

Causality and Ontotheology: Thomistic Reflections on Hume, Kant, and their Empiricist Progeny

Alfred J. Freddoso
Professor Emeritus of Philosophy
University of Notre Dame

1. *The epistemic pessimism of Hume and Kant*

In Part I of David Hume's *Dialogues Concerning Natural Religion* Demea explains that he shelters his wards from natural theology until they have become thoroughly familiar with the other parts of philosophy and hence thoroughly familiar with the weakness of human reason even in mundane matters. Philo heartily commends Demea in these words:

“Let us become thoroughly sensible of the weakness, blindness, and narrow limits of human reason. Let us duly consider its uncertainty and endless contrarieties, even in subjects of common life and practice. Let the errors and deceits of our very senses be set before us; the insuperable difficulties, which attend first principles in all systems; the contradictions which adhere to the very ideas of matter, cause and effect, extension, space, time, motion; and in a word, quantity of all kinds, the object of the only science that can fairly pretend to any certainty or evidence. When these topics are displayed in their full light, as they are by some philosophers and almost all divines, who can retain such confidence in this frail faculty of reason as to pay any regard to its determinations in points so sublime, so abstruse, so remote from common life and experience? When the coherence of the parts of a stone, or even that composition of parts which renders it extended; when these familiar objects, I say, are so inexplicable, and contain circumstances so repugnant and contradictory; with what assurance can we decide concerning the origin of worlds, or trace their history from eternity to eternity?”

Even correcting for Cleanthes's insistence on the stellar intellectual achievements of Newtonian physics, Philo insists near the end of Part I:

“But when we look beyond human affairs and the properties of the surrounding bodies: When we carry our speculations into the two eternities, before and after the present state of things; into the creation and formation of the universe; the existence and properties of spirits; the powers and operations of one universal spirit, existing without beginning and without end; omnipotent, omniscient, immutable, infinite, and incomprehensible: We must be far removed from the smallest tendency to scepticism not to be apprehensive that we have here got quite beyond the reach of our faculties. So long as we confine our speculations to trade, or morals, or politics, or criticism, we make appeals, every moment, to common sense and experience, which strengthen our philosophical conclusions and remove (at least, in part) the suspicion which we so justly entertain with regard to every reasoning that is very subtle and refined. But in theological reasonings we have not this advantage; while at the same time we are employed upon objects, which, we must be sensible, are too large for our grasp, and of all others, require most to be familiarised to our apprehension. We are like foreigners in a strange country, to whom every thing must seem suspicious, and who are in danger every moment of transgressing against the laws and customs of the people with whom they live and

converse. We know not how far we ought to trust our vulgar methods of reasoning in such a subject.”

Philo even detects “priestcraft” in the fact that the clergy go from being “sceptics” in one age to extolling reason in the next. This all helps, of course, “in giving them an ascendant over mankind” — though to what end, we are not told. Nor, apparently, does it occur to him that at some times and places natural cognition might be excessively exalted, while at others it might be excessively denigrated. In the late 19th and early 20th centuries the Catholic Church saw modernism as its main intellectual enemy; hence, Pius X’s encyclical *Pascendi Dominici Gregis*, which denounces cognitive overreach of all stripes. In the late 20th and early 21st century it was post-modernism; hence, John Paul II’s encyclical *Fides et Ratio*, which urges all people — especially young people — not to fall into a debilitating distrust of reason. Yet the two encyclicals, different as they may be in emphasis, seem fully consonant with one another.

Be that as it may, what concerns me most here is not Philo’s tawdry rhetoric so much as his deep epistemic pessimism. Like Simonides the ancient poet, he urges us to keep our eyes fixed firmly on the mundane and to resist the temptation to look up to the heavens. I cannot help being reminded of the woman in Luke’s gospel (Luke 13:10-13) who had been bent over for eighteen years before Jesus “made her straight” and able to gaze upward.

In fact, Hume’s pessimism about natural theology begins with his treatment, expounded in other texts, of substance and causality. Whatever else might be said about his analysis, it is clear that by his reckoning the notions *substance* and *cause* are second-order — or, if you will, theoretical — ideas that help us to order the direct objects of sensation but that do not rationally underwrite a belief in alleged real-world natural kinds or substantial forms or agency or powers of the sort subscribed to by the Aristotelian scholastics. Given the centrality of all these entities to a well thought out natural theology like that of Thomas Aquinas or Duns Scotus or Francisco Suarez, the project of natural theology is doomed to failure from the start.

I will return to this point shortly, but first I want to make a few comments about Immanuel Kant.

Kant famously remarked that he had been awakened from this dogmatic slumbers by Hume. Perhaps. But the truth is that, under the umbrella of epistemic humility, Kant did little more than codify Hume’s pessimism by building it into the very structure of theoretical reason. In short, Kant painted a picture within which the reach of human theoretical reason is limited by its very nature to how things appear sensuously to us, where these appearances are conceived of — along Humean lines — in such a way that they give us no access at all to how things are in themselves. More specifically, the categories *substance* and *cause* automatically and ineluctably organize our sensuous experience and help us form expectations about the future, but they have, as far as we are entitled to infer, no application at all to things in themselves.¹ This by itself rules out the project of natural theology, since God — i.e., the Perfect Being or, in Kant’s terminology, the *Ens Realissimum* — is according to Kant neither a possible object of our experience nor accessible through the objects of our experience.

