The Case for Agnosticism about Causal Closure

Keith Buhler
University of Kentucky

Do you remember the cartoons of Rube Goldberg? An inventor of the most ludicrous contraptions. You know: a lever is pulled, causing a boot to kick a dog, whose bark motivates a hamster to run on a wheel which winds a pulley that raises a gate that releases a bowling ball and so on? Until, at the end, finally, the machine does something incredibly mundane, like making a piece of toast. Yes? Well, as it turns out, that's the world.

—Adam Felber, *Schrödinger's 's Ball.*

Abstract: There is widespread agreed among analytic philosophers of mind that the cosmos is "closed": even if gods, Platonic forms, or immaterial minds exist, they do not play a causal role in the physical cosmos. The causal closure principle is a crucial premise in one standard argument for physicalism. Should those who reject physicalism or refrain from judging physicalism accept the causal closure premise? The arguments on behalf of causal closure come in three varieties: deductive, inductive, and abductive (or inferences to the best explanation). In this paper, I argue that none of these arguments work. In short, deductive arguments either beg the question against causal openness or are compatible with causal openness. The inductive arguments from David Papineau and others either are compatible with causal openness or else commit a sampling error and hence amount to a non-sequitur. The abductive argument for causal closure from Jaegwon Kim and others is plausible but is matched by an equally plausible abductive argument for causal openness. None of the arguments is sufficient to rationally convince someone who does not already endorse causal closure, and so I conclude that agnosticism about causal openness is rational. Even so, I suggest that articulations of causal closure are useful, quasi-creedal expressions of a physicalist attitude or temperament. The sociological motivation for accepting causal closure is that it gives one entry into the physicalist club, an association of people such as Alyssa Ney, who vow to follow science wherever it leads. Calling physicalism an attitude is not intended to be pejorative. Still, one must be cautious in one's criticisms of rival attitudes.

I. Introduction

There is widespread agreed among analytic philosophers of mind that the cosmos is "closed": even if gods, Platonic forms, or immaterial minds exist, they do not play a causal role in the physical cosmos. The causal closure principle is a crucial premise in one standard argument for physicalism.[1]

Should those who reject physicalism or refrain from judging physicalism accept the causal closure premise? The arguments on behalf of causal closure come in three varieties: deductive, inductive, and abductive (or inferences to the best explanation). In this paper, I argue that none of these arguments work. In short, deductive arguments either beg the question against causal openness or are compatible with causal openness. The inductive arguments from David Papineau and others either are compatible with causal openness or else commit a sampling error and hence amount to a non-sequitur. The abductive argument for causal closure from Jaegwon Kim and others is plausible but is matched by an equally plausible abductive argument for causal openness. None of the arguments is sufficient to rationally convince someone who does not already endorse causal closure, and so I conclude that agnosticism about causal openness is rational.

Even so, I suggest that articulations of causal closure are useful, quasi-creedal expressions of a physicalist attitude or temperament. The sociological motivation for accepting causal closure is that it gives one entry into the physicalist club, an association of people such as Alyssa Ney, who vow to follow science wherever it leads. Calling physicalism an attitude is not intended to be pejorative. Still, one must be cautious in one's criticisms of rival attitudes.

II. Causal Closure: What and Why?

The causal closure principle is an important premise in a very influential argument for physicalism. Just what does it mean to assert that the cosmos is 'closed'? The causal closure principle is articulated in different ways. For formulations, we can look to David Papineau, Andrew Melnyk, and Jaegwon Kim.[2] I am not sure that any one is obviously superior to all others, so I will list several:

- "All physical effects have sufficient physical causes."[3]

1. E.g., (1.) The cosmos is physically closed. (2.) Some mental events are causes of physical events. (3.) There is no systematic causal overdetermination. Therefore, (4.) some mental events are identical to physical events. Cf. E.J. Lowe, "Causal Closure Principles and Emergentism," *Philosophy* 75, no. 04 (2000): 571–85 571-2.

2. For their arguments for the 'causal closure premise' in the larger argument for physicalism, see David Papineau, "The Rise of Physicalism," in *Physicalism and Its Discontents*, ed. Carl Gillet and Barry Loewer (Cambridge University Press, 2007); Andrew Melnyk, "Some Evidence for Physicalism," in *Physicalism and Mental Causation: The Metaphysics of Mind and Action* (Imprint, 2003), 155–72; and Jaegwon Kim, *Physicalism, or Something Near Enough* (Princeton University Press, 2007)

3. David Papineau, "Mind the Gap," *Nous* 32, no. S12 (1998): 373–88.

- "All physical effects are fully determined by fundamental laws and prior physical events."[4]
- "Anything having physical effects must itself be physical."[5]
- "Every physical event which has a cause has a sufficient physical cause."[6]

Despite the variations, the theme of these formulae is that one type of physical cause affects physical objects.[7] Appeal to this kind of causation appears in explanations of every physical event: why we exist, the number and size of planets in our solar system, the weather today, and so on. Accordingly, for convenience, I shall call defenders of causal closure "causal closure advocates" and the opposition "causal pluralists" or "causal agnostics", since they countenance a variety of types of cause behind physical events or abstain from judging whether there are other causes behind physical events in addition to physical ones. (I do not by this nomenclature intend to pigeonhole causal closure advocates into a commitment to monism – some of them might accept the existence of other types of causation – but to avoid tiresome repetition.) My thesis is not that causal pluralism is true but that causal closure has *not* yet been demonstrated to be true and hence, minimally, that causal agnosticism is a rational option.

