Journal for General Philosophy of Science
https://doi.org/10.1007/s10838-019-09464-8

DISCUSSION

Should Methodological Naturalists Commit to Metaphysical Naturalism?

Zahra Zargar[1] · **Ebrahim Azadegan**[2] · **Lotfollah Nabavi**[1]

Abstract
It is widely supposed that methodological naturalism, understood as a thesis about the methodology of science, is metaphysically neutral, and that this in turn guarantees the value-neutrality of science. In this paper we argue that methodological naturalism is underpinned by certain ontological and epistemological assumptions including evidentialism and the causal closure of the physical, adoption of which necessitates commitment to metaphysical naturalism.

Keywords Methodological naturalism · Metaphysical naturalism · Causal closure of the physical · Evidentialism

1 Outline

The relation between methodological naturalism and metaphysical naturalism is a matter of some consequence for philosophers and scientists. *Methodological* naturalism, a thesis about the methodology of science, amounts to the claim that the method of science is empirical. Methodological naturalism, then, contains no explicit claims about metaphysics. *Metaphysical* naturalism, on the contrary, is a metaphysical thesis about the kinds of entities which actually exist in the world, and entails the claim that there is no God or any entity like Him. The world consists of matter in motion, whose governing rules are ultimately explicable in terms of the laws of physics or other empirical sciences.

In this paper we focus on the following question: Could it be rational to accept methodological naturalism, but reject metaphysical naturalism? The answer to this question is important, because the majority of scientists and philosophers believe that methodological

✉ Zahra Zargar
zahrazargar_1367@yahoo.com; z.zargar@modares.ac.ir

Ebrahim Azadegan
azadegan@sharif.edu

Lotfollah Nabavi
nabavi_l@modares.ac.ir

[1] Department of Philosophy, Tarbiat Modares University, Tehran, Iran

[2] Department of Philosophy of Science, Sharif University of Technology, Tehran, Iran

Published online: 17 July 2019

naturalism guarantees the ideological neutrality of science. Methodological naturalism, it is generally thought, is coherent with any worldview, and by using its methodology people from different religious or cultural backgrounds can freely contribute to the advancement of science.[1] It is widely accepted that methodological naturalism can realize the ideal picture of a value-neutral science; hence it is assumed by almost all scientific communities.

Against this prevailing consensus, we shall argue that methodological naturalism has certain tacit metaphysical implications which have been widely ignored by the dominant view. Once we perceive its metaphysical consequences, methodological naturalism will no longer be able to count as a neutral methodology. We do not here argue in favor of any naturalistic or anti-naturalistic metaphysical worldviews, however, our concern is simply to demonstrate the non-metaphysical-neutrality of methodological naturalism.

In Sect. 2 we provide a brief review of the history of the debate. In Sect. 3 we study the relation between explanation and causation, to see how methodological naturalism might constrain the domain of scientific explanations, to the extent that they become characterized by ontological restrictions that exclude supernatural causes from explanations. This exclusion seems ultimately to be based on the acceptance of the principle of the "Causal Closure of the Physical". In Sect. 4 we classify different interpretations of the causal closure principle to determine exactly what the ultimate basic assumption of methodological naturalism is. Finally, in Sect. 5 we show that methodological naturalism not only has ontological presuppositions, but also has certain epistemic consequences. We conclude that methodological naturalism as a methodological thesis is interwoven with both the epistemic thesis of evidentialism and the ontological thesis of metaphysical naturalism.

2 A Review of the History

Since there are various versions of methodological naturalism and metaphysical naturalism, the first step is to provide a precise definition of these two positions which clarifies what we mean by these two terms.

There are various ways to define "natural", but each faces certain problems. If we define it on the basis of scientific theories, such that we accept something as natural if and only if it has been used in scientific theories so far, then we have to hold a conservative position as regards new scientific theories. Since new entities in novel theories have not been used in any theory so far, they won't be natural. On the other hand, if we try to define "natural" by appealing to its contrast with "supernatural" or even its relation with "natural laws" or "the laws of natural sciences", circularity would be unavoidable.[2] So in the absence of any independent definition of "natural", a common strategy is to make reference to known and uncontroversial examples of natural entities in order to adumbrate its meaning. In this manner, everything which inhabits time and space is natural, while entities like God, demons, angels and the Cartesian soul are considered to be supernatural (Halvorson 2016, 139).

[1] Philosophers including Pennock (2011), MacMullin (2001), Halvorson (2016), Ruse (2005) and Boudry et al. (2010) have defended this view.

[2] Halvorson asserts that even an appeal to concepts like matter, energy, space and mass is not fruitful in drawing a distinction between the natural and the supernatural, since there are cases of scientific terms which don't possess some of these properties (Halvorson 2016, 139); but this idea also has its opponents. In view of the challenges of defining "natural", and for reasons of brevity, we characterize the natural simply by reference to the agreed examples.

