to rebalance the wider scholarly discussion.¹

Background: History of the Two Problems and their Involution

Causation of Consciousness

Descartes is famous for being the first philosopher to circumscribe consciousness as an autonomous domain of reflection. For him consciousness had no cause other than God. Under the rubric of *res cogitans* it was a substance all its own, and in its reflection it was effectively *causa sui*. Others such as Hobbes and Gassendi believed the body was the cause of consciousness. In the eighteenth and nineteenth centuries, consciousness as self-cause became the leading theme of the idealistic philosophy developing in Germany, while consciousness as an effect or epiphenomenon of material organization was an idea pursued by the French materialists. What kind of causal relations—if any—obtain between consciousness and matter was a question that permitted a compact spectrum of answers and under the name of the mind-body problem continues to be recognized as one of the great philosophical questions.

Most recently, the apparent successes of cognitive psychology in explaining perception and cognition in terms of information processing routines and of neurobiology in finding the physiological mechanisms by which these processing routines are carried out have had paradoxical results. While seeming to make clear headway towards solving the mystery of how the mind depends on and arises from the brain, they have in fact forced the mind-body problem into its most aggravated form. The traditional assumption was that consciousness is necessary for the execution of sophisticated forms of cognition. However, there is no obvious reason why the sort of

processing routines that have been successful in modeling cognition need to be accompanied by consciousness, and very often they are not. Advances in cognitive psychology and neuroscience have therefore made the biological explanation of consciousness a more rather than less daunting prospect. Why should the organism's processing of information from the environment—at least in certain distinctive cases—have a quality that is subjectively felt in an inner world of self-presence? Following David Chalmers (1995), this has come to be known as the “hard problem” of cognitive psychology and has generated a huge literature.

The hard problem results from the enigma of a relationship it plausibly assumes must exist. It makes the naturalistic assumption that matter in some form of organization gives rise to or must be attended by consciousness. What I am calling *causation of consciousness* is this assumed relationship, defined in its greatest possible generality. It is the determination according to which an inner world comes into being in dependency on features of the outer world (such as the neural organization of the brain). Excluded thereby is only the idea that matter is altogether something to which mind gives rise (idealism) or that there is no necessary link between them (occasionalism, preestablished harmony). No particular way of construing this determinative relationship (e.g., genesis, function, supervenience, emergence) is ruled out *a priori*.

Consciousness of Causation

How we become conscious of causation was a question raised by Locke in seeking the empirical origin of our various ideas—in this case the idea of “power.” But it was Hume, disappointed by Locke's account, who subjected to rigorous critique the idea that one thing can bring about another. Like Locke, Hume asked what empirical basis there was for this idea. Famously, he found none and offered instead a psychological explanation of our propensity to believe in causation. Subsequently, no science seeking its foundations has been able to remain indifferent to Hume's question about the nature of causation and our knowledge of it.

Hume's analysis of causation is distinguished in historical effect. Philosophically conceived problems—even the ones felt to be the most revolutionary in their day—become quaint when the context of discussion shifts. Hume's argument did not. It not only brought on one of the great upheavals in intellectual history, but it also retained its cogency and long outlived the intellectual climate that fostered it. It remains a fundamental point of reference for contemporary discussion, where it is the centerpiece of what is known as the problem of induction or the problem of verification.

The problem of induction comes down to this: Unless the correlations we can document empirically result from the necessity of some kind

of real causal connectedness, it's unclear what justification we could have for generalizing them. For all we know, they may be coincidences. Verifying a conjunction *de facto* would thus offer no grounds for induction, which entails generalizing the conjunction to unobserved (or even unobservable) instances. Induction seems to presuppose, if not that we understand how causation operates, at least that we know that it exists and that its operation is the reason for a given conjunction. Only then can we generalize.

We can distinguish a conceptual as well as an empirical aspect to the causality/induction problem. Philosophers, as we shall see in due course, often raise questions about the logical coherence of the very idea of causation (conceptual problem). But what engages the sciences is a legitimately empirical concern about the applicability of such a concept to experience. Of course, philosophical objections based on the alleged logical incoherence of the concept of causation are *a fortiori* objections to its empirical applicability. In this way the philosophers' arguments bear on empirical concerns. But even if the idea is not incoherent, empirical concerns remain. For even granting the coherence of the idea of causation, we still do not know if it applies to anything we actually experience. Furthermore, even if we know in general that it applies, how do we know in individual cases whether we are dealing with causation or coincidence? It is worth emphasizing that scientific induction is not the only relevant case of causal thinking applied to experience. The commonsense assumption that beliefs influence behavior is an everyday example of causal thinking, just as the idea of "character" is an everyday example of induction, without which behavior could never be predicted or anticipated.

There are two approaches to solving these problems that need to be distinguished before we can proceed to catalog the objections to them. It is possible to secure and define the applicability of causation to experience transcendently or descriptively. The transcendental approach is the one first employed by Kant, arguing that causal structure is the very condition of the possibility of experience, and hence that any experience is causally structured. The attractiveness of this approach lies mainly in avoiding the notorious difficulties of the other way. In and of itself, Kant's transcendental apparatus of *a priori* conditions finds little favor. Because it is nothing empirical, it seems "metaphysical" and theoretically unwieldy. But the transcendental approach, stripped of its unwieldiness and cast in a form that still deserves serious consideration, has been kept alive in our time by pragmatism, which replaces the mysteriously *a priori* conditions of the possibility of experience with the pragmatic conditions of the possibility of successful engagement.² The other way tries to justify the empirical applicability of the idea of causation more simply: by showing that it is in fact empirically derived. This is what Locke tried to do and what Hume argued could not be done.