Still, when we turn to Kant’s specific discussion of what he calls the cosmological argument for the existence of God, we are bound to be disappointed. At the very least, this section of *The Critique of Pure Reason* is much less impressive and much less engaging than the corresponding part of Hume’s *Dialogues*. Kant focuses mainly on the transition from the existence of a Necessary Being to the existence of a Perfect Being or *Ens Realissimum*. On Kant’s reckoning, this transition is licit only if one is already presupposing the existence of a Perfect Being; hence, his famous (and dubious) claim that the

cosmological argument depends on (Descartes's version of) the ontological argument, which he has already refuted to his satisfaction. Like Hume before him, Kant seems blithely unaware of the elaborate three-stage treatment of God in *Summa Contra Gentiles* 1, where St. Thomas, having rejected St. Anselm's ontological argument, arrives at a Perfect Being only after a long and meticulously reasoned *via remotionis* that takes off from the existence of a godlike Unmoved Mover, i.e., Unactualized Actualizer.

Of course, as noted above, both Hume and Kant had already rejected — either explicitly or through culpable ignorance — the cluster of Thomistic-Aristotelian notions that St. Thomas had used to construct his natural theology. In the rest of this presentation, I want to focus on this rejection, especially as it pertains to causality. For the sake of simplicity, I will concentrate on Hume and his empiricist progeny and leave Kant to the side. But on the issues relevant here, Hume and Kant are pretty much of one mind.

Now there are two fundamental empiricist dogmas that underlie the Humean treatment of causality.

The first, common to all of early modern philosophy, is that the direct objects of human cognition are themselves mental. This immediately puts the reliability of our cognitive faculties into question, since there is no prior guarantee that the world outside our minds is anything like the objects of our direct cognition. The story of early modern philosophy features one after another attempt to deal with this apparent gap between our so-called 'ideas' and the extramental world that they seem to represent.

This, to my mind, is one of the worst mistakes in the history of epistemology and metaphysics, and it is a mistake that St. Thomas for one repudiated on many occasions by insisting that the intelligible species that shape our intellect into acts of understanding are not themselves the first object of our cognition but are instead the means by which we have direct cognitive contact with extramental reality.

The second dogma depends upon the first but goes beyond it. It is that the concepts associated with substance and causality are, in effect, theoretical constructs that organize our sensuous experience but do not, as far as we can tell, take us beyond our sensuous experience to the real world. At the very least, our ordinary talk of substance and causality, far from serving as in effect a first principle for the systematic study of the material world and ultimately of the divine, is itself part of a theoretical extrapolation from the raw — in Hume's case, *very raw* — data of the senses. More on this below.

Now there is a deep divide between (a) those who take the world described in ordinary language as itself a given — indeed, as a gift — reliably delivered up by our cognitive faculties and (b) those who insist that we are given nothing but raw sense data that put us — or *should* put us — into an immediate epistemic conundrum. No definitive adjudication of this dispute seems to be possible. As Chesterton hinted in *Orthodoxy*, there is a sort of faith involved on both sides.² However, in what follows I would at least like to illuminate the landscape so that we might better understand what is at stake in the debate between Thomistic Aristotelians and empiricists over the nature of causality.

2. Aristotelian and empiricist accounts of causality

Even though I will raise some criticisms of empiricism, my remarks are intended mainly to underscore the fundamental differences between the two types of accounts.³ Throughout this section I will use causal terms to designate efficient causality and its empiricist surrogates, and I will assume that talk of so-called 'event causation' can be translated by Thomistic Aristotelians into talk of agents exercising powers.

2.1 Three Aristotelian theses

To make the contrast more vivid, I will first lay out three central theses of Aristotelian treatments of causality.

The first thesis is that causality itself cannot be analyzed reductively by means of non-causal concepts such as *regular conjunction of events* or *counterfactual dependence*; hence, one or more causal primitives will figure prominently in any correct account of causality. Of course, primitive notions can be more or less illuminating or precise, and so a choice among the plausible candidates will by no means be trivial. I myself prefer the scholastic primitive ‘communicates *esse* by an action’, where an action is conceived of as the exercise of a causal power or, alternatively, as the culmination of a causal tendency. In addition, this first thesis goes hand in hand with the claim that at least some instances of singular causality are observable as such. I will return to this point shortly.

The second thesis is that the fundamental explanatory principles of natural phenomena are ontologically grounded in natural substances themselves. Though there is some disagreement here among contemporary neo-Aristotelians about how exactly to think of this grounding, I will take for granted the scholastic view that this grounding includes both formal causal structures (stemming from Aristotelian formal causes) and irreducible causal powers and tendencies that are tied to those structures.⁴

The third thesis is that singular causal facts are metaphysically prior to more general causal facts such as regularities or uniformities or so-called ‘laws of association’. One corollary of this assumption is that causal relations, including deterministic ones, may obtain even in the absence of conditions that would engender causal regularities, at least easily identifiable ones. In fact, both Nancy Cartwright and Paul Humphreys go so far as to assert that because of the multiplicity of interfering factors present in nature, there are in fact, outside the laboratory, very few regularities of the sort Humean empiricists have traditionally appealed to.⁵ What’s more, the regularities that do obtain are mere byproducts of the continuous integration of basic causal structures and tendencies with contingent background conditions of a sort that preclude widespread interference with the normal course of causal processes (where the term ‘normal’, as used in this context, has a normative and indeed teleological import).⁶ As Cartwright puts it:

“We all know that the regularity of nature so central to the more conventional picture is a pretence ... Nature, as it usually occurs, is a changing mix of different causes, coming and going; a stable pattern of association can emerge only when the mix is pinned down over some period or in some place. Indeed, where is it that we really do see associations that have the kind of permanence that could entitle them to be called lawlike? The ancient examples are in the heavens, where the perturbing causes are rare or small in their influence; and the modern examples are in the physics laboratory, where our control is so precise that we ourselves can regulate the mix of causes at work. Otherwise, it seems to me, these vaunted laws of association are still very-long-outstanding promissory notes: laws of association are in fact quite uncommon in nature, and should not be seen as fundamental to how it operates.”⁷

So even though what happens “always or for the most part,” to use Aristotle’s phrase, is often epistemically crucial for discovering recondite causal connections in nature, the notion of a causal regularity is not metaphysically fundamental and hence will not figure as a primitive in an adequate account of the nature of causality or causal modality.