A Few Clarifications

The various formulations also allow for the possibility that some physical events had *no* physical cause – such as, perhaps, the Big Bang itself.[8] But every physical event or object that has a cause has a sufficient physical cause. Uncaused phenomena might be taken as counterexamples of causal closure. But causal closure is, as I read it, a conditional thesis about *what must be true of physical effects if* they have causes.[9] Put conversely, no physical event has a non-physical cause. So a rational agent's physical location is the result of something physical – reducible mental states, perhaps – rather than a non-physical intention. On causal closure, even if a supernatural God exists, He does not turn water into wine. Even if Platonic universals exist, "beautiful things are made beautiful by Beauty."[10] As David Papineau says:

> The causal closure of physics is solely a claim about how things go within physics itself. It does not assert that everything is physical,

4. Robert Bishop, "The Hidden Premise in the Causal Argument for Physicalism," August 2005, `http://philsci-archive.pitt.edu/2415/`.

5. David Papineau, *Thinking About Consciousness* (Clarendon Press, 2002).

6. Lowe, "Causal Closure Principles and Emergentism," 575.

7. Lowe makes much of the nuanced differences between the various formulations (Ibid.) While I agree with Lowe's analyses, I am bolstering the case of the causal closure advocate by smoothing over the differences for the sake of argument.

8. Uncaused phenomena might be taken as counterexamples of causal closure. But causal closure is, as I read it, a conditional thesis about *what must be true of physical effects if* they have causes. I thank Louis Swingrover for challenging me to clarify this point.

9. I thank Louis Swingrover for challenging me to clarify this point.

10. ^1

> but only that those things that are physical have a physical cause. So it does not rule out realms of reality that are quite distinct from the physical realm.[11]

If there are physical causes for all apparently mental, supernatural, or preternatural phenomena, then it will turn out that the physical world is "closed" to nonphysical causes. If there are nonphysical causes for any of these phenomena, then it will turn out that the physical world is "open" to another world. The picture of the cosmos, on causal closure, is that of a vast Rube Goldberg machine where every interlocking piece has an effect on other pieces, but there is nothing outside the machine to affect it. Like Laplace's picture of nature, the cosmos is ultimately intelligible according to natural law but unthinkably complex.

Some have argued that the causal closure principle cannot even be adequately stated without begging the question or leaving open the possibility of defining gods and minds and Platonic forms as "physical" causes.[12] If these arguments are successful, they would show that causal closure is what Daniel Dennet calls a "deepity" – a vague statement that is either true but trivial or profound but false.[13] Relatedly, if we define the 'physical' in terms of physics *as a discipline* then we are faced with Hempel's dilemma. Any account of 'physics' must explicitly define things in terms of the present day state of the discipline – which might be incomplete – or some unknown, future, ideal state of the discipline – which might turn out to countenance entities such as minds, gods, and forms.

I think these dilemmas are telling. For present purposes I shall assume that causal closure can be stated in such a way as to avoid them. Nevertheless, iterations thereof will recur below.

III. The Case(s) For Causal Closure

Many philosophers talk as if the case for causal closure is a knock-down argument. Or rather, they talk as if many arguments – together or separate – justifiably make causal closure our default view. Some of these arguments are *deductive*, others *inductive*, and others *abductive.* In this section, I briefly state the case a number of such arguments and find them all wanting.

To begin, we will examine deductive arguments. The failure with these, in each case, is that the argument *either* assumes the conclusion in the premises *or* if it does not, states the premises in such a way as to leave room for the causal pluralist to agree.

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11. David Papineau, "The Causal Closure of the Physical and Naturalism," in *The Oxford Handbook of Philosophy of Mind*, ed. Brian McLaughlin, Ansgar Beckermann, and Sven Walter (Oxford University Press, 2009), 54.

12. Tim Crane and D Hugh Mellor, "There Is No Question of Physicalism," *Mind* 99, no. 394 (1990): 185–206; Lowe, "Causal Closure Principles and Emergentism," 572.

13. For example, "Love is just a word." That is true but trivial insofar as all words like "democracy," "murder," and "family" are words. And it is profound, but false, that love is *merely* a word – it is indeed an emotion and motivation and important part of life that by any other name would be just as important.

Deductive Argument 1: Laws of Conservation

The first prima facie reason to think the the cosmos is causally closed is based on conservation laws in physics. Papineau says:

> At first sight it might seem as if causal closure follows from the presence of conservation laws in physics: if there are laws specifying that important physical quantities stay constant over time, won't this show that the later values of physical quantities must be determined by earlier values?[14]

The idea here is that the net total amount of matter and energy is static, neither increasing nor decreasing but changing states. If a cause outside the cosmos entered in and had a physical effect, then that effect would constitute a net increase of energy or energy – either creating or destroying matter. But this is impossible. Therefore no outside causes affect the physical world.

The obvious problem with this argument is that it is compatible with affirming "vital and mental forces."[15] Papineau concedes that "the Newtonian conservation of energy does not stop deterministic vital and mental forces affecting the physical realm."[16] E.J. Lowe points out some that conservation laws do not rule out the views of "interactionist dualists, such as W. D. Hart, [who] have postulated the existence of 'psychic energy', which is convertible into physical energy in accordance with the conservation laws."[17] On Newtonian physics, a mind (a Cartesian mind, say) could affect its body by changing the *direction* of its motions rather than the *speed*. Furthermore, even on modern physics, the overall amount of kinetic energy can be reduced or increased in proportion to the inverse proportional increase or decrease in potential energy. Hence, perhaps supernatural or mental forces exist in the cosmos as latent potential energy. Lowe continues: "It won't do simply to object that energy is by definition a physical quantity,as this threatens to turn the dispute into a purely verbal one."[18] Hence, either causal closure is compatible with outside mental and supernatural causes or simply stipulates them away in a circular fashion.