We need to be clear about what is required by this second approach. It requires not simply that we understand causation conceptually and be able to infer that it exist, which would be the transcendental approach, but rather that its very operation fall within the purview of consciousness. What I am calling *consciousness of causation* is therefore a condition of any empirical or phenomenological justification for the application of causal thinking to experience. (Henceforth in place of “empirical or phenomenological” I shall say descriptive.) The descriptive approach presupposes a conscious experience by means of which we become directly acquainted with causal action; that is to say, it presupposes “knowledge by acquaintance” in Bertrand Russell’s sense. On the other hand, a “knowledge by description” in the specific sense defined by Russell (which is not a descriptive report on the content of first-hand acquaintance, but the conceptual specification of identity conditions), would seem to suffice for the transcendental approach.³ However, I will argue in the following paragraphs that consciousness of causation is also—albeit less directly—a condition of the transcendental justification. Let’s look first at the objections to the descriptive approach, which refine the causation problem into a set of specific counterarguments against the attempted descriptive solutions.

Arguments against the second approach to justifying causal thinking—the approach based on the description of causation as a phenomenon falling within the purview of consciousness—take several forms, which span the full spectrum from purely empirical to purely conceptual arguments. In practice the distinctions tend to blur, but in theory we can distinguish four. I list them in ascending order of logical strength: in each case, the weaker objection holds *a fortiori* if the stronger one does, the last and strongest argument being the philosophers’ argument from logical incoherence. (1) A conscious experience of causation has not been found (*de facto*); (2) a conscious experience of causation cannot be found because such an experience is impossible on psychological or phenomenological grounds; (3) a conscious experience of causation cannot be found because causation is impossible on physical or metaphysical grounds; (4) a conscious experience of causation cannot be found because causation is impossible on logical or conceptual grounds.⁴

We now need to notice that objections (3) and (4), because they concern the very possibility of causation, and objection (2), because it concerns its thinkability, pose as much of a threat to the transcendental approach as they do to the descriptive approach. It may be that objections (2), (3), and (4) can be neutralized only by a descriptive finding of decisive importance (the “proof is in the pudding” rebuttal). Indeed, if the concept of causation is as paradoxical as Hume and its other critics allege, then the transcendental approach could never be assured of the concept’s empirical applicability based on discursive considerations alone. The situation is not unlike wave-

particle complementarity in physics: it's so paradoxical that no one would believe it if it weren't empirically documented, regardless of the strength of theoretical arguments. Similarly, the transcendental approach must either relieve the concept of causation from its burden of paradox or be ready to make the pudding. It must be able to render the phenomenon of causation transparent *in actu exercito*, which requires exhibiting its reality or at least being able to imagine its real possibility *in concreto*. The inevitable conclusion is that actual consciousness of causation is not just a condition of the success of the descriptive approach, but also of the transcendental approach to the justification of causal thinking.

Two Problems or One?

It is noteworthy that the causation/induction problem and the mind-body problem are seen as two distinct problem clusters and are rarely discussed together. But it was surely only a matter of time until the one problem would be applied to the other: how can we hope to understand how consciousness is brought about if we have no consciousness of how one thing brings about another? The fact that this involution has explicitly taken place in the journal literature is the instigation for this paper. The arguments are refereed below and set the stage for my discussion of Whitehead's theory of consciousness. For Whitehead believes that the mind-body problem and the induction problem are the same problem, and that the problem arises as the result of a skewed and incomplete phenomenology of consciousness, one that arbitrarily ignores the genetic dimension of experience. When this dimension is ignored, says Whitehead, the reality of causation and the relationship of consciousness to the reality that causes it are both eclipsed.

My point of departure is a provocative article on the psychology of explanation by Eleanor Rosch (1994) in the first issue of the *Journal of Consciousness Studies*, "Is Causation Circular?" As an extreme radicalization of Hume's skepticism, Rosch suggests that, apart from the explanatorily useless limiting case of tautology, a necessary (or even intelligible) connection between cause and effect is not just empirically unattested, but altogether impossible. This lends our stubborn propensity to believe in causation a pathological aspect that her sympathies with Buddhism do not deflect. In fact, her analysis employs the analytic framework of the Mādhyamika, the skeptical dialecticians of early and medieval Buddhism, but it could equally well have drawn on Western precedents. On the grounds—not unfamiliar to the Western reader—that identity or tautology is the only logical necessity, she endorses Hume's argument that separate (i.e., nonidentical) phenomena cannot be necessarily related. But for Rosch, Hume's argument is just a special case of the Mādhyamika's dialectical argument. According to the Mādhyamika,

we can in effect classify all relations into relations of identity and relations of difference. It's not hard to see that being different, in and of itself, is not enough to establish a necessary connection between any two things. If the only other kind of relation is the relation of identity (construed perhaps as the pseudo-relation of single-itemhood), then identity will be the only kind of necessity possible (although not all identities need be necessary).

Rosch's account of the psychology of explanation found its inevitable application to the problem of explaining consciousness in a subsequent issue of the same journal. In an article entitled "Should We Expect to Feel as if We Understand Consciousness?" M.C. Price (1996) uses Rosch's analysis to argue that the famous "hard problem" of explaining consciousness is nothing more than a particularly conspicuous instance of the impossibility of cogently explaining anything. We could, according to Price, never have the intellectual satisfaction of feeling like we have explained something unless, Hume to the contrary, causation were something that could be rendered intelligible. And we have just clarified what that would mean. The operation of causation must be brought within the purview of consciousness and rendered perspicuous. The supposed necessary connection of separate phenomena ("ideas") is something that otherwise remains unintelligible. But Price is confident that it is inherently unintelligible. Following Rosch (following the *Mādhyamika*), Price proposes that "separate, but dependent/interdependent" is just plain contradictory. Consequently, the idea of causal operation will never be perspicuous, and the most we will ever know about the relationship of mind and animal body—the most that there is to know—is that up until now they have always been constantly conjoined.

This result is intriguing. It means that we could never explain consciousness without first (or at least at the same time) documenting that we do have some legitimate consciousness of causation to model our explanation on. Otherwise the best we get is a self-contradictory concept and a set of inscrutable correlations. In short, explaining consciousness requires solving the intractable problem of causal connection, which Rosch's analysis has inflated into an archetypal problem of metaphysics, the insolubility of which seems to her to call for a religious rather than a scientific response.