2.2 *The empiricist alternative*

With these three theses in hand, I turn now to a broad description of the empiricist alternative. To begin with, it is worth noting that so-called ‘empiricist’ accounts of causality did not in fact originate with Hume or Berkeley or Kant or even with Malebranche, who, though usually classified as a ‘rationalist’, influenced both Hume and Berkeley in their reflections on causality. Malebranche was in fact following the lead of those medieval Islamic and Christian occasionalists who had perceived a ‘heathen’ threat to God’s sovereignty over nature, as well as a spiritual danger for believers, in the Aristotelian attribution of causal powers and actions to natural material substances.⁸ The medieval occasionalists made a strict distinction between causality as attributed to God (and to spirits subordinated to God, such as intelligences and human souls) and ‘causality’ as attributed to material substances. God and other spirits are genuine agents exercising genuine causal powers, but they are the *only* such agents and their powers are the *only* such powers. In contrast, our ordinary and ubiquitous attributions of power and action to material substances are strictly speaking false; whatever truth they might embody is best captured, according to the occasionalists, by a reductive analysis that replaces notions such as *causal efficacy*, *action*, *causal power*, and *causal tendency* with metaphysically tamer notions such as *constant conjunction* or *counterfactual dependence*, which do not presuppose agency on the part of material substances. This is the origin of the idea of a so-called ‘occasional cause’, that is, an entity *c* such that *c*’s presence in the right way in given circumstances is an occasion for God (or some subordinate spiritual agent) to act in those circumstances as an immediate cause of some characteristic effect *e*. The relation between *c* and *e* is thus strong enough to reflect *e*’s conjunction with or counterfactual dependence on *c*, but weak enough not to imply any genuine causal activity or power on the part of *c*.

Malebranche and Berkeley are full-fledged subscribers to this picture; their complaint is not with the notions of agency or power as such, but rather with the deleterious theological consequences of ascribing agency and power to putative natural material substances. In the hands of Hume, however, the occasionalist critique of Aristotelianism is absorbed into a general assault on ‘metaphysical’ notions that have an ‘insufficient basis’ in sensory experience. By his lights the whole gamut of concepts that enter into an Aristotelian account of efficient causality fail to pass epistemic muster — regardless of what the humanly inaccessible truth might be about the “secret powers” of things in themselves.

The legacy of Hume is evident among his contemporary successors, who are all in general sympathy with J. L. Mackie’s assertion that causation is “not anything in which there is an observable necessity (or efficacy or agency or power or force or energy or productive quality).”⁹ They differ from Aristotelians on two broad fronts, namely, (a) regarding the status of the *concept* of a cause — or what Mackie calls “our idea of causation” — and (b) regarding the *reality* which that concept signifies — or what Mackie calls “causation in the objects.” I will deal with each in turn.

3. *The concept of a cause*

On the empiricist view our ordinary concept of a cause is in some straightforward sense a theoretical or psychological construct that is not formed directly from sensory experience. This claim is shared in common by almost all empiricists, even though they disagree over just what the content of the concept is.¹⁰ For instance, Hume himself believed that our ordinary concept of a cause mistakenly implies an *a priori* knowable ‘necessary connection’ between causes of a certain type and effects of a certain type, while Mackie takes this concept to imply simply the counterfactual dependence of the effect on the cause in the relevant circumstances.¹¹ Be that as it may, it is the claim itself that I wish to focus on, because from an Aristotelian perspective, the idea that causal concepts are theoretical — as opposed to

strictly observational — seems wildly outlandish.

Elizabeth Anscombe tries to capture this Aristotelian sentiment by pointing out that the abstract concept of a cause is inseparable from a vast array of more specific and ordinary action and power concepts, as well as from natural kind concepts:

“How does someone show that he has the concept *cause*? We may wish to say: only by having such a word in his vocabulary. If so, then the manifest possession of the concept presupposes the mastery of much else in language. I mean: the word ‘cause’ can be *added* to a language in which are already represented many causal concepts. A small selection: *scrape, push, wet, carry, eat, burn, knock over, keep off, squash, make* (e.g. noises, paper boats), *hurt*. But if we care to imagine languages in which no special causal concepts are represented, then no description of the use of a word in such languages will be able to present it as meaning *cause*. Nor will it even contain words for natural kinds of stuff, nor yet words equivalent to ‘body’, ‘wind’, or ‘fire’. For learning to use special causal verbs is part and parcel of learning to apply the concepts answering to these, and many other, substantives. As surely as we learned to call people by name or to report from seeing it that the cat was on the table, we also learned to report from having observed it that someone drank up the milk or that the dog made a funny noise or that things were cut or broken by whatever we saw cut or break them.”¹²

Empiricists are thus committed to much more than simply the claim that the single, abstract concept *cause* is theoretical and not purely observational or ‘empirical’. This point is borne out by a close examination of Michael Tooley’s criteria for the analyzability, and hence the theoretical status, of causal terms.¹³ If one measures Anscombe’s list against Tooley’s criteria, it is clear that all the terms on Anscombe’s list — including ordinary action verbs and natural kind terms — turn out to be theoretical and hence in need of analysis. And even though Tooley himself distinguishes ‘analyzability’ from ‘reducibility’ (which he equates with equivalence in meaning), his main argument for the analyzability of causal terms — a venerable one that goes back at least as far as al-Ghazali — is wholly consonant with the empiricist program:

“... even if it turns out that some non-reductionist account of causation is correct, it will still be true that there is no observable difference between a world in which all of the non-causal facts are as they would be if states of affairs were causally related, and a world in which the states of affairs in question really are causally related So there cannot be any properties or relations, with which one can be directly acquainted, that are associated with causal terms. Consequently, neither causal terms, nor nomological terms, can be treated as primitive, however familiar some of them may be. Analysis is required.”¹⁴

To revert to Anscombe’s example, Tooley is claiming that we cannot be “directly acquainted” with someone’s drinking up the milk and that ‘drinking up the milk’ is thus a theoretical expression. To be sure, we can be trained to observe — “in the ordinary non-technical sense”¹⁵ — that someone is drinking up the milk whenever we are directly acquainted with the “non-causal” facts that accompany someone’s drinking up the milk. Likewise, we can be trained to report that we see an aardvark or a red oak tree. But on Tooley’s view this no more proves that ‘drinking up the milk’ or ‘aardvark’ or ‘red oak tree’ is not a theoretical or analyzable expression than the fact that we can learn to report “This is sodium chloride” proves that ‘sodium chloride’ is not a theoretical term.¹⁶ In short, even though we use causal concepts to

make observation reports “in the non-technical sense,” these concepts are not strictly observational, and so we are engaging in theoretical discourse when we use them successfully.

All of this will seem quite astonishing to an Aristotelian. As Anscombe comments, “Someone who says [that we can never observe causality in the individual case] is just not going to count anything as ‘observation of causality’.”¹⁷ To be sure, Aristotelians will concede that causal derivation — or, to use the more precise scholastic formulation, the communication of *esse* through action — is not observable in exactly the same way in which colors or sounds or smells or the other qualities that Thomistic Aristotelians call *proper sensibles* are observable. For causes, along with middle-sized material substances, are *common sensibles* — that is, objects of all the senses taken together rather than the special objects of single sensory faculties taken by themselves — and as such they are *per accidens* rather than *per se* objects of sensation. Thomistic Aristotelians will likewise concede that on many occasions it will not be obvious just which agents are responsible for given effects. (That’s why so many of us love those British murder mysteries.) But they will insist nonetheless that these concessions do not at all undermine the conviction that observability in the “ordinary non-technical” sense is *primitive* or *baseline* observability and that, unlike the term ‘sodium chloride’, terms such as ‘salt’, ‘drink up the milk’, ‘cut’, ‘push’, etc., are non-theoretical. Indeed, it is only because we observe causes unproblematically in certain cases that we have so much as an inkling of what we are seeking in the less evident cases. In short, the Aristotelian conviction is that any world in which no one ever really drank up the milk — or in which no physical object ever cut or pushed any other physical object, or in which, strictly speaking, there were no aardvarks or red oak trees, etc. — would indeed be “observably different” from the world we live in, even if all the ‘non-causal’ facts were the same in both worlds.¹⁸ And as for the (rather breathtaking) empiricist suggestion that “Aristotle was apparently unaware that there are very serious difficulties concerning the concept of causation,”¹⁹ the ready reply is that Aristotle could hardly be faulted for failing to recognize ‘difficulties’ manufactured by dubious future accounts of sense perception and concept formation.

But beyond that, empiricists have not had much success in saying just what our concept of a cause is. Mackie rightly rejects Hume’s assertion that this concept involves an *a priori* knowable necessary connection between cause and effect, but his own suggestion that the concept of a cause is a concept of mere counterfactual dependence among distinct events seems clearly mistaken.²⁰ For even though the attribution of a causal concept often supports a claim of counterfactual dependence, there are clear cases in which the concept of causality is applicable but not the concept of counterfactual dependence among events, and vice versa.²¹ In fact, it seems clear that the heart of our concept of a cause is very much like what Thomistic Aristotelians say it is — namely, the concept of the direct production of an effect by an agent’s action or, more generally, the concept of the *active source* of an effect. What’s more, as I will emphasize in a moment, it is precisely this understanding of a cause that serves as the touchstone against which the empiricists themselves test their various analyses of “causation in the objects.” That is, the ‘intuitions’ they bring to their project of analyzing the notion of a cause are essentially Aristotelian intuitions.

4. *Causality as it is in the objects*

I turn, then, to “causation as it is in the objects.” The reductive analyses of causality formulated by empiricists fall into two main categories, *regularity* (or *uniformity*) analyses and *counterfactual* analyses, with each capable of being formulated in such a way as to take into account probabilistic or statistical, as well as deterministic, causal relations. There is an abundant critical literature on both sorts of analysis, and I will not try to reproduce or even summarize it here.²² But it is fair to say that despite the ingenuity

and depth of the best attempts — namely, Mackie’s and David Lewis’s — to formulate reductive analyses of “causation as it is in the objects,” no such attempt has been successful.

From an Thomistic Aristotelian perspective, in any case, the significance of the empiricist literature on causality lies not so much in the details as in how empiricists conceive of the problematic within which they are carrying out their enterprise. I will comment briefly on three general points.

The first is that, as intimated above, empiricists seem willing to judge their own analyses by essentially Aristotelian ‘intuitions’. They do not take the ordinary concept of a cause to be in need of wholesale revision, and so they are willing to accept our commonplace use of causal terms as normative in assessing their own analyses of “causation as it is in the objects.” As I urged above, however, our everyday use of causal locutions seems clearly to imply that causes are active sources of effects, and it is precisely because contemporary empiricists implicitly presuppose this idea that they feel constrained in the end to alter their analyses in fundamental ways. This is clear with both Mackie and Lewis.