Deductive Argument 2: Causal Monism

A second argument aims to support the premise that there is no systematic causal overdetermination. The presence of two causes for the same event seems to be absurd. For instance, if raising my arm was caused *both* by neural firings *and* by my intention to catch the ball, then there are two sufficient causes for the same thing. Instead, physical events seem explicable in terms of one kind of cause – suchas efficient-material causation.[19]

14. Papineau, "The Causal Closure of the Physical and Naturalism," 55.
15. Ibid., 57.
16. Ibid., 57.
17. Lowe, "Causal Closure Principles and Emergentism," 571.
18. Ibid., 571.
19. I am tempted to equate this kind of causation with Aristotle's notions of material and efficient causes. However, Aristotle's own account of efficient causation is not reductively physicalistic. He allows that the hand and chisel of a sculpture are immediate, instrumental physical causes of a statute but also that "the art of the sculpture" can be the efficient cause

Papineau says:

> According to the causal-closure thesis, this physical effect already has a sufficient physical cause. So, on pain of deeming this effect to have two independent causes, we need somehow to collapse the non-physical cause into the physical cause.[20]

Causal closure advocates accordingly work to show how the mental reduces to the physical, is identical to the physical, or supervenes on the physical in some non-objectionable way.

The flaw in this second argument is identical to the first: it cannot without question-begging exclude additional, non-physical causes overlaying or cooperating with physical causes. Lowe gives an example of the physical world coming in to being in a particular way because God chose to make it actual. He says, "God's choice, then, would have caused it to be the case that a world containing certain physical causal facts was actual–and this would be mental causation of physical causal facts."[21] The only way to block the possibility of God (a purely supernatural being) creating the world (a purely physical being) would be to stipulate, in advance, that there is no such person as God or that the world did not come from the mouth of God but from somewhere else – perhaps the whole cosmos is but one quark in the multiverse.[22] But of course, if we are *stipulating* that causal closure is true, then we are no longer *arguing* that it is true.

Why Deductive Arguments Will Never Work

The same problem arises in other formulations of causal closure which treat it as an axiom of metaphysical naturalism or as a premise in the argument for global physicalism – that there are no irreducible or ineliminable mental or supernatural entities in existence that make a causal difference in the world. While everyone is entitled to their axioms, we cannot assume p in order to *argue* that p is true. We use axioms for various reasons: they are either unprovable or too difficult quickly to prove (e.g., "a point is that which has no part"); or because we are aiming our discourse only at people who already agree with the axiom (e.g., I might assume that democratic forms of government allow for maximal individual freedom without social disorder while talking with fellow western liberal thinkers but not while talking with members of a tribal, anarchic, or autocratic community); and perhaps for other reasons. What is clear is that we do not use axioms to persuade the undecided.

In short, the deductive arguments just mentioned and any more that are likely to be put forward will either *assume* the truth of causal closure (and the falsity of causal pluralism) at the outset or they will define "causal closure" loosely enough that a causal pluralist could affirm the definition

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of a statue. Still, contemporary philosophers commonly enough read efficient causation as purely mechanistic, or reducible to pure mechanism. My thanks to Ollie Witalla and Jonathan Greig for an illuminating discussion on this point.

20. Papineau, "The Causal Closure of the Physical and Naturalism."

21. Lowe, "Causal Closure Principles and Emergentism," 583.

22. Steven Weinberg, "Living in the Multiverse," *Universe or Multiverse*, 2007, 29–42.

while affirming mental or supernatural causation. Deductive arguments cannot prove causal closure without stating causal closure in the premises any more than I can pick myself up by my bootstraps.

IV. Inductive Arguments

The inductive arguments for causal closure are touted with more confidence by physicalists and rightly so: they explicitly avoid the question-begging problem of the deductive arguments above by deriving causal closure from premises an agnostic can accept. Yet the inductive arguments have received less attention from critics. In this section, I remedy this oversight by critiquing two inductive arguments for causal closure.

By way of preface, we should note that inductive arguments come in many shapes and sizes. The general pattern I take to be relevant to my purpose is this: we aim to prove the existence of a *target property* in a general population by demonstrating that the target property exists in a sample population that is representative. My objection to the inductive generalizations made below is that they commit sampling errors and thus fail to generalize from a representative group.

While my primary goal is to defend a healthy agnosticism about causal openness, an acceptable auxiliary success would be if my argument motivated advocates to present new and better inductive arguments on behalf of causal closure.

Inductive Argument 1: Inference from Physiological Sample

The first argument concludes with causal closure from an appeal to modern physiology. In a very informative article on the rise of physicalism, David Papineau says this:

> A great deal became known about biochemical and neurophysiological processes, especially at the level of the cell, and none of it gave any evidence for the existence of special forces not found elsewhere in nature... Though it has not always been so, there is now good reason to believe the empirical thesis that all physical effects are due to physical causes.[23]

No summary can do justice to Papineau's careful and lively tour through the paradigm shifts in physical sciences. Suffice it for our purposes that Papineau's argument here is historical: We moderns have new evidence from scientific research that was just not available before. The advance of scientific research in physiology has revealed that all hitherto hypothesized causes (like the soul and "vital forces") are not needed to explain the physical processes of life and consciousness and rationality. We can justifiably infer, from the sample of physiological effects that turn out to have physical causes, that all physiological effects whatsoever will turn out to have physical causes.