Archetypal Status of the Causation Problem

There is something to be said for the archetypal status of this problem. It erupts with a certain amount of intellectual violence in every major philosophical tradition. A rejection of causation based on the impossibility of a necessary connection between distinct individuals makes what is probably its earliest philosophical appearance in ancient Greece. It played an important role in the skepticism of the New Academy (ca. third century BCE) and is

documented for us in the compendia of skeptical arguments preserved for us by Sextus Empiricus (third century CE).⁵

In Indian philosophy, critical discussion of causation dates from the earliest times (Kalupahana 1975, chs. 1–2), but the dialectical critique of causation has its beginning with Nāgārjuna and the Mādhyamika in the first century CE (Inada 1993, Kalupahana 1986, McCagney 1997). The specific argument predicated on the impossibility of necessary connection between distinct individuals played an understandably prominent role in Buddhism due to the doctrine of momentariness of all being (the question being “how can phenomena isolated in independent moments of time be connected?”). While the Mādhyamika in particular rejected this doctrine and operated with more abstract categories (e.g., same and other), the schools accepting it (Sautrāntika, Yogācāra) advanced a critique of causation that is virtually indistinguishable from its western counterparts. It can be found, for example, in Dharmakīrti (seventh century CE) or in Śāntarakṣita’s *Tattvasaṅgraha* and its commentary by Kamalaśīla (both eighth century CE).⁶

The argument then makes a dramatic appearance in the context of Islamic theology (Kalām). First a polemical weapon of the reactionary al-Ash‘arī⁷ (tenth century), who saw the rationalizing tendencies of early Kalām (i.e., the Mu‘tazila) as anathema to religion, it was famously taken over by al-Ghazālī (eleventh century) in his similarly motivated attack on science and philosophy, *The Incoherence of the Philosophers*.⁸ Like the *Tattvasaṅgraha*, *The Incoherence of the Philosophers* is a kind of elenctic encyclopedia—not a systematic compendium of knowledge, but a systematic compendium of knowledge claims and their unrelenting refutation. In both cases the objective was religious. In this regard, both works bear a strong and arguably not coincidental resemblance to the compendia of skeptical arguments composed by Sextus Empiricus. The *Outlines of Pyrrhonism* and the sequence of works *Against the Professors* constitute an exhaustive elenctic encyclopedia, the purport of which is not theoretical but expressly spiritual: inducing peace of mind (*ataraxia*) by exposing the vanity of all claims to knowledge.

In its last major eruption before the modern period, the argument is a natural consequence of the kind of nominalism popular in the Latin West of the fourteenth century. It makes a first appearance in a very limited context in the writings of William of Ockham, but quickly breaks out of all bounds, making an explicit stand in the famous condemned letters of Nicholas of Autrecourt (Maier 1963, Weinberg 1969 and 1977).

In sum, there are rich and formidable traditions behind Rosch’s argumentation. Furthermore, Price’s application of it seems unavoidable: if causation is something impossible or the possibility of which is at any rate off-limits to consciousness, then consciousness itself is one of the things we can’t explain.

Prospect

Many will want to challenge different steps in the arguments of Rosch and Price or make distinctions that seem neglected here. I doubt these stratagems will help in the long run. What I want to explore is something different. As the philosophy of A.N. Whitehead demonstrates, it is possible to concede almost every point to Rosch and Price—even to the Mādhyamika—and still hold out for a different result. In fact, the trajectory I have described, since it implies that the mind-body problem cannot be solved apart from the induction problem, can be seen as partial corroboration of Whitehead's belief that they are the same problem. What Whitehead adds of course is that the induction problem cannot be solved apart from the mind-body problem either.

We will see that Whitehead offers a unique solution to the causation problem and in so doing makes a positive contribution to the phenomenology of consciousness. This phenomenology yields at one stroke his solution to the problem of induction and to the mind-body problem. Whitehead believes that consciousness is at bottom an experience of its own causal emergence out of the physical world it is conscious of. Consequently, we do not have to go far to find an authentic experience of causation. All consciousness involves an experience of causation, and in being conscious we already possess a paradigm of what causation is. What this means, of course, is that consciousness must have all of the same problematic features that have made causation so controversial. For Whitehead, therefore, the challenge of explaining consciousness is even greater, but the trade-off is that if he can explain how consciousness is possible, he will have explained at the same time how causation is possible.

Whitehead's psychology is unconventional. For one thing, he does not believe that all experience is conscious. On the contrary, he thinks consciousness is a uniquely convoluted form of experience that is comparatively rare. As one might expect, his explanation of consciousness is correspondingly convoluted. Furthermore, his theory of nonconscious experience becomes the staging area for his famously bold experiment in metaphysical cosmology. This, too, makes his psychology a challenge to conventional wisdom and easy interpretation. These complications dictate the course of our investigation. Before harvesting Whitehead's theory of consciousness for his solution to the causation problem, we will have to outline the unorthodox psychology at the heart of his theory of experience and his metaphysics insofar as it bears on this psychology. And before that, we will have to deal with the obvious question: if the experience of causation is so readily available, why has the existence of such an experience been so widely and successfully disputed throughout the history of philosophy? The Whiteheadian answer I will

elaborate is: consciousness is always an experience of causation (both final and efficient), but it is never more than barely consciousness of causation. In short, it is true that no one will find causation among the well-identified objects of consciousness, but there are other places to look that have traditionally been ignored (cf. Weekes 2006). What Whitehead thinks we find by looking back at experience that was nonobjectified as it was occurring is a universal model for understanding causal operation. We discover process as a quasi-organic event whose germinal reality is unavoidably characterized by a logical and ontological fuzziness. This process is not vulnerable to the demands that power the dialectical arguments against causation, namely, the demands for a stark disjunction between identity and difference, same and other, separate and interdependent, or distinct and internally related.