According to Mackie’s initial formulation of the regularity analysis, c is a cause of e in circumstances (or ‘causal field’) f if c is an ‘*inus*’ condition for e in f , that is, an insufficient but necessary part of a condition that is itself minimally sufficient, though not necessary, for e in f .²³ To put it in a slightly different way, c is a cause of e in f provided that c is a non-redundant proper part of some generic or uniform condition that is minimally sufficient for e in f . However, it is clear upon reflection that this analysis is too broad, since it counts as causal relations uniformities that are stable and yet either wholly coincidental or traceable to a common cause. Suppose, to use Mackie’s example, that it is a stable regularity that workers in London leave for home just after the hooters signaling the end of the workday sound 200 miles away in Manchester. In that case, the sounding of the Manchester hooters turns out to be an *inus* condition for the London workers’ leaving for home. Instead of accepting this consequence of his theory and thus calling for a reform of our ordinary talk about causality, Mackie assumes that he must alter his analysis fundamentally, so that it is no longer a ‘pure’ regularity analysis. He does this by stipulating that in addition to being an *inus* condition for e , c must be ‘causally prior’ to e in order to count as a cause of e , where the definition of causal priority includes reference to the fixity of events — a notion to which an analysis of “causation as it is in the objects” is not clearly entitled.²⁴

Mackie is of course correct in assuming that the case of the Manchester hooters counts as a counterexample to his original theory. But it seems clear that this is so simply because, in the case as described, we cannot plausibly imagine how the putative cause could have been an active source — that is, an Aristotelian efficient cause — of the effect. Indeed, as Cartwright has argued, the application of the regularity account presupposes the ability to rule out certain regularities as ‘non-starters’, and this in turn presupposes the ability to identify singular causal facts about the exercise of powers or capacities on the part of particular agents.²⁵

Again, according to Lewis’s counterfactual analysis, c is a cause of e just in case c and e both occur, and there is a causal chain running from c to e such that each effect in that causal chain is an event that is ‘causally dependent’ — that is, counterfactually dependent — on its predecessor. This analysis seems able to handle Mackie’s example, but falls prey to instances of what Lewis calls ‘late preemption’. In such cases, c is ‘intuitively’ a cause of e , but if c had not directly caused e , c^* would have directly caused e instead — where it is c itself, and nothing in its causal ancestry, that preempts c^* . In such a case, *not-c* does not counterfactually imply *not-e*. Now given that Lewis has at this point already shown his analysis to be plausible — or at least salvageable — for a wide range of problematic cases, one might expect him simply to challenge the intuition that c is a cause of e in this instance. But he does not. Instead he alters his analysis fundamentally, so that it is no longer a ‘pure’ counterfactual analysis. He does this

by introducing the notion of ‘quasi-causal dependence’ which allows for causality when *e* would have been counterfactually dependent on *c* if the circumstances had not been “spoiled” by something “extraneous,” that is, by the preempted *c**.²⁶ But what is it that so strongly convinces Lewis (and the rest of us) that *c* is a cause of *e* even in the case of late preemption? The answer seems clear: we take *c* to be an active source of *e*.

The second general point is that empiricists generally lack a sophisticated understanding of, and sometimes even an awareness of, the resources that an Aristotelian account of causality can bring to bear on otherwise puzzling cases. This is a large issue, but the main point I want to make is simply that contemporary empiricists, unlike their early modern predecessors, evince little awareness of what might have attracted the scholastics and others to the Aristotelian account in the first place. I will focus here on one example from Lewis and one from Mackie.

In order to accommodate probabilistic or ‘chancy’ causation, Lewis amends his original analysis of causal dependence, according to which an actual event *e* is causally dependent on an actual event *c* only if *not-c* counterfactually implies *not-e*, and he replaces it with an alternative analysis according to which *e* is causally dependent on *c* if *c* counterfactually implies *e* to a degree *x* of probability, and *not-c* counterfactually implies *not-e* to a degree $1-y$ of probability, where *y* is much less than *x*. He then imagines an objector posing a case in which this alternative condition is satisfied, but in which the improbable comes true and *e* would have occurred even if *c* had not occurred; in other words, in this instance *not-c* counterfactually implies *e*, and so it is not the case that *not-c* counterfactually implies *not-e*. In such a case, the objector continues, the original analysis still yields the correct result that *c* is not a cause of *e*, whereas the alternative analysis yields the incorrect result that *c* is a cause of *e*, even though in this singular and improbable case *e* would still have occurred without *c*. Lewis responds by denying that in such a case *not-c* can truly be said to imply *e* :

“The objection presupposes that the case must be one kind or the other: either *e* definitely would have occurred [without *c*], or it definitely would not have occurred. If that were so, then indeed it would be sensible to say that we have causation only in case *e* definitely would not have occurred without *c* ... But I reject the presupposition that there are two different ways the world could be, giving us one definite counterfactual or the other. That presupposition is a metaphysical burden quite out of proportion to its intuitive appeal; what is more, the intuition can be explained away. The presupposition is that there is some hidden feature which may or may not be present in our actual world, and which if present would make true the counterfactual that *e* would have occurred anyway without *c*. If this counterfactual works as others do, then the only way this hidden feature could make the counterfactual true is by carrying over to the counterfactual situation and there being part of a set of conditions jointly sufficient for *e*. What sort of set of conditions? We think at once that the set might consist in part of laws of nature, and in part of matters of historical fact prior to the time *t*, which would together predetermine *e*. But *e* cannot be predetermined in the counterfactual situation. For it is supposed to be a matter of chance, in the counterfactual situation as in actuality, whether *e* occurs ... So the hidden feature must be something else. But what else can it be? Not the historical facts prior to *t*, not the chances, not the laws of nature or the history-to-chance conditionals that say how those chances depend on prior historical facts. For all those are already taken account of, and they suffice only for a chance and not a certainty of *e*.”²⁷