How exactly does this inference work? First, distinguish three types of physical effect.

23. Papineau, "The Causal Closure of the Physical and Naturalism," 31.

> Set A: physical effects with a physical cause that is known and accepted without dispute.
> Set B: physical effects with a physical cause that *used to be* unsolved mysteries but are now known and accepted without dispute.
> Set C: physical effects that are as of yet unsolved mysteries, physical effects with *no currently known* physical cause.

Set A consists of all the physical facts and events about which we have scientific knowledge. Set B Set B is a subset of Set A. Set B consists of physical effects that *we formerly* ascribed to nonphysical causes *but now* ascribe to physical causes. Papineau's favored example is vitalism or vital forces. Sometime ago biological processes associated with life (such as metabolism and reproduction) were physical effects ascribed to a nonphysical vital force; now we know their physical causes and they've become members of A.

Set C consists of all the physical events for which we don't yet have a strongly justified scientific theory: the cause of cancer, the cause of putatively miraculous healings, the cause of paranormal reports, and so on. Papineau is not saying that we *already* have explanations of all phenomena; there are many unsolved mysteries that are members of set C. Papineau is drawing the inference that perhaps all physical effects in set C have physical causes after all – *we just don't know yet what the causes are.* If so many members of B turned out to be included in set A, perhaps everything in C will (one day) turn out to be included in B.

The structure of this argument is clear: the *general population* is C, all the other physical effect with as-of-yet-unknown causes. The *target property* is *having a physical cause.* The *sample* population is set B, those effects that have turned out to have physical causes even if we did not, at first, know them. If all members of B have physical causes, then (generalizing) all members of C have physical causes.

The flaw with this argument is that the putative sample population is not actually representative. Papineau explicitly cites the new information acquired by *physical and physiological scientists while conducting empirical research* but scientists qua physical researchers do not bother studying possible non-physical causes. It is not part of empirical research to deny or affirm that minds, gods, ghosts, or forms might exist because even if they did they would, ipso facto, lie outside the scope of professional research. It does a neuroscientist no good to posit that the patient has a soul, even it , it would not affect the professional skill. Astrophysicists who study galaxies will not, qua scientist, need to find out whether a god (and which god) formed the galaxy any more than a mechanic who fixes cares will, qua mechanic, need to find out at which factory the car was made.

As a matter of fact, many brain scientists *do* believe in a non-physical soul and many scientists do believe in a God.[24] The point is that they are not concerned with non-physical causes at the moment of searching for a physical cause. But ignoring a thing does not entail that the thing doesn't exist. We might as well say that that many pieces of the Rube-Goldberg machine sitting in someone's garage all have prior physical causes, therefore perhaps everything does, including the light streaming through the windows and the oxygen seeping under the door.

24. Stewart Goetz and Charles Taliaferro, *Naturalism* (Wm. B. Eerdmans Publishing, 2008).

In short, my objection to Papineau's inductive argument is that he commits a sampling error. Set B is not even close to a representative sample of Set C. Or rather, the question of whether B is represantive of C is simply the question of causal closure re-stated. Are physical effects whose physical causes were *discovered while ignoring possible non-physical causes* representative of physical effects which might, in the end, have non-physical causes?

Relatedly, a flaw with this inductive argument is that we can just as easily construct an equal and opposite inductive argument for *causal openness.* For example: suppose that Set C consists of physical effects that *might have* non-physical causes *or might have* physical causes that we discover some day. Set B consists of *former* members of C which have come to light as members of Set A. We can hypothesize that *if* all the members of Set C had physical causes, then such causes would be known after, say, 2000 years of scientific progress. And yet, Set C is not empty; there are still many physical effects which have as of yet no known physical causes. Therefore, we can infer that some of the physical effects *will never* be discovered to have physical causes. How long will the hard problem of consciousness remain unsolved before we give up hope that a (physical) solution is coming?

Of course, this inductive argument is hasty. It is no less hasty than Papineau's. His assumes that B is representative of C; mine assumes that B is not representative of C. Whether or not it is representative is the question at hand and so cannot be settled by stipulation.

Another complaint that might be brought up against Papineau's inductive argument is that he helps himself to some incorrect historical generalizations. For example, he says that The argument for physicalism rests on an empirical premise (recently made available):

> ...during the late nineteenth and the twentieth centuries an increasing number of scientists have come to doubt the existence of vital and mental forces. The most significant evidence seems to have come directly from physiology and molecular biology, rather than from physics. Over the last hundred and fifty years a great deal has come to be known about the workings of biological systems (including brains), and there has been no indication that anything other than basic physical forces is needed to account for their operation. In particular, the twentieth century has seen an explosion of knowledge about processes occurring within cells, and here too there is no evidence of anything other than familiar physical chemistry. The result has been that the overwhelming majority of scientists now reject vital and mental forces, and accept the causal closure of the physical realm.[25]

It is true that physiologists and physicists have gathered an impressive set of detailed data that our medieval and ancient forbearers did not have. It is false that most scientists are physicalists. 53% of American scientists believe in God or a higher power.[26] About 46% of philosophers are non-physicalists

25. Papineau, "The Causal Closure of the Physical and Naturalism," 57.

26. See "Scientific Achievements Less Prominent Than a Decade Ago," (Chapter 4, Scientists, Politics and Religion), Pew Research Forum, July 2009.