Using nonobjectified experience as his model, Whitehead's metaphysics proposes a radically original ontology of events. All things are made of events, and all events have the structure of experience, even if its intensity is in most cases so attenuated as to be negligible. Whitehead's proposal to use psychology as a model for a new metaphysics strikes many as outlandish. Yet it is an idea whose time seems to have come as a growing body of literature explores the possibility that the features of consciousness that are hardest to explain are a macro-manifestation of essential properties of physical micro-structure. But it is not just physics that Whitehead transforms with a psychological reading. He also transforms psychology with a physical or physiological reading that counteracts its inherent tendency toward some form of subjective idealism. The result is a psychology that avoids many of the snares of modern philosophy that still trapped the Phenomenology of Husserl and continue to lurk in many proposals of cognitive psychology. My final objective, however, is not to defend or critique this theory, although I attempt to present it in a sympathetic light, but to make it available to ongoing discussion. It fills an unsuspected gap in the spectrum of possible answers to the much-debated question of the nature of consciousness.

Rosch: Circularity and Incoherence in Causal Thinking

In her article, Eleanor Rosch offers a psychological analysis of the perception and ascription of causality. Examining a wide cross-section of samples—from science to superstition—as well the results of controlled experiments, she finds that the explanatory patterns of both scientific and everyday thinking illustrate the same dubious logic. Despite themselves, common sense and scientific practice corroborate the most extreme views of the philosophers. She takes as undisputed that no one—scientist or layman—accepts as valid an explanation that analysis and reflection reveal to be a mere tautology. But her

data suggest that no one—scientist or layman—finds an explanation coherent until it has in fact been reduced to a tautology. Since explicit tautology is not accepted, the sense that explanation has done its job successfully comes from the degree to which we have managed to deceive ourselves about the fallacy we have committed.

In effect, Rosch provides an empirical confirmation of the extreme critique of causality. If the philosophers are right, then what passes for successful explanation must involve an element of deception. Empirical psychology seems to confirm this. Since Whitehead's view is the opposite—that common practice attests veridically to causality—Rosch's analysis merits our detailed attention.

Rosch's Argument

First, Rosch analyzes causation into three elements: "Any coherent event or event sequence can be conceived in terms of three parts: a *ground* out of which the event can be seen to arise, something that *happens*, and an *outcome*. The happening is the connecting link between the ground and the outcome" (51). Then she applies the Mādhyamika's typology, which is meant to encompass all logically possible relations between ground and outcome. Since the Mādhyamika's dialectic is unconventional in the extreme, a short introduction may be in order.

According to the Mādhyamika there are four ways to understand the arising of events. Either an event arises out of a cause that is the same as, different from, both the same as and different from, or neither the same as nor different from itself (this is the logical format of the Mādhyamika's so-called "tetralemma"). Taking the extreme cases under each heading, the first alternative is said to be self-causation, a thing arising from itself (identity being the limit of sameness), and the second is said to be causation by something wholly other. Anything intermediate between these two extremes (causation by something similar, for example) is seen as somehow composed of or mediated by these two extremes and so falls under alternative three, which in its own extreme formulation divides into two alternatives: "causation by something *both* wholly identical *and* wholly other" or "causation by something in part identical and in part other." Finally, the last alternative is identified with having no cause at all, things arising by pure chance.

It should not be difficult to see how the Mādhyamika's typology lends itself to destructive dialectic. I will review the lemmas in reverse order, reserving critique for the next section. The idea that everything arises completely by chance squares poorly with the evident order and regularity in a world of heterogeneous events. Instead, we should expect wild irregularities and/or by the law of large numbers a chaos converging on complete uniformity. I

have already set the third alternative up in a way to foreground its putative inadequacy. “Both wholly identical and wholly other” is rejected as a bald contradiction, and “in part identical and in part other” obviously resolves itself into “one part wholly identical” and “one part wholly other,” in other words into a straightforward conjunction of the first two alternatives. Accordingly, this construal of the third alternative will stand or fall with each of them. The second alternative, by reducing the connection of cause and effect to sheer difference, fails to explain why any two arbitrarily taken events cannot stand in the relation of cause and effect as long as they are different. The first alternative runs up against a number of fascinating logical puzzles that cannot be explored here. The most important is the obvious one: if cause and effect are truly identical, then there is no dyadic relation of two terms, no progression from one to the other, in short, no causality. Alternatively, if there is such a self-reproduction, it should reiterate indefinitely. The overall conclusion, then, is that causation cannot be understood in any of the four ways that are logically conceivable. In short, causation is impossible.

Dialectical arguments of this type, so common in antiquity both East and West, may not be as easily dispatched as modern thinkers would like to believe, and we shall see that Rosch has done a remarkable job of showing this in the case at hand.

Rosch suggests that we always justify the ascription of causal connectedness by an appeal to some kind of identity across difference. She associates this tactic with the Mādhyamika’s first construal of causation. She catalogues four basic types of putative “self-causation.” (1) Seeing the ground and outcome as the same entity, only transformed in some way. Examples: object constancy amid variations in visual perception. An object looks different not despite its being the same object, but under the circumstances because it is the same object. (2) Seeing the transfer of a property from ground to outcome. Examples: apparent motion transfer in apparent collisions; sympathetic magic; affective association. A feature of the ground is directly conveyed to the outcome. (3) Seeing an object as causing our perception of it or our intention as causing our action. Examples: “the tacit assumption that objects have the properties we see in them;” explanation by motives, by unconscious intentions, by unconscious information processing, by instinct. (4) Seeing something as the manifestation of its essence. Examples: explanation by attribution of character traits, dispositions, the “nature” of the thing, genetics, faculties.