From an Aristotelian perspective, however, the objector's intuition is perfectly sound and the 'hidden factor' in question is just an action or the absence thereof. That is, if the 'powerful particulars' involved in c did not act on this occasion in such a way as to effect e , then some other agent or agents not involved in c did so act. And because of this, it is true in this singular instance that e would have occurred even if c had not occurred — despite the fact that the probability of e 's occurring in the absence of c was at the time very low. This scenario makes perfectly good sense from an Aristotelian perspective, and, in fact, it is the possible occurrence of cases just like this that leads Cartwright to posit an *action* or *operation* variable as an essential element in the representation of probabilistic causes.²⁸ Lewis does not so much as entertain this suggestion, even if only to reject it.

The second instance concerns Mackie's attempt to subsume the Aristotelian notion of a causal power or tendency into his regularity theory of causality. In explicating St. Thomas's natural philosophy, Peter Geach had claimed that the idea of causal interference "just cannot be logically brought into a uniformity doctrine of causality," because Humeans lack the Aristotelian notion of an impedible causal power or tendency.²⁹ To illustrate his point, Geach introduces the following example. Let A be a heating unit that by itself would raise the temperature of a certain room 25° F. in one hour, and let B be a cooling unit that by itself would lower the temperature of the room 10° F. in one hour; then the combined operation of the two units will result in the temperature increasing 15° F. in one hour. On an Aristotelian theory, this effect is easily explained as the outcome of each of the units exercising its own power while impeding the causal tendency of the other, with the result that neither attains its intended effect; instead, the two of them form a total agent which, in acting by contrary powers, produces a 15° F. increase in temperature. Geach, though, contends that a regularity theory of causality cannot explain this situation except by asserting implausibly that the effect is "compounded of a non-existent rise of temperature by 25° F. and a non-existent fall of temperature by 10° F.," since these 'non-existent effects' reflect the only two relevant uniformities — namely, that A always raises the temperature 25° and B always lowers the temperature by 10°.³⁰

Mackie counters by pointing out that his 'minimal sufficient conditions' are "complex uniformities" and not just the "simple uniformities" Geach has in mind. As such, they include the negation of any possible interfering factors. Thus, in ordinary circumstances, where there is no interference, A 's operation is an *inus* condition for the temperature's rising 25° F., and the minimal sufficient condition of which A 's operation is a non-redundant part includes the negation of B 's operation. Analogously, in the absence of interference, B 's operation is an *inus* condition for the temperature's falling 10° F., and the minimal sufficient condition of which B 's operation is a non-redundant part includes the negation of A 's operation. However, in the circumstances described by Geach — where there *is* interference — the relevant minimal sufficient condition is a different one of which both A 's operation and B 's operation are non-redundant parts, and this condition is sufficient for the temperature's rising 15° F. In general, then, we are never in a position to know the *full* complex regularity that is applicable to a particular concrete causal situation, just because we are not aware in particular of all the possible sources of interference to which our sufficient conditions as thus far formulated are subject. The best we can do is to take what we do know and simply add to it the negation (*not-X*) of all possible 'interfering factors'. This gap in our knowledge, Mackie suggests, is just the reason why we have recourse to talk about causal tendencies. So far from pointing to the existence of 'mysterious' teleological realities in the world, such talk is instead a placeholder for gaps in our knowledge of full complex uniformities. As Mackie puts it:

"It will be clear from what has been said above that though interference could not be brought into a doctrine of simple uniformities, it is easily accommodated in a doctrine of complex uniformities. Interference is the presence of a counteracting

cause, a factor whose negation is a conjunct in a minimal sufficient condition (some of) whose other conjuncts are present. The fact that scientists rightly hesitate to assert that something always happens is explained by the point that the complex uniformities they try to discover are nearly always incompletely known. It would be quite consistent with an essentially Humean position — though an advance on what Hume himself says — to distinguish between a full complex physical law, which would state what always does happen, and the law as so far known, which tells us only what would, failing interference, happen ... Moreover the rival doctrine can be understood only with the help of this one. What it would be for certain behaviour to be ‘proper to this set of bodies in these circumstances’, what Aquinas’s tendencies or *appetitus* are, remains utterly obscure in Geach’s account; but using the notion of complex regularity we can explain that *A* has a tendency to produce *P* if there is some minimally sufficient condition of *P* in which *A* is a non-redundant element.”³¹

However, it takes only a moment’s reflection to see that Mackie’s suggested account of a causal tendency leads to absurdities, and that — just as Geach contends — this notion is not so easily accommodated by a regularity theory. In Geach’s example, the relevant *full* minimal sufficient condition will have the form *ABnot-XY*, where *A* stands for the operation of the heating unit, *B* for the operation of the cooling unit, and *not-X* and *Y* for the full complement of other positive and negative conditions — some known and some unknown — which, taken together with *A* and *B*, are minimally sufficient to produce the effect of the temperature’s rising 15° F. in the relevant circumstances. Since *A* and *B* are both non-redundant elements of a minimally sufficient condition for this effect, it follows, according to Mackie’s suggestion, that the operation of the heating unit has a tendency to raise the room’s temperature 15° F. in one hour — which seems just wrong, since we have already stipulated that it has a tendency to raise the temperature 25 F. in the absence of interference. But, more spectacularly, the operation of the cooling unit, too, has a tendency to produce a 15° F. rise in the room in one hour — which is plainly incorrect. In general, the claim that something has a tendency to produce whatever it is an *inus* condition for leads to wildly counterintuitive consequences. The best that can be said is that Mackie has conflated causal tendencies with the sort of evidence we might gather from complex situations for the attribution of tendencies. On this score, at least, the Aristotelian account is clearly superior.