about the philosophy of mind.[27] While many modern *philosophers* are physicalists, then again many ancient philosophers were naturalists – e.g., Democritus and Lucretius, who denied any non-natural realm and non-natural causes. (I take it that these were the early ancestors of today's physicalists, even if they differ in important details.) Such were a minority, but they existed. As Quentin Smith maintains, physicalism or something very like it was correct (and presumably justified) two millennia ago. He says:

> Leucippus, Democritus...etc... argued against the religion of their time and put a naturalist world-view in its place... The universe ("the All" or "the unlimited") is a causally deterministic, discrete, infinitely old sequence of atomic events [each of which] has its sufficient cause in the prior state of that size.[28]

This paragraph combines into a single place an impressive combination of fallacies: besides the sampling error already noted, we are treated to an appeal to authority, an appeal to novelty deriving from the myth of progress, and an appeal to ignorance. Let's examine each in turn.

Appeal to Ignorance: Papineau simply asserts that "evidence... come(s) directly from physiology" and asserts that some scientists (which ones exactly?) "now reject vital and mental forces." First, there is no indication as to *why* these scientists do so or whether they are justified to do so. Secondly, and shocking, this assertion comes after Papineau has written several pages summarizing how Newtonian, Leibnizian, and modern physics are *compatible* with vital and mental forces.

Appeal to Authority: Papineau expects us to conclude from the fact that scientists (who are not even looking for nonphysical causes) have not found nonphysical causes that therefore none such are at play. He also expects us to be "overwhelmed" by a 54% consensus among scientists about physicalism. I suppose one's threshold for "overwhelm" is subjective. If about half the experts accept a view, that is certainly *some* indication that there is probably good reason to accept it. Yet to the chagrin of Michael Shermer, belief in God is still the overwhelming majority view, even an age of the most widespread scientific education in human history. And theistic philosophers include the likes of Alvin Plantinga, Richard Swinburne, Robert Adams, and Eleanor Stump. But all this nose counting is irrelevant to the question of whether there is inductive evidence that *causal closure is true*. If there is, it should convince an open-minded, scientifically-informed, educated and reasonable auditor whatever her initial suppositions or biases, so long as she is reflective enough to identify them and reconsider them.

Myth of Progress: The popular picture of the march of science reducing the number of nonphysicalists is, I think, mere fancy. We have no better explanation of consciousness, say, than did Anaxagoras or Aristotle. We have no better evidence for or against the existence of God than did Lucretius or Aquinas. In place of that myth, I suggest we ought to be more compelled by the historicity of Plato's playful description of the war between physicalism

27. David Bourget and David J Chalmers, "What Do Philosophers Believe?" *Philosophical Studies* 170, no. 3 (2014): 465–500.

28. Quentin Smith, "The Metaphilosophy of Naturalism," *Philo* 4, no. 2 (2001): 195–215.

and supernaturalism: He says there is an "ancient war between gods and giants"[29] which was "ancient" even in 2400 B.C. Such an ancient war is not likely to be settled with a few inductive arguments.

Inductive Argument 2: Inference from Modern Physics Textbooks

A second, similar inductive argument is presented by Andrew Melnyk. Melnyk's project is to rebut the charge that "there is just no evidence for physicalism." That project is well enough. The question is whether we can marshal an inductive argument for the causal closure premise in particular. He says this:

> [C]ontemporary physics has succeeded in finding sufficient physical causes for physical effects of very many kinds; and it has found no physical effects at all for which it is necessary (or even likely to turn out to be necessary) to invoke non-physical causes. But current physics' success to date in finding that many physical events have sufficient physical causes provides inductive evidence that all physical events, including both unexamined physical events and examined-but-as-yet-unexplained physical events, have sufficient physical causes.[30]

Although this is limited piece of his broader project, Melnyk's thought here is straightforward.[31] The target property is the property of *having a physical cause.* The sample is a host of physical effects gathered by physicists for the last 100 years or so. The generalization is from that sample of physical effects to all physical effects. In other words, physicists observe that every physical effect in the sample has the target property; they in turn justifiably generalize that (probably) all physical effects have the target property.

Like Papineau, Melynk is not saying that every physical effect has a *known* physical cause already. Rather, he is saying that physicists have gathered a sample of all physical effects and found them all to have physical causes, so perhaps we can justifiably infer that the unsolved mysteries are *likely to turn out* to have physical causes after all. The origin of the first eukaryotic cell in biology, or the emergence first-person consciousness in psychology are problems that we have not solved yet but can justifiably hope to without recourse to supernatural or non-natural causes.

This argument fares no better than Papineau's version. Indeed, the very heart of Melnyk's argument is a confident assertion tucked into parentheses: physicists "found no physical effects at all for which it is necessary (or even likely to turn out to be necessary) to invoke non-physical causes."[32] For

29. John Cooper, *Complete Works of Plato* (Hackett, 1997) *Sophist* 246a.

30. Melnyk, "Some Evidence for Physicalism."

31. I thank Keith Elmore for pushing back on my initial misunderstanding of the scope of Melnyk's argument.

32. One final token of circular reasoning occurs when Melnyk says: "The evidence for thinking that all physical events have sufficient physical causes may be found in physics textbooks..." Can the evidence that God is the creator of the cosmos in theology textbooks? I dare suppose textbooks have erred in the past, especially *non-philosophical* textbooks, especially non-philosophical textbooks espousing philosophy. What we need is not

the causal closure agnostic, this is a really disappointing dialectical move. Just where we hoped for an argument, we get the statement that "it is not likely to turn out to be necessary" to invoke nonphysical causes to explain physical phenomena. This *just is the question of whether causal closure is true.* Melnyk clearly believes it is. He asserts it. He does not support it with any evidence except what a causal closure advocate would already believe: *someday* we will find a physical cause for these effects.