But this appeal to identity has the result that explanations we initially find acceptable turn out to be scientifically useless tautologies. Her thesis:

[T]o be perceived as coherent, events must normally be seen to arise from themselves. [. . .] any event—temporal or deductive—

will be seen to be coherent (or causally bound) to the extent that the outcome is seen to be already in the ground. The connecting link must also be the appropriate sort to transform the outcome as it is contained in the ground into the actual outcome; however, the more identical the outcome in the ground is to the actual outcome, the more minimal need be an account of the happening which connects them. Although this is the natural mode of explanation, when we reflect upon such accounts we find them tautological and demand of scientific explanations that events be shown to arise from what is other than themselves. It is from this demand that the other three types of explanation arise. (52)

But attempts at scientific explanation are doomed to failure because identity is the only standard of coherence we know:

A real account of causes, a noncircular explanation, a scientific account, must show how something arises from what is not already itself. [...] But however long the chain, explanations which derive outcomes from what is entirely other than themselves face an interesting difficulty. As long as an event comes from a ground which is strictly and thoroughly other than the outcome, the relationship between ground and outcome remains incoherent. [...] all explanations deriving events from something completely other than themselves become explanations because somewhere along the way they introduce the outcome itself and thus turn the account into one in which the outcome is already contained in the ground. (57–58)

The identity requirement aligns with the Mādhyamika's first alternative, the difference requirement with the second. Rosch does not believe the two requirements are compatible any more than the Mādhyamika did, but an adequate explanation would have to be one that satisfied both requirements simultaneously: establishing identity without abrogating difference. The argument is deceptively simple. What impresses is the way empirical data about human behavior appear to support its conclusions. Rosch's most striking examples are drawn from psychology: cognitive science and behaviorism.

Rosch's Documentation

Rosch stresses the explanatory satisfaction cognitive science finds in isomorphisms: in "a computational account of form perception [...] [r]etinal stimulation goes through a series of stages at each of which the representation

looks more and more like the percept. In fact, ‘looks like’ is taken somewhat literally by the computationalists.” Rosch takes this to be a clear case of explaining something through itself. Furthermore, where first-order isomorphism between neurophysiology and experience cannot be found, as in the case of color perception (“there are obviously no first-order-isomorphisms between neural representations, which are not coloured, and the percept which is”), second-order isomorphisms are sought: “In regard to colour, the structure of neural representations at the cortical level can be said to *map* the structure of the colour solid. The more similar the better” (59).

It might seem that the idea of second-order isomorphism is just what is needed, since it satisfies the identity requirement without abrogating the difference requirement. So don’t we have it: identity without tautology? Rosch does not address this consideration expressly, and frankly I think she has not exploited the full power of her own example. Since it will become relevant when we turn to the problem of explaining consciousness below, let the following be noted as a rejoinder of the Mādhyamika’s type: while “second-order isomorphism” may appear to be a coherent, nontautological way of explaining qualitative aspects of perception such as color, it resolves itself—just as the Mādhyamika’s dialectic predicts—into two parts, a part that is tautological because it asserts that a structure remains the same as itself, and a part that is incoherent because it spans a gap of unmediated and unbridgeable difference. This is the “hard problem”: how the qualities of subjective experience can arise from a purely physical substrate like the brain. What the fairly broad contemporary consensus about the hard problem comes down to is this: at least in the case of explaining consciousness, the Mādhyamika’s analysis is right on target.

Rosch does not believe that the logical problem of explanation is unique to the hard problem of consciousness or the methodological program of cognitive psychology. She gives examples from the history of behaviorism that are equally remarkable for the way second-order isomorphism is superimposed on unexplained difference.⁹

Rosch also finds tautology concealed in types of explanation that do not employ the concept of isomorphism, such as multi-factorial and statistical explanations. Here she finds that the bias for circularity disguises itself as a demand for “causal relevance.” Rosch documents a general tendency for people to disbelieve that things can have more than one cause, as well as a (presumably related) tendency in avowedly multi-factorial explanation to downplay factors that are merely correlations and to emphasize one (and usually just one) that seems to have intrinsic relevance because it really conceals a tautology. Multi-factorial explanation—not as it is envisioned, but as it is practiced—is thus a case of the Mādhyamika’s third alternative. It tends to reduce to a factor that is considered “relevant” because circular and others

whose relevance is considered opaque and unsatisfactory because they are not circular, but simply other.

Statistical explanations and explanations that eschew the notion of causation or causal relevance in the name of mere correlations or their frequencies Rosch compares to the Mādhyamika's fourth alternative. Here she rightly notes that no laymen or practicing scientist really operates on a regularity interpretation of causality. Only regularities that are relevant within the context of an inclusive theory of how things work are considered causal: "we do not think for a minute that our belief that rice plants will grow from rice seeds is only an expectation generated from the constant conjunction of these events in the past; we understand this regularity within our theory of genetics, which itself is part of our general theory of biological systems. [...] [C]onstant conjunction [...] will not be taken as causality itself unless it is embedded in an appropriate theory" (61). But what the embedding theory provides, as we saw above from Rosch's discussion of behaviorism and cognitive psychology, is a surreptitious way to think of certain regularities as circularities.

Finally, Rosch notes the frequency with which statistical explanations commit the fallacy of computing probability based on assumptions of representativeness rather than on base-rates:

Thus, the probability of a given person being a librarian is computed, not on the basis of the (low) rate of occurrence of librarians in the population sampled, but by how closely the individual in question matches the stereotype of a librarian, a category essence relationship. This may not be simply a technical error in computing probability, as it is often treated, but a downright refusal on the part of subjects to take the situation as probabilistic. Subjects are quite capable of using base rates when those are presented as causally relevant. (62)

Upshot of her Analysis

Rosch's defense of the Mādhyamika's thesis is no doubt off-putting, but the identification of necessity or logical coherence with analyticity or formal tautology in twentieth-century logic lends support to their view. Indeed, the impossibility of reducing causation to formal logical necessity (to identity or tautology) is the core of Hume's critique of science that empiricism still accepts. In its usual form the critique makes the following assumptions: (a) that logical necessity (or something as strong as logical necessity) is what is required in scientific explanations, (b) that only logical necessity satisfies condition (a) because nothing else is as strong as logical necessity, (c) that

identity and tautology are the only logical necessities, and (d) the relationship between putative cause and effect cannot be reduced to identity or tautology. It is not only possible to find each of these assumptions in Hume's *Treatise*, but it is also possible to show that they are not simply prejudices of empiricism. For it is precisely because the rationalists Leibniz and Wolff accepted (a), (b), and (c), that they saw a need to rescue the law of causation by attempting to disprove (d).¹⁰ Leibniz at least was quick to realize that (d) could not be disproved and sought instead ingenious ways to qualify it.¹¹

The argument of the Mādhyamika and their Western counterparts is logical: coherence that is not simply identity is an incoherent notion. Rosch wants to show that this seemingly daring thesis is something everyone, including the scientist, implicitly already believes. Rosch's thesis poses an unusual evidentiary burden on its opponents. For it is an empirical claim that could be refuted only by a logical argument: to show that belief in successful explanation is not always deceptive, we would have to adduce an instance of truly successful (logically unexceptionable) explanation. Those who invoke intellectual seriousness as a reason to put aside the Scholasticism of purely verbal arguments, enjoining us to focus on propositions of empirical importance, will find themselves uncomfortably cornered. Whether or not Rosch has exposed deception at the heart of explanation, she has exposed the shallowness of positivistic posturing.