The third and final general point has to do, once again, with the epistemic pessimism endemic to empiricism. One key difference between the occasionalists and the empiricists is that the occasionalists claim to know the source of the regularities, and corresponding counterfactual dependencies, that we find in nature — namely, God’s efficacious decisions about how he will characteristically act in the world. They assume without question that the regularities in nature result as byproducts from the exercise of the genuine causal power of some agent or agents. This is why they take Aristotelian accounts of efficient causality to be at least understandable, even if false. Berkeley, for instance, finds it wholly unsurprising that those “heathens who had no just notions of the omnipresence and infinite perfection of God” would as a matter of course seek to ground natural uniformities in the powers and actions intrinsic to material substances themselves.³²

Hume, too, often seems to concede that there must be such an ultimate source of the regularities in nature. His constant theme is, rather, that this source, whatever it might be, is epistemically inaccessible to us, because our minds are simply incapable of discovering the “secret powers” at work in the world of nature.³³ We can only grasp certain functional dependencies which, as it luckily turns out, enable us to make fairly accurate predictions about the future — either in the informal way characteristic of day-to-day living or in the more sophisticated way discovered by the methods of scientific inquiry.

What is interesting about Hume's successors is that they give the impression that we should simply accept the regularities (or contingent 'laws of nature', in Tooley's case) as primitive facts about the world, cosmic coincidences with no source in any power or agency, be it natural or divine. At the very least, no such source is to be thought of even as an unattainable ideal object of intellectual inquiry. As Bas van Fraassen puts it, empiricism "must involve throughout a resolute rejection of the demand for an explanation of the regularities in the observable course of nature, by means of truths concerning a reality beyond what is actual and observable, as a demand which plays no role in the scientific enterprise."³⁴

This deep pessimism about the powers of reason is no less remarkable for having become so commonplace in contemporary philosophy.³⁵ Perhaps it is understandable that such pessimism should have emerged historically in reaction to the excessive optimism of some strains of Enlightenment rationalism, but it is nonetheless a far cry from the hopeful sentiment of Plato and Aristotle, who saw intellectual inquiry as an adventure opening up new vistas, including vistas on the divine. The empiricists, with their vaunted 'tough-mindedness', have succeeded only in embodying the forlorn dictum of Simonides.³⁶ Contrast this with the attitude of St. Thomas and most other scholastics, who are often disparaged for having placed faith *before* reason but who, on the whole, had much more faith *in* reason than the empiricists do.

1. If there is a difference between Hume and Kant, it is that Hume leaves open the possibility that we might be able to train ourselves by some means to resist the psychological impulses that lead us to our ordinary conceptions of substance and causality. Of course, Hume does not recommend this sort of skeptical attack on animal faith, since, lucky for us, our instincts allow us to operate successfully in the world even though they provide no epistemic warrant for the beliefs they produce.

2. See Chesterton, *Orthodoxy*, Chapter 3, “The Suicide of Reason.”

3. I will be using the writings of J.L. Mackie, David Lewis, Bas van Fraassen, and Michael Tooley as representative of the best of contemporary empiricism. In particular, I will be drawing on Mackie’s *The Cement of the Universe: A Study of Causation* (Oxford: The Clarendon Press, 1974), Lewis’s “Causation” and “Postscripts to Causation”, pp. 159-213 in *Philosophical Papers*, vol. II, (New York: Oxford University Press, 1986), van Fraassen’s *The Scientific Image* (Oxford: The Clarendon Press, 1980), and Tooley’s *Causation: A Realist Approach* (Oxford: The Clarendon Press, 1988).

4. Some with Aristotelian leanings evince an almost Humean aversion to irreducible causal powers or tendencies and contend that an ontological commitment to causal structures and processes is fully sufficient to yield at least limited causal laws that are relativized to carefully restricted reference groups or populations. See, for example, Wesley Salmon, *Scientific Explanation and the Causal Structure of the World*, pp. 147 and 155, and Paul Humphreys, *The Chances of Explanation*, pp. 64-65. By contrast, Cartwright—and here she has Rom Harré and Edward Madden, *Causal Powers*, on her side—argues that deep and important suggestions by Salmon and others about how causes are to be ‘read off’ from statistical correlations already presuppose an ontology that includes irreducible powers and tendencies in addition to causal structures and processes. See *Nature’s Capacities and Their Measurement*, pp. 142-148.

5. See Cartwright, *Nature’s Capacities and Their Measurement*, p. 36; and Humphreys, *The Chances of Explanation*, pp. 55-58. Tooley, by the way, claims that those who take singular causation as basic are committed to the possibility that there should be no causal regularities at all. See *Causation: A Realist Approach*, pp. 175 and 202. I believe that this claim is false or at least in need of careful qualification, but I will not pursue the matter here.

6. Cartwright comes close to explicitly acknowledging the connection between capacities and teleological explanation when she says, “It is a common—though we think mistaken—assumption about modern physics, for example, that function is not an explanatory feature at all” (*Nature’s Capacities and Their Measurement*, p. 222).