Again, Melnyk wants the sample of *only those physical effects studied by physicists* to be a representative sample of all physical effects. But, as we in Papineau's argument above, if the few and narrow members of that sample from physics or physiology is not representative, then the generalization is an instance of sampling error.

Why Inductive Arguments Will Never Work

Both Papineau's and Melnyk's arguments are non-sequiturs. Like a mirage, the force of these inductive conclusions disappears when we look at the premises. They first celebrate the success of modern science – which we all celebrate – and then simply assert their faith that the cosmos is causally closed. The faithless among us can hardly find this inspiring.

The flaw with inductive generalizations is not going to be solved by more time, unless hard science actually delivers on the physicalist's hope for a global reduction of all sciences to physics[33] and actually delivers detailed solutions of heretofor unsolved mysteries.

In the meantime, how long shall we amass more evidence? A century? A millennium? It seems to me that as long as the scope of scientific research remains open, there will always be a class of physical effects without known physical causes.

The physicalist will get impatient; every newly discovered physical cause will seem to her more justification of the hope that nonphysical causes will never "turn out to be necessary". But the non-physicalist will get impatient; despite any newly discovered physical causes, the class of unknowns will still seem large enough to justify her belief in causal openness.

V. Abductive Argument 1: Methodological Naturalism works.

A third, and very different argument, deserves mention. First, assume that the usefulness of an assumption in productive research is best explained by the the truth of that assumption. Second, grant that physicists, neuroscientists, and other researchers get along quite well in making scientific discoveries while assuming ex hypothesi that there are no nonphysical causes. These two premises license the conclusion that causal closure is actually *true*.

Jaegwon Kim points out that ruling out possible nonphysical causes is not happenstance but a guiding presupposition of modern research. He says:

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the domain-specific assumptions in a textbook but good arguments that the textbooks are actually *correct*.

33. Which Dupre argues is a foolish dream in John Dupré, "The Miracle of Monism," in *Naturalism in Question*, ed. Mario De Caro and David Macarthur (Harvard University Press, 2004), 36–58.

> Surely the working neuroscientist does not believe that to have a complete understanding of these complex processes she needs to include in her account the workings of immaterial souls and how they influence the motion of a molecule... Most physicalists... accept the causal closure of the physical not only as a fundamental metaphysical doctrine but as an indispensable methodological presupposition of the physical sciences.[34]

Kim's point here can be sculpted into an abductive argument of sorts. He might be read s suggesting that we should accept causal closure *as true* because when some scientists assume it as a methodological hypothesis it *works very well.*

Stoljar makes a similar case, saying that "The Argument from Methodological Naturalism has received somewhat less attention in the literature than the Argument from Causal Closure. But it seems just as persuasive — in fact, rather more so.[35] He continues:

> The second argument for physicalism is (what I will call) The Argument from Methodological Naturalism. The first premise of this argument is that it is rational to be guided in one's metaphysical commitments by the methods of natural science. Lying behind this premise are the arguments of Quine and others that metaphysics should not be approached in a way that is distinct from the sciences but should rather be thought of as continuous with it. The second premise of the argument is that, as a matter of fact, the metaphysical picture of the world that one is led to by the methods of natural science is physicalism. The conclusion is that it is rational to believe physicalism, or, more briefly that physicalism is true.

Two replies are in order: First, we must of course be clear that Kim's is not an inductive argument like the two above. For whatever data is amassed *under* an assumption can never serve as evidence *for* that assumption. For example, assuming there is nothing outside of my house, then studying items inside my house, can never lead to the conclusion that nothing exists outside my house. Similarly, assuming there are no nonphysical causes may be useful for amassing data about physical causes "inside" the cosmos. But the data about physical effects amassed under the assumption that there are no nonphysical causes is by definition unrepresentative of any possible nonphysical causes.

Instead of making a sampling error, Kim is making an inference to the best explanation: Since assuming causal closure is productive, the best explanation of that productivity is that it is true. (One might interpret Melnyk and even Papineau's arguments as containing inferences of this type.) Such an abductive argument provides at least *some* evidence for causal closure. I will happily grant that when a hypothesis underwrites the discovery of new data, if they are really good data, such discovery counts

34. Jaegwon Kim, *Philosophy of Mind* (Westview Press, 1996), 131.

35. Daniel Stoljar, "Physicalism," in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, Spring 2016 (`http://plato.stanford.edu/archives/spr2016/entries/physicalism/`, 2016), sec. 17.

in favor of a hypothesis, even if the hypothesis turns out ultimately to be false or inadequate. The question is *how much* it counts.

The success of causal closure as a methodological assumption admits of multiple competing explanations. Indeed, it admits of multiple "best" explanations. In general, what constitutes "the best explanation" usually depends heavily on background beliefs. An Aristotelian might hypothesize that assuming causal closure is so productive merely because focusing exclusively on one type of cause sharpens one's research.

To use a fanciful illustration, imagine that a mathematician methodologically assumed that all problems have mathematical solutions. She thereby makes enormous strides in her field. It would be wrongheaded of her to conclude that she has discovered a great truth – that all problems of friendship and politics have mathematical solutions. All that has happened is that she has made great progress virtue by adopting a narrow, monolithic focus.