Outline of Whitehead's Solution

We seem to be left with the classic dilemma: tautologies are not acceptable explanations, but explanations whose necessity falls short of the logical necessity of tautologies are not accepted either. We see why the law of causality came to be associated with what Kant described as synthetic knowledge *a priori*. If explanation is to be both compelling and noncircular, a necessity that is not a formal-logical tautology must be possible. And short of this vexed Kantian solution, it's not clear that Rosch's argument won't carry the day—a triumph few will welcome.

If this situation piques interest in alternatives, few are in the offing. Most philosophers either give up on nontautological necessity or attempt variations on Kant's aprioristic solution using transcendental arguments about the conditions of the possibility of cognitive engagement with the world. Whitehead, on the other hand, offers a genuine alternative. He proposes process as the basis for necessary synthesis.

Whitehead sets out to find the conditions of the possibility of existence in time. We take it for granted that the world at any moment is overwhelmingly like but distinct from the world of the immediately preceding moment and that it will turn out to have been overwhelmingly like but distinct from the immediately following moment. This continuity is the most rudimentary

basis for induction. But, just as for Hume, induction will have no scientific justification—only a psychological explanation—unless this process of similar continuation is somehow necessary. The assimilation of the past to the present and the accommodation of the present to the past must be metaphysically obligatory. Otherwise our expectation of a greater or lesser degree of continuity at every moment will remain a leap of faith.

Whitehead believes the continuity of things existing in time is the external appearance or result of what are really discrete acts of continuation. This is the lesson he chose to take from the earliest discoveries in quantum theory. Taking his next cue from Bergson, he thinks we can have some idea what this time-creating process looks like from the inside by looking at the most primitive aspects of our own experience of time, which is characterized by the organic wholeness of experience within the brief duration of the specious present. This unlikely fusion of Bergson's theory of duration with quantum theory yields the following (possibly incredible) thesis: manifest physical time is an accretion of lifeless deposits left behind by countless minute durations of lived time, which succeed one another in a dense volley of surges, each having the briefest possible duration. Whitehead proposes that inside the durational process there is a dyadic relation that is the basis for such distinctions as present and past, subject and object, effect and cause, all of which collapse into one distinction. In outline: the present corresponds to mind (lived duration) and the past to matter (lifeless deposit left by previously expired durations). Matter is analogous to the animal body, which is both the material substrate upon which the functioning of mind depends (or that from which it emerges) and the primary object that mind experiences. The past is both substrate and object of the present. Before going any further into Whitehead's ideas, we need to finish our examination of the sort of position to which he offers an alternative.

Whitehead Agrees with Price: The “Hard Problem” of Explaining Consciousness Is Hume's Problem of Causation

Price's Argument

Drawing on Rosch's analysis, M.C. Price (1997) suggests a novel solution to the hard problem of physically explaining experienced qualia. Price concedes that there is an “explanatory gap” between our objective accounts of brains and our first-person subjective viewpoints, but for him this is not the problem: “I would like to suggest (1) that explanatory gaps are in fact ubiquitous in our causal explanations of the world, (2) that we are just very good at covering up these gaps, and (3) that what is special about consciousness is not the

presence of a gap, but the fact that the gap just happens to be particularly obvious and difficult to obscure” (83). Accepting Rosch’s analysis of the psychology of the feeling of causal closure and Hume’s regularity account of causation, Price concludes that the hard problem is an illusion. Causation is simply regular correlation. Never is it the case that there is transparent connection between cause and effect. Sounding like the Mādhyamika, he argues: “The idea of a causal nexus is in principle non-sensical because ground A and outcome B cannot at the same time be different from one another *and* account for each other. We seek to link two different states of affairs, but, by virtue of the very fact that they are different, an explanatory gap must remain between them. Causation ‘as it really is’ consists just of regularities in the relationships between states of affairs in the world (Hume’s ‘constant union and conjunction of like objects’)” (85).

According to Price we *feel* as if an explanation is adequate when it meets one of the four conditions of concealed tautology described by Rosch (or similar conditions—Price notes that Rosch’s catalog might be incomplete). Price then considers each of the possibilities (in a somewhat different order than Rosch) in regard to the causation of consciousness: (1) where consciousness is the outcome, could we see qualitative subjectivity as a property transferred from the brain as ground? Obviously not—that’s the whole hard problem in a nutshell; (2) but neither, he claims, can we see consciousness as the result of perceiving an object or intending an action: “[T]he hard question of consciousness is not about how particular objects of perception or particular actions map onto particular *contents* of consciousness—it is about how our internal representations are conscious at all” (88). (3) Can we see consciousness as the same thing as the brain, only transformed in some way? This is the view, he notes, implied by the mind-brain identity thesis and the dual aspect theory, but neither theory meets the psychological requirement: “it is all very well to think of consciousness and its ground as the same thing viewed from differing perspectives, but this merely begs the question of how such radically differing perspectives can come about” (89); (4) finally, Price proposes panpsychism as a paradigm example of the fourth type of explanation, which he formulates somewhat differently from Rosch: seeing the outcome as a property of a category to which the ground belongs. But seeing consciousness as a property of matter to begin with, he claims, just pushes the explanatory gap back; it doesn’t bridge it. Price concludes: the hard problem is a psychological problem, not a scientific one. There is no reason to expect we will feel satisfied with even a perfectly adequate explanation of consciousness because, unlike folk explanations that involve concealed tautologies, truly scientific explanations are just correlations and never “bridge” the explanatory gap.