7. *Nature’s Capacities and Their Measurement*, pp. 181-182. It may seem that this point cuts against only regularity analyses of causality, since counterfactual analyses of singular causal statements do not invoke generic causal regularities or, to use Mackie’s term, minimal sufficient conditions. However, this is so only to the extent that our warrant for asserting the relevant counterfactual dependencies on given occasions does not itself depend, as Mackie claims it always does, on our awareness of regularities. I will not try to settle this issue here.

8. For more background, see my “Medieval Aristotelianism and the Case against Secondary Causation in Nature.” An especially engaging occasionalist account of God’s action in nature can be found in *al-Ghazali’s Tahafut al-falasifah: The Incoherence of the Philosophers*, trans. Sabih Ahmad Kamali (Lahore: Pakistan Philosophical Conference, 1963), problem 17, “Refutation of Their Belief in the Impossibility of a Departure from the Natural Course of Events,” pp. 185-196. For an occasionalist proposal within Christian theology, see Gabriel Biel, *Collectorium circa quattuor libros sententiarum* 4,

pt. 1, eds. Wilfridus Urbeck and Udo Hoffman (Tübingen: J.C.B. Mohr, 1975), q. 1, “Utrum sacramenta legis novae sint causae effectivae gratiae,” pp. 1-36, esp. 14-18 and 27-36; a translation of the relevant sections is available at www.nd.edu/~afreddos/translat/biel.htm.

9. *The Cement of the Universe*, p. 6. Even though Tooley is a realist in holding that “causal facts,” that is, facts involving causal modalities, are not reducible to non-causal facts, he nonetheless holds that (a) causal modality is not grounded in the essential natures or powers of physical substances and that (b) causal terms are theoretical because they “do not refer to what is immediately given in experience” (*Causality: A Realist Approach*, p. 317). This is enough for him to count as an empiricist in the present context.

10. Perhaps van Fraassen is an exception here. Even though he endorses—indeed, revels in—the fundamental empiricist picture, he believes that most empiricists go wrong by failing to realize that the concept of a cause, far from being metaphysically charged, is in fact a metaphysically tame concept which is properly used only to provide “empirically adequate” answers to limited and highly contextualized requests for explanation. See *The Scientific Image*, chap. 5.

11. See *The Cement of the Universe*, pp. 29-43.

12. “Causality and Determination,” p. 93.

13. *Causation: A Realist Approach*, p. 25. On Tooley’s account, a term is unanalyzable only if the universal associated with it is one with which we are “directly acquainted.” For the reasons explained in the argument quoted below, Tooley believes that none of the terms on Anscombe’s list meets this condition.

14. *Causation: A Realist Approach*, p. 28.

15. *Causation*, “Introduction,” p. 13.

16. *Causation*, “Introduction,” pp. 13-14.

17. “Causality and Determination,” p. 92.

18. I must confess that I do not know what it would be for all the non-causal facts to be the same in such a case. As young children we learn to make the distinction between, say, someone’s drinking milk and someone’s merely appearing to be drinking milk. But the non-causal facts cannot be the same in the two cases, no matter how similar the circumstances might be. If nothing else, it seems that at least the spatial location of small quantities of milk, or the chemical composition of white liquid substances, or something of this sort, will be different.

19. *Causation*, “Introduction,” p. 31.

20. I have in mind here cases of causal preemption, causal overdetermination, etc., which plague counterfactual analyses of causality, regardless of whether they pretend to be analyses of our concept of a cause, as with Mackie, or analyses of “causation as it exists in the objects,” as with Lewis.

21. For instance, in cases of what Lewis calls ‘late’ causal preemption (see below) we have no problem in applying the concept of a cause even while denying the application of the concept of counterfactual dependence. Again, we can easily recognize that what Suarez calls *sine qua non* conditions for efficient causality are non-causes on which effects are nonetheless counterfactually

dependent.

22. For beginners, see the articles reprinted in *Causation*, along with the bibliography at the end of the book.

23. *The Cement of the Universe*, p. 62. Notice that, from an Aristotelian perspective, this account of *in* conditions gives us no way to distinguish among agents, patients, and *sine qua non* conditions within particular causal situations.

24. For one thing, this condition rules out backward causation *a priori*, whereas the question of whether backward causation is possible cannot—and should not—be settled merely by an analysis of causation. Also, Mackie himself acknowledges that as he defines causal priority, the resulting modification of his analysis of causation does not work if the world is wholly deterministic. And, once again, the question of whether the world is deterministic should not be settled merely by an analysis of causation. See *The Cement of the Universe*, p.192.

25. *Nature's Capacities and Their Measurement*, chap. 3.

26. "Postscripts To 'Causation'," pp. 205-206.

27. "Postscripts To 'Causation'," pp. 180-181.

28. *Nature's Capacities and Their Measurement*, 109-112.

29. Peter Geach, pt. II, "Aquinas," in *Three Philosophers*, pp. 101-9.

30. *ibid.*, p. 102.

31. *The Cement of the Universe*, p. 76

32. *A Treatise Concerning the Principles of Human Knowledge*, ed. Kenneth Winkler (Indianapolis: Hackett Publishing Co., 1982), p. 89.

33. Unlike Mackie, I do not take Hume's references to the "secret powers" of things to be ironic, and so to that extent I do not take Hume to have been giving an analysis of "causation as it is in the objects." I take him rather to have been telling us just what we can and cannot claim to know about causation.

34. *The Scientific Image*, p. 203.

35. It is just this sort of pessimism about the powers of reason that Pope John Paul II laments as a cultural impediment to genuine human flourishing. See his encyclical *Fides et Ratio* (1998), esp. nn. 5-6 and 45-48

36. A related image that might occur to one versed in the Gospels is that of the crippled woman who had been bent over for eighteen years, unable to look upward until Jesus cured her. See Luke 13:10-13.