Similarly, we might explain the rise of modern science as the success that results from disciplined limits on research. The physicist learns more about the physical causes and effects by choosing temporarily to ignore nonphysical causes, not because they are not there, but because she is a physicist.

In light of these reflections, I do not think Kim is justified in simply inferring that the cosmos is causally closed because assuming that it is underwrites good research. He cannot assume causal closure is the "best" explanation without showing that the other alternatives are not as good. He cannot show the other alternative explanations are not as good without giving independent reason to believe physicalism is likely to be true. But causal closure was supposed to give us reason to believe physicalism is true, not the other way around.

VI. Causal Openness?

To make a persuasive argument, the advocate appeals to premises that interlocutor already accepts or can come to accept on evidence independent of accepting the conclusion. The common theme in my criticisms of the deductive, inductive, and abductive arguments is that the they are all *only compelling to those who are already physicalists* – which is to say, they are not compelling at all. They either beg the question in favor of causal closure or else establish conclusions that are compatible with causal openness.

I can only conclude that there is, as of yet, no rational necessity to affirm that the cosmos is closed. I should be clear that I have *not* argued, and shall not argue, that there is any good reason to believe non-physical causes *actually do* explain some of the physical events we observe. For the purposes of this paper, I am content to commend a wholesome agnosticism. The cosmos may be open or it may be closed; the door to the house is likely unlocked. As squeamish as this makes some philosophers feel, I find no comfort in their assertions that the cosmos is safe from outside influence.

VII. Physicalist Club

There are two remaining paths we could take. First, we could accuse causal closure advocates of begging the question and leave it to them to explain

their reasons for belief. Secondly, we could speculate more generally on a possible psychological and sociological issues in the vicinity. The remainder of this article cites some evidence that there do exist non-rational pressures to accept physicalism. I would like to take the second path.

My suggestion is that those who believe in causal closure owe their belief not so much to arguments as to a fundamental orientation: a physicalist disposition. This orientation has held sway in some philosophers from ancient times (contra Papineau's suggestions) to the present, regardless of modern science. Plato's comment in the *Sophist* about the "ancient war" between idealists and materialists likely arises from deep, and perhaps even pre-rational dispositions that are hard to articulate.

Each of us must come to terms with our own individual or social *weltanschauung*. Stoljar is right to say:

> The first thing to say when considering the truth of physicalism is that we live in an overwhelmingly physicalist or materialist intellectual culture. The result is that, as things currently stand, the standards of argumentation required to persuade someone of the truth of physicalism are much lower than the standards required to persuade someone of its negation.[36]

Individually, one who "just sees" that the physical world is real, that natural sciences are effective, and that physicalism as an ontology and "world picture"[37] makes sense to them. A physicalist is someone who, in Thomas Nagel's words, "are devoid of religious temperament... the significant element of yearning for cosmic reconciliation that has been part of the philosophical impulse from the beginning. Its greatest example is Plato, who had what I would call a profoundly religious temperament Display not in what he said about religion, but in his philosophy."[38] Whether secular or religious, Nagel's "religious temperament" is both a "pure desire for understanding of the universe and one's place in it" as well as something more – "a question of attitude: Is there a way to live in harmony with the universe, and not just in it?"[39]

By contrast, the physicalist "cannot take seriously the thought that something is missing if it is impossible to make sense of things in that way."[40] Nagel mentions Hume, whose "serene naturalism is a deep expression of his temperament, and he obviously feels know yearning for harmony with the cosmos."[41] Just as one locks one's door at night not for physical but for prudential and psychological reasons, perhaps leaving the cosmos "open" to outside causes is disconcerting.

I think Nagel's insight can be given some teeth when added to Alyssa Ney's sincere and persuasive proposal.[42] She argues that physicalism can

36. Ibid., sec. 17.

37. Ibid., sec. 13.

38. Thomas Nagel, *Secular Philosophy and the Religious Temperament* (Oxford University Press, 2009), 3.

39. Ibid., 5.

40. Ibid., 6–7.

41. Ibid., 7.

42. Alyssa Ney, "Physicalism as an Attitude," *Philosophical Studies* 138, no. 1 (2008): 1–15.

only avoid Hempel's dilemma by presenting itself as an attitude. Physicalism, for Ney, is not a truth claim but an oath to "go in my ontology everywhere and only where physics leads me."

Socially, when those with the physicalist orientation gather into groups, they form a kind of club. Hence, the affirmation of causal closure represents entry into the physicalism club. Papineau acknowledges the allegation that physicalism is a sort of club when he says that "It is sometimes suggested that ontological naturalism rests, not on reasoned argument, but on some kind of unargued commitment, some ultimate decision to nail one's philosophical colours to the naturalist mast.[43] He denies the allegation. His denial is predicated on the inductive arguments I have critiqued above:"However, familiarity with the relevant scientific history casts the matter in a different light. It turns out that naturalist doctrines, far from varying with ephemeral fashion, are closely responsive to received scientific opinion about the range of causes that can have physical effects."[44] If, as I have argued, the increase in scientific knowledge of thousands of physical causes is perfectly compatible with the existence of other non-physical causes, and an appeal to authority won't do any heavy lifting, then the allegation needs some other rebuttal – or else it stands.