Reservations and Critical Responses

Taking stock of the arguments of Rosch and Price, we must ask how serious a triumph this is for the Mādhyamika. Some important reservations need to be granted. For a sophisticated solution we can turn to chaos theory and nonlinear dynamics, which have taught us that random events need not average out into a state of zero complexity. Self-organization is compatible with the second law of thermodynamics, which presumably has implications for information theory. This would circumvent the rejection of alternative four, and Rosch acknowledges the importance of this prospect (64). But the discomfort of common sense lies elsewhere.

The first two alternatives, given their extreme formulation (“self-same” or “simply other”), are logically hopeless construals of causation. But what about less extreme formulations? Common sense can go along with the idea that anything less extreme will fall “between” these two extremes and should be treated under the heading of alternative three (“same *and* not the same”), but common sense probably can’t help suspecting that alternative three has not gotten a fair shake. Recall that “both the same and not the same” was construed to mean either “in part the same and in part not the same” or “both *wholly* the same and *wholly* not the same.” The former was rejected as a straightforward conjunction of alternatives ones and two and hence no better than either, while the latter was rejected as an intolerable contradiction. In both cases the assumption is that alternative three simply resolves itself back into the mere conjunction of the first two alternatives—generating a contradiction if the conjuncts are not differently distributed and offering nothing over and above one and two if they are. Two response strategies are pertinent here: (1) on the one hand, why should we go along with the damaging claim that alternative three simply resolves itself back into the mere conjunction of the first two alternatives? (2) On the other hand, even if it does, why can’t the conjunction of one and two solve the problem each suffers in isolation?

The former option—the one I pursue in this paper—leads to a highly unconventional solution that happens to lie at the heart of Whitehead’s theory of causation and consciousness. The latter option leads to the most conventional attempt at a solution. Both are motivated by the *prima facie* plausibility that between identity and otherness there must be some intermediate that would allow cause and effect to be distinct, yet related in a nonarbitrary way. Similarity is an obvious candidate here and one that was traditionally chosen for this job (“effects must be like their causes”), and there are many other familiar constraints (spatio-temporal contiguity, conserved or expended quantities, patterns of invariance, regular deformation) that

would infuse relevance into the relation of things numerically distinct. One of the virtues of Rosch's analysis lies in showing how easily this demand for relevance falls prey to the Mādhyamika's dialectic. A theory of causation that was successful by traditional standards would be one that, pursuing strategy (2), successfully factored causation into identity and difference without simply becoming the conjunction of a tautology and an incoherence. Showing that this requirement is difficult to meet—which is what Rosch has done—is not the same as showing that it is impossible—which is what Hume and the Mādhyamika believe themselves to have done. On the other hand, the only way to show that this requirement can be met is to meet it (“the only proof is in the pudding”), which arguably has never been done. But the problem may not be with causation. It may be that the challenge itself is misconceived, unjustifiably demanding the impossible. The long-standing stalemate over this issue makes alternative approaches that might otherwise seem far-fetched worth exploring.

Pursuing strategy (1) leads to the unconventional results that interest me. If we could find a relevance relation that was immune to the stark same-or-different, identity-or-otherness disjunction, then alternative three would simply not resolve back into alternatives one and two combined. I suggest that similarity, if rightly construed, is a candidate here. Wittgenstein is famous for having opposed the classical notion (so ably defended by Husserl in his *Logical Investigations* and, before him, by Herbart) that similarity is self-contradictory if it cannot be factored into a part or aspect that is wholly identical and a different part or aspect that is wholly other. Using the now-famous metaphor of “family resemblance” he proposed instead similarity as an irreducible primitive. On this telling, similar things would not be identical in one respect and different in another. Rather, they would be both the same and different and in the same respect: in respect of being similar. In the context of the Mādhyamika's dialectic we can see that Wittgenstein's obstinacy is well motivated. It suggests a different way to approach the analysis of relations such as causation, one that offers a unique possibility for solving the causation dilemma. Tautology and incoherence—or the unmitigated superposition of tautology and incoherence—cease to be the only viable alternatives. Causes can be both the same as and different from their effects in the same respect without this being self-contradictory if the respect in which they are both is their similarity as a vague or fuzzy but irreducibly primitive relation. Another way to put this will become important in section seven below: the relation between cause and effect will be both internal and external at the same time. The end-result of such an approach may not be so different from what the Mādhyamika themselves had in mind—experience freed from the presumed strict demarcation of concepts.

How Whitehead Turns the Tables

This is the context in which Whitehead becomes relevant. Whitehead claims that we do have an experience of causation and could therefore possess a concept of it that is both coherent and nontautological. And this experience is nothing other than the experience of being conscious itself. Consciousness is always the experience of its own arising out of an antecedent and ambient physical world. It should be obvious that this viewpoint corresponds roughly to one of Rosch's four types of felt causation: seeing our perception as being caused by its object. In fact, in the conclusion of this chapter, I will claim that it corresponds to each of Rosch's four types, without being tautological. Instead, it is a relation of vague but primitive similarity.

The connection that Whitehead sees between the induction problem and the mind-body problem can now be stated in briefest outline. The induction problem takes us back to the causation problem, which is the problem of necessary synthesis. To solve these problems, Whitehead proposes a unique concept of process—the process by which the present accommodates the past. If we demand to know what empirical justification there is for this clever notion, he tells us that consciousness experiences itself as just such a process. The induction problem is thus solved by exhibiting the experience of being conscious as the paradigm of a process that makes causation intelligible. But since the particular process that consciousness exemplifies is, according to Whitehead, none other than the emergence of the mind out of the body (and its worldly environment), it turns out that the induction problem is solved only by solving the mind-body problem—and vice versa. Just as for Price the mind-body problem is simply the causation problem applied to consciousness, so for Whitehead the *solution* to the mind-body problem is simply his solution to the causation problem applied to consciousness. But Whitehead goes much further than this. Shifting the focus from consciousness to experience, he proposes that experience isn't just a paradigm case of process, but the key to its essential structure. All process involves the emergence of something ever so briefly mind-like out of the physical, creating some modicum of both novelty and continuity through an assimilation and accommodation between what already is and what is, more or less creatively, just now becoming.