Plantinga reviews various usages of "Naturalism" in art, literature and epistemology, as well as its different applications by philosophers like Moore, Dewey and Quine. He asserts that it is not easy to find an analogy between these different interpretations of naturalism sufficient to define it. He considers that naturalism is an attitude toward the world and a high-level belief about it (Plantinga and Tooley 2008, 17–18). When this attitude is directed towards the method of science, the result is methodological naturalism, which consists in the claim that *in scientific explanation only the use of natural entities is permitted*. In other words, a scientific theory must refer neither to any supernatural entity nor to any revelational proposition, and everything should be explained by using natural structures and mechanisms.

Metaphysical naturalism, as the ontological expression of the naturalist attitude, then claims that *only natural entities exist*. Plantinga remarks that metaphysical (or philosophical) naturalism is even stronger than atheism, because besides God it rejects the existence of any supernatural entity at all, including the Stoics' mind, Fichte's absolute I, Aristotle's unmoved mover and so on (ibid., 19). According to metaphysical naturalism, therefore, it is not simply that supernatural entities cannot be used in scientific theories; they don't even exist.

Since methodological naturalism concerns the norms and principles that govern the scientific method, it seems *prima facie* that it would not commit itself to any metaphysical or ontological claims. So, it seems, someone could accept that reference to supernatural entities or revelational propositions should be excluded in scientific theorizing, even though she didn't deny the existence of God or other supernatural entities, and may even believe in their existence.

Yet some philosophers (such as Forrest (2000), Mahner (2012), Torrance (2017) and Hook (1927)) have held that there is a deep relation between methodological naturalism and metaphysical naturalism. Mahner remarks that a methodology which is not based on any ontological theory is just a set of arbitrary instructions: every methodology needs an ontological theory in order to vindicate the possibility of grasping knowledge via that methodology (Mahner 2012, 1456). In the same way, Torrance explains that "[w]hen a person advocates a particular methodology for approaching a particular object, she will normally do so because she has metaphysical views about the nature of that particular object: about how that object relates to reality, and about the nature of the reality within which that object finds itself" (Torrance 2017, 702). Similarly, Hook observes that "'method' is dogged by a pack of metaphysical consequences; […] a 'pure' method which does not involve reference to a theory of existence is as devoid of meaning as a proposition which does not imply other propositions" (Hook 1927, 6).

Forrest claims that having accepted methodological naturalism, metaphysical naturalism is the only reasonable worldview someone could adopt, where by "reasonable" she means empirically grounded or logically coherent (Forrest 2000, 8). We can consider her argument as proceeding in two steps. She argues, first, that methodological naturalism is the only reliable and also the most successful methodology for discovering the realities of the world; and second, that scientific knowledge obtained using methodological naturalism expresses a naturalistic picture of the world, which among the different worldviews exclusively confirms metaphysical naturalism. Forrest emphasizes that the relation between methodological naturalism and metaphysical naturalism is not one of logical entailment, and views metaphysical naturalism as an a posteriori result of methodological naturalism.

While we accept Forrest's claim that metaphysical naturalism is a consequence of methodological naturalism, our claim in this paper is stronger than her conclusion that this relation is practical. Rather we try to demonstrate that there is a conceptual relation between

methodological and metaphysical naturalism such that one cannot rationally commit to methodological naturalism and simultaneously deny metaphysical naturalism.

3 Methodological Naturalism, Explanation and Causation

Does the exclusion of the supernatural from scientific explanation have any relation with our belief about the causal role of supernatural entities in the natural world? In other words, could we coherently admit that supernatural entities have no explanatory power, and yet at the same time attribute causal power to them? Or would the elimination of supernatural entities from scientific explanations[3] imply that we should not consider them as having any causal power at all?

To answer these questions, we first have to look at the relationship between explanation and causation. In almost all contemporary models of scientific explanation, the concept of causation has a significant role.[4] Recognition of causal relations seems essential for any genuine explanation. David Lewis argues that an explanans should have an exclusively causal role, and in cases in which it apparently doesn't have a causal role, either we are looking at an implicit form of causation or we are wrong to think that it is an explanation at all (Lewis 1986, 121–123). Wesley Salmon, meanwhile, remarks that "an explanation of an event involves exhibiting that event as it is embedded in its causal network and/or displaying its internal causal structure" (Salmon 1998, 325). Although some have maintained that there are non-causal explanations, such as geometrical explanations (Nerlich 1979; Reutlinger 2017), the fundamental role of causal factors in explanation is widely accepted (Reutlinger 2017, 2).