A few clarifications are in order. First, I hope it is clear that by "club" I don't mean an official organization.[45] I mean an informal affiliation of the like-minded that natural forms in the literature, within departments and conferences, and within universities and fields.

Secondly, I hope to dissuade those readers who are tempted to take the label 'club' or 'disposition' as pejorative. It need not be. The use of banners is fine, as far as it goes; we ought not to deny anyone their creed of choice. Richard Lewontin's doesn't apologize for his prior materialist commitments. Rather, he eloquently praises it:

> We take the side of science in spite of the patent absurdity of some of its constructs, in spite of its failure to fulfill many of its extravagant promises of health and life, in spite of the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment, a commitment to materialism. It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our a priori adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how

43. David Papineau, "Naturalism," in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, 2015, sec. 1.2.

44. Ibid., sec. 1.2.

45. As a matter of some trivial interest, there did exist one actual "physicalist club." And it boasted the membership of German physicist Herman Helmholtz. They even followed something similar to Ney's oath: they promised to appeal to "no other forces than common physical-chemical ones... within the organism." Paul F. Ballantyne, "History and Theory of Psychology: An early 21st Century Student's Perspective" Accessed online. http://www.igs.net/~pballan/section3(210).htm.

counter-intuitive, no matter how mystifying to the uninitiated.[46]

Finally, the only potential problem I would highlight is that physicalists are sometimes tempted to use divisive rhetoric that insults their opponent's commitment to scientific reasoning or to rationality itself. Until physicalists can offer causal agnostics and causal pluralists more and better arguments, they need to acknowledge that some of us simply do not join the physicalist club because we do not share a physicalist disposition. Those who refuse to nail their colors to the same mast are not *wrong*; they are just *outsiders.* At the same time, one can appreciate the frustration and dismay at being confronted by a philosopher whose *weltanschauung* is so dramatically different from one's own.

Tough rhetoric with rival views may not cause much harm to professional philosophers – whether dualists, supernaturalists, hylomorphists, panpsychists, and other causal pluralists. However, such rhetoric may unjustly sway impressionable undergraduates who are liable to feel pressured to join the physicalist club not because they are persuaded upon consideration of the philosophical and scientific evidence but simply to avoid being snickered at by a respected professor.

VIII. Conclusion

Casual closure is a significant claim and a crucial premise in a popular argument for physicalism. However, the deductive philosophical arguments, inductive empirical arguments, and abductive methodological arguments in its favor are all flawed. Nothing that Papineau, Kim, Melnyk et al., have offered has gone far to producing a inductive argument that generalizes from a representative sample or that doesn't simply assume causal closure at the outset. Causal pluralists or agnostics are hence unimpressed by these arguments and remain unpersuaded. Nevertheless, there many be other arguments I am unaware of or other arguments that remain to be articulated. In the mean time, though non-physicalists find it equally difficult to persuade physicalists of the efficacy of putatively non-physical causes, it seems that the most open and scientific attitude we can take is to be open to causal openness.

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Works Cited and Further Reading

1. Ballantyne, Paul F. "History and Theory of Psychology: An early 21st Century Student's Perspective" Accessed online. http://www.igs.net/~pballan/section3(210).htm

46. "Billions and Billions of Demons", *New York Review of Books.* 9 Jan. 1997.

2. Bishop, Robert. "The Hidden Premise in the Causal Argument for Physicalism," August 2005. http://philsci-archive.pitt.edu/2415/.
3. Crane, Tim, and D. Hugh Mellor. "There is no question of physicalism." *Mind* 99, no. 394 (1990): 185-206.
4. Lowe, E.J. "Causal Closure Principles and Emergentism." *Philosophy* 75, no. 04 (2000): 571–85.
5. Melnyk, Andrew. In *Physicalism and Mental Causation: The Metaphysics of Mind and Action*, 155–72. Imprint, 2003.
6. Montero, Barbara. "Varieties of Causal Closure." *Physicalism and Mental Causation: The Metaphysics of Mind and Action*, 2003, 173–87.
7. Garcia, Robert. "Closing in on Causal Closure." *Journal of Consciousness Studies* 21, no. 1-2 (2014): 96-109.
8. Hempel, C. (1980), 'Comments on Goodman's Ways of Worldmaking', *Synthese*, 45: 193–99.
9. Kohut, A., S. Keeter, C. Doherty, and M. Dimock. "Scientific achievements less prominent than a decade ago: Public praises science; scientists fault public, media." Washington, DC: The Pew Research Center for the People & the Press. http://www. people-press. org/files/legacy-pdf/528. pdf (2009).
10. Lewontin, Richard. "Billions and Billions of Demons", *New York Review of Books.* 9 Jan. 1997.
11. Papineau, David. "Naturalism." In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, 2015.
12. ———. "Physicalism and Its Discontents." edited by Carl Gillet and Barry Loewer. Cambridge University Press, 2007.
13. ———. "The Causal Closure of the Physical and Naturalism." in *The Oxford Handbook of Philosophy of Mind*, edited by Brian McLaughlin and Ansgar Beckermann et al.. Oxford University Press, 2009.
14. Smith, Quentin. "The Metaphilosophy of Naturalism." *Philo* 4, no. 2 (2001): 195–215.
15. Swinburne, Richard. *Mind, Brain, and Free Will.* Oxford University Press, 2013.
16. Von Wachter D. "Why the Argument from Causal Closure Against the Existence of Immaterial Things is Bad" in *Science: a Challenge to Philosophy?*, ed. Koskinen, Heikki and Pihlstrom, Sami, P. Lang, 2006.