Consciousness: Classical Phenomenology vs. Whitehead's Phenomenology

To see how Whitehead documents the veridical experience of causation, we must first familiarize ourselves with some of his operative concepts and

feelings that resulted in an antecedent thing's concreteness. We experience this psychologically as the so-called pathetic fallacy.

The reader must decide for herself whether to assess these proposals as contributions to a heavyweight metaphysics of the future or as a source of inspiration for something less freighted. I present them partly "for the record"—as a contribution to Whitehead scholarship—and partly for the impetus they may provide to innovative work in phenomenology, psychology, and the philosophical frontiers of semantics.

Notes

1. In the points made in this paragraph I am in full agreement with Elizabeth Kraus (1985), although her analysis of Whitehead's concept of efficient causation has an entirely different focus from mine. She focuses on the way Whitehead's occasions are supposed to anticipate the effects they will have in the future. It does not seem to me that her analysis, which explains how the future can be immanent in the present, really succeeds at explaining the converse: how causes can be immanent in their effects. However, I would characterize her analysis as incomplete rather than incorrect. It does not seem to be incompatible with the arguments advanced later in this chapter.

2. Think of the work of Nicholas Rescher, Karl-Otto Apel, and others inspired by Peirce.

3. The reader should not confuse Russell's "knowledge by description" with what I am calling the "descriptive approach," by which I mean the kind of knowledge captured in the empirical or phenomenological *description* of an object of direct acquaintance. What I am calling description therefore corresponds to Russell's knowledge by acquaintance, and Russell's knowledge by description corresponds to what I am calling the transcendental approach.

4. Hume makes arguments (1), (2), and arguably (4). Argument (3) was made by Greek skepticism, medieval Buddhism (Dharmakīrti, Śāntaraksita, Kamalaśīla), and medieval Islam (al-Ash'arī and the Asharite Kalām, al-Ghazālī). Argument (4) was made by Greek skepticism and by Nāgārjuna (and the other Mādhyamika).

5. *Pyrrhoneae Hypotyposes* 2, chs. X–xi, §§ 97–135; *Adversus Mathematicos* 8, ch. 3, §§ 145–299.

6. For Dharmakīrti, see V.N. Jha's translation (1990) of the *Sambandha-parīkṣā* (*Theory of Relations*); for the *Tattvasaṅgraha* (with Kamalaśīla's indispensable commentary), see G. Jha's translation (1937). The *Tattvasaṅgraha* examines causality in the chapters on "permanence" (8), on "the relation between actions and their results" (9), and on the Vaiśeṣika categories of "quality" (11) and "action" (12). The successful defense of causation announced in Kamalaśīla's commentary to § 532 is belied by the refuge taken in a strict regularity theory of causation in § 438, which has the expected nominalist consequences for dynamics. A quality such as momentum, which is a force of diachronic determination, is impossible (§§684–687). The

Buddhist doctrine of momentariness thus leads to the same problem with projectile motion that plagued Aristotle.

7. The *locus classicus* for the doctrines of Asharite Kalām is the summary provided by the unsympathetic Maimonides in Book I, chapter 73 of his *Guide of the Perplexed* (Pines 1963, I 194–214).

8. “Discussion 17” [“On Causality and Miracles”] of Ghazālī’s *Tahāfut al-falāsifa* (Marmura 1997, 170–181).

9. “Hull’s initial theoretical machinery operated to get the rat into the maze, but before the rat got to the reinforcement at the end, Hull was forced to introduce a mediating variable called ‘fractional antedating goal responses.’ These are just what they sound like, miniature versions of the outcome. Skinner’s dictum of the organism as a black box allowed for no intervening variables at all. Coherence in his explanations came from second-order isomorphisms; certain characteristics of stimuli are correlated with equivalent aspects of response. Amount of bar pressing to get food is a simple function of number of hours of food deprivation. The temporal characteristics of responses on a fixed interval schedule mirror the intervals of the schedule. Where such elegant relationships cannot be found, a Skinnerian analysis breaks down.” (59)

10. Zocher 1952, “Anhang;” Wolff 1736, § 70 (“Principium rationis sufficientis probantur”).

11. Leibniz argued that even if contingent propositions are not true analytically, there is nevertheless always a reason why they are true, and that having a reason always means being analytic at some level of analysis. What distinguishes contingent from necessary propositions is simply that their analyticity would be evident only in the total context of all events, which means their analyticity would be evident only to God. Causal necessity for Leibniz is therefore a special case of logical necessity: a logical necessity whose demonstration requires an infinite number of middle terms. See, for example, Leibniz 1989, 96, 98–101.

12. I confine myself to the most rudimentary comparison of Whitehead with classical Phenomenology, which I take to be represented best by Husserl. To avoid confusion, I adopt the upper-case orthography to designate the core doctrines and methods of the classical phase of the movement that expressly styled itself “phenomenological,” and I employ the lower-case orthography to designate the practice of intimate psychological description to which no school can lay proprietary claim. It is found abundantly, for example, in Hodgson, Bergson, Mach, Bradley, James, and of course in Whitehead.

13. PR 120, 122 (memory); 174 (reflex); 175 (habituation); 239 (fatigue); 81, 176 (embodiment); 137, 237–8 (time, causation, continuity).

14. “Hume’s impressions are self-contained, and he can find no temporal relationship other than mere serial order” (PR 137).

15. Readers of *Ideas I* or the *Phenomenology of Internal Time-Consciousness* did not seem to realize Husserl was being both serious and literal when he argued that the stream of transcendental consciousness must be infinite. No doubt can be left about this from *Analysen zur passiven Synthesis*, Beilage 8, § 10, on the “immortality of the transcendental ego” and “the impossibility that the transcendental ego should be born.” See Husserl 1950, § 82; 1966b, § 13; 1966a, 377–381.