

ON BURYING INDUCTION

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Abstract:

Contrary to a popular view that induction constitutes solely a methodological problem, this essay argues that a metaphysical problem underlies the methodological in such a way that any solution of the latter implicitly assumes the solvability in principle of the former. Thus the metaphysical problem deserves to be faced rather than dismissed. It is further suggested that the general features of a solution to the metaphysical problem are exemplified in the philosophical approach of A. N. Whitehead, inasmuch as it couples both the recognition of causal derivation within the fabric of immediate sense experience and a speculative account of just how the present can thus derive from the past and the future from the present.

## On Burying Induction

It is an observable law of philosophical experience, says Etienne Gilson, that philosophy always buries its undertakers.<sup>1</sup> One particular philosophical problem which has been repeatedly "undertaken" ever since Hume is that of induction, and the very frequency of its trips to Boot Hill may just prove that Gilson was right. Let us watch the law at work as Nelson Goodman performs a typical modern interment.<sup>2</sup>

We may begin with Goodman's own description of "the Old Problem of Induction," a problem which he considers now to have been solved, or rather dissolved (that is, buried). He writes: "The problem of the validity of judgments about future or unknown cases arises, as Hume pointed out, because such judgments are neither reports of experience nor logical consequences of it." (Goodman, p. 59.) For simplicity, and also because I think it more fundamental, I shall attend solely to the expectations we form about future events (cases). Also, "expectations" will be a better word than "judgments," since it is psychologically broader and can also be taken to include Reichenbach's "posits." Finally, the word "validity," which forms the nub of the problem, is itself ambiguous. In the inductive context it cannot be taken to mean deductive validity, so it is practically equivalent to "justification." The problem then can be restated: What is the justification for our anticipations about future events?

Now clearly there is a whole spectrum of the sorts of future events about which we might entertain expectations, ranging from general to particular, and from the distant to the immediate future. There is an equally broad spectrum of the sorts of evidence we would rely on in different cases. We might want to establish what sort of testing would suffice to ensure that a city's water supply will be safe, or we might just seek reason to believe that one more piece of pie won't give us heartburn. The problem comes into sharpest focus

<sup>1</sup> Etienne Gilson, The Unity of Philosophical Experience (New York, Scribner's, 1937) p. 306.

<sup>2</sup> Nelson Goodman, Fact, Fiction and Forecast (Indianapolis, Bobbs-Merrill, 1955), Ch. 3, "The New Riddle of Induction."

when we confine it to the justification of our expectation, based on our immediate situation, of a particular event of the imminent future: the expectation, for instance, that this pencil will fall when I let go of it.

The problem, then, is the justification of such an expectation, and the quarrel among philosophers usually consists in disagreeing as to what such a justification need entail. One aspect of the justification is clearly methodological or, if you will, epistemological. In the case of setting up norms for testing a city's water supply, the consensus of reputable biochemists, based on theory corroborated by extensive experience, would surely constitute the methodological justification. And a lifetime's experience of earthly living would methodologically justify one in thinking the pencil will fall (provided one is in an ordinary terrestrial situation). But there is also a metaphysical aspect to the problem and it requires not a methodological but a metaphysical justification of the inductive expectation. This aspect of the problem confronts you when you get behind the difficulties of forming methodically defensible inductive expectations and ask whether and how these expectations are grounded in the events of nature rather than solely in procedure or in habits of the mind. To illustrate by analogy: it may be a perplexing legal problem to establish who are the rightful heirs of an estate (this would correspond to the methodological or epistemological problem), but this problem is solvable in principle only if there is an underlying law governing such inheritance. The simple fact of the law does not disclose to us the particular heirs, but the problem of determining who they are presupposes knowledge of the existence and character of the law. Similarly, it may be tricky, before nibbling one, to determine whether anyone has slipped arsenic into the cookies, but even if no one has, how is our expectation of the usual nutrition (and the usual fattening carbohydrates) grounded in anything but the habits of our own mind? In what way are these expectations grounded in extramental events? If in no way, then we have no objective justification for forming any anticipations whatsoever about the future, even about the effects of arsenic! If in some way, then that way should be metaphysically explicable, and explaining it forms the metaphysical aspect of the problem of induction.

Now if this is the aspect of induction that worries you, you have Professor Goodman's assurance you are wasting your worry. Inductive conclusions, he holds, are adequately justified in fundamentally the same way as deductive ones, namely

by the conformity of the procedure to the rules generally accepted as valid for such reasoning. You need not appeal to any grand metaphysical principles nor attempt to justify some cosmic assertion about the Uniformity of Nature. You need only examine whether accepted rules have been followed in reaching the inductive conclusion, just as you test the formal validity of a deductive inference by the rules of entailment. These rules have nothing to do with particular facts of nature but with procedure and with the interrelations of propositions regardless of their factual truth-values. The metaphysical aspect of the problem, then, seems to have died a natural death, or rather, never really to have been alive in the first place. In short, Goodman assures you that metaphysical distress about induction is symptomatic of a problem in your outlook rather than in the world. If your discomfort persists you should presumably consult a psychiatrist, not a metaphysician.

Now it would indeed be convenient if this notorious metaphysical devil could be cast out just by invoking method. Such exorcisms have even become fashionable. Paul Edwards sees no reason why past experience alone does not provide a perfectly adequate yet entirely empirical basis of induction.<sup>3</sup> Hans Reichenbach held that speculating about the metaphysical aspect of induction is not only useless but meaningless: if it is possible at all to form useful expectations about the future we shall in fact form them by a careful extrapolation from our past experience. The whole problem lies in the care of this extrapolation.<sup>4</sup> Goodman's approach fits this neatly. For him the "old" problem of providing a metaphysical ground for induction dissolves into the "new" problem (and no small one) of properly formulating the rules for arriving at inductive inferences. (It is significant that he finds it particularly troublesome to discover a way to distinguish law-like from accidental statements.)

Despite these well-meant efforts to bury the dead, I aim to show that the metaphysical problem of induction is still as alive and mean as ever, and that we ought to confront it rather than just hope it has gone away.

<sup>3</sup> Paul Edwards, "Bertrand Russell's Doubts about Induction" Mind, 58 (1949), 141-163.

<sup>4</sup> Hans Reichenbach, The Rise of Scientific Philosophy (Berkeley, University of California, 1958), Ch. 14, "Predictive Knowledge."

Whenever we anticipate the future we do it on the basis of our experience of the past. An Adam, spanking new in Eden, could not foresee the effect of his first double martini. But to use the past as evidence for the character of the future is already to suppose that the future will in fact resemble the past, at least in its general features. If this supposition is purely gratuitous, then induction is whistling in the dark, plain and simple. But if the supposition is founded in extramental fact, it must be that we have some experience of derivational continuity of the future with the present and past. The metaphysical problem of induction lies in recognizing and explicating such an apprehension.

Now, derivational continuity would in some sense be causal, as Hume accurately perceived, but on his notion of cause and of the character of immediate experience, causality can never be a given of sensible experience. So Hume threw in his hand on the metaphysical problem. He concluded that induction is based on no other grounds than habit of mind acquired through past experience; that every inductive anticipation rests solely on a purely subjective feeling that the future will in fact resemble the past.

Goodman thinks Hume was wrong, however, in supposing that because he could not solve the metaphysical problem he could have no philosophical confidence in inductive inferences. After all, what gives us confidence in deductions except that they have carefully followed the accepted rules of entailment? That is what the rules of the syllogism are all about. Similarly, we can rely on our inductions to the extent that we have worked out and put into practice the appropriate rules for inductive reasoning. The only significant inductive problem lies in constructing a satisfactory set of rules of inductive inference analogous to those of deductive inference. This is the task of 'confirmation theory'.

But let us suppose that Goodman has already succeeded in formulating such a set of rules (though he has not in fact done it). This exceptional achievement would not be the whole story, for Goodman is not playing games. He wants a set of rules, and is willing to labor toward their construction, because he wants rational grounds for relying on inductive expectations, and it is the rules, he thinks, which gives us these grounds. But on what evidence does he tacitly suppose that such a set of rules, the product of so much labor, will do us any good? Why does he suppose that they will be serviceable tomorrow as well as today, or even from one minute to the next? At this point the metaphysical inductive problem

climbs right out of its coffin again. What grounds have we for thinking that any set of rules, whether for inductive or deductive inferences, will continue to work in the future as they have in the past? Goodman's very confidence in the usefulness of methodically correct, accepted procedure is itself a tacit reassertion of the original metaphysical problem. The expectation that any set of rules is worth constructing and relying on, is itself an inductive expectation and it calls for justification. Such a justification is, I think, neither trivial nor impossible, yet is overlooked in Goodman's treatment. Certainly his theory of what grounds induction cannot ground his own inductive confidence in the utility of constructing rules of inference, for in that case a new set of rules would be needed for determining when inductive confidence in rules is properly grounded, and so on, ad infinitum.

Furthermore, Goodman's criterion for accepting any set of rules in the first place is, to say the least, heady: "An inductive inference. . . is justified by conformity to general rules, and a general rule by conformity to accepted inductive inferences" (Goodman, p. 64). Realizing that at this point his readers will be feeling a little dizzy, Goodman hastens to assure them that this circle is a virtuous one: that it only describes what we all do anyway in amending our norms for expectations on a certain feeling of plausibility based on our past observations. That, of course, is Hume all over again, as Goodman recognizes. And having thus buried the metaphysical problem by the simple expedient of ruling it null and void, Goodman is able to move on to the problems of confirmation theory. But ten pages have not been turned before metaphysics has revenged itself on him in his "new riddle of induction": "the question what distinguishes law-like or confirmable hypotheses from accidental or non-confirmable ones." Goodman acknowledges that "we have so far neither any answer nor any promising clue to an answer" to this question (Goodman, p. 80). Since he has implicitly buried causal connection along with the metaphysical aspect of induction, his perplexity is to be expected.

But since I place such importance on the metaphysical problem of induction, I may fairly be asked to furnish a solution to it if I think that is possible. I do not claim to know a thoroughly satisfactory solution; in any case, a complete solution could not be developed in a short space. But I can sketch what seem to me to be the general features of a solution. They consist of (1) the recognition of causal derivation as a felt ingredient of immediate experience, and (2) a systematic, metaphysical explication of the character of this derivation and of how it forms part of experience.

I think Alfred North Whitehead was right in asserting that causal connection (or causal derivation) forms part of the fabric of immediate sense experience. It is a whole dimension of experience--the temporal and causal--which Hume, by reason of his epistemological and ontological presuppositions, was precluded from recognizing in his analysis.<sup>5</sup> It is the feeling, vague but fundamental, of the impact upon us of the environment as it crowds upon us, and of our own immediately past states of mind and emotion as they sway us. It is also the feeling of the present as relevant to the future. Hume was right in contending that causal connection cannot be an impression in the same sense as another shade of color, but he was wrong in thinking that it is therefore not an objective ingredient in sense experience.

Both my immediately past states of mind and the whole immediately past external world impinge upon my present experience with a felt urgency that is both causal and temporally thick. I feel my joy or anger of a moment ago as a present influence. I sometimes find myself dominated by a mood or the feeling of an aim, but have momentarily forgotten the aim itself or the occasion of the mood. Perhaps I have gotten out of my chair to do something, but in my preoccupation with other thoughts have now forgotten what I wanted to do. Yet I still feel the thrust of my past intention, and it is usually by allowing this feeling full rein that I consciously recall what it was I had in mind to do. Further, if I intended to close the window because it is cold, that very intention reveals my implicit recognition of the causal difference which the cold air is making to my body.

This direct experience of causal derivation Whitehead calls 'perception in the mode of causal efficacy'.<sup>6</sup> He points out that it is vague and heavy, but that the conformation of the present to the immediate past "belongs to the ultimate texture of experience. . . . The present fact is luminously the outcome from its predecessors, one quarter of a second ago. . . . The present event issues subject to the limitations laid upon it by the actual nature of the immediate past." (Symbolism, p. 46.)

<sup>5</sup>Hume did, however, recognize it implicitly when he acknowledged as obvious fact that some perception is "by the eyes," some "by the ears," etc. (Treatise, Book I, Part I, Section VI; see also Whitehead's Process and Reality [New York, Macmillan, 1929], p. 259.

<sup>6</sup>For his much fuller treatment, see his Symbolism: Its Meaning and Effect (New York, Macmillan, 1927), especially Ch. 2; also Process and Reality, especially Part II, Ch. 8.

That the derivational continuity of the present from the past forms part of the texture of immediate perception may, I think, be illustrated by contrasting it with the arbitrary sequence of images on a television screen. Some readers will doubtless recall a notorious case of programing in which a thrilling football game in its last decisive plays was transformed before their eyes into the next episode of Heidi. This may have been annoying, but there was nothing impossible about it. Our recognition that such an experience would not have been possible if we had been sitting in the stadium instead of in front of the television set amounts to recognizing that real events in their passage do not exhibit such discontinuity, but rather a derivational continuity of the present from the past. We also feel an analogous continuity of the present with the future: even a dog does not act as if what he does in the present makes no difference to the future. Finally, Whitehead ~~has~~ pointed out that if causal connection reflects merely the mind's own activity, as Hume claimed, then we should expect to find in our experience just the opposite of what in fact takes place (Symbolism, pp. 39-43; Process and Reality, pp. 263-268). Hume's theory fails the ultimate test of appeal to direct experience. For enhancement of perceptual vividness (such as the heightening of colors and sounds) in fact diminishes rather than increases our feeling of causal connection, though Hume's theory (and Kant's, for that matter) would have led us to expect the opposite. Conversely, Whitehead points out that not in noise but "in the silence, the irresistible causal efficacy of nature presses itself upon us; in the vagueness of the low hum of insects in an August woodland, the inflow into ourselves of feelings from enveloping nature overwhelms us" (Process and Reality, p. 267).

Let us grant, then, that we need to explain rather than explain away this pervasive feeling of the temporal and causal continuity of the past, present, and future. But how are we to make speculative, metaphysical sense out of it? And how are we to account for our feeling of it?

Whatever may be said about other metaphysical options, such an account, I suggest, is exactly what a process metaphysics, like that of Whitehead's, endeavors to furnish. For in such a view, the world is not regarded as made up of more or less stable, self-identical things engaged in interactions with one another, but rather of events which causally derive from one another and which, in their repetition of similar characters, constitute what we take to be the enduring objects, the rocks, and trees, of nature. Furthermore, these events are viewed precisely as experiential in character, and the

privileged event among them is the event of one's own conscious awareness. The Whiteheadian unit of actuality, the 'actual entity', feels its past precisely as making a difference to its future. It includes both past and future (though in different ways) within the present unity of an experiential event whose structure is not temporal yet which is temporally thick. The future is felt not as rigorously determined but as under the influence of the present, as having to take it into account, just as the present feels the weight of the past as so much stubborn fact to be dealt with. Every inductive expectation, then, reposes ultimately on an anticipatory feeling of the general character of the immediately future environment and, correlatively, of the causal ingredients of the immediately future experience. This feeling for the character of the future can be explicated by means of the Whiteheadian notions of objectification, subjective aim, the Category of Subjective Intensity, and the primordial nature of God.<sup>7</sup>

I scarcely suppose that these few sentences adequately describe how causal connection is in fact given in immediate experience. Nor is this the occasion for arguing all the pro's and con's of adopting a process metaphysics. But to point in the direction, at least, of a solution to the metaphysical problem of induction, I submit first, that causal efficacy, in the Whiteheadian sense, is in fact given within experience; and second, that insofar as a process metaphysics is successful, it solves the rational aspect of the metaphysical problem of induction, and in fact induction was one of Whitehead's main motives for developing it.<sup>8</sup> And though the possibility of this solution to the metaphysical problem is presupposed by any solution to the epistemological or methodological problem, it does not itself provide such a solution. The efforts of Goodman and others to frame a workable set of rules for inductive inference remain as necessary as ever. But by failing to recognize the metaphysics aspect of induction, let alone cope with it by a metaphysics which explains how the future derives from the present, Goodman has deprived himself of any rational justification for his confidence that it is worthwhile to labor over confirmation theory.

<sup>7</sup>I have pointed toward such an explanation in terms of these technical concepts in "The Feeling for the Future: A Comment on Ann Plamondon's Essay," Process Studies, 3/2 (1973), 100-103.

<sup>8</sup>See Gregory Vlastos, "Whitehead, Critic of Abstractions," The Monist, 39 (1929), 170-203. Whitehead deals directly, if not quite satisfactorily, with the problem of induction in Process and Reality, pp. 303-316.

This essay began with the suggestion that the fate of induction illustrates Gilson's contention that philosophy always buries its undertakers. I conclude by suggesting that induction also exemplifies another of Gilson's reflections: "If metaphysical speculation is a shooting at the moon, philosophers have always begun by shooting at it; only after missing it have they said that there was no moon, and that it was a waste of time to shoot at it."<sup>9</sup>

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<sup>9</sup>Gilson, p. 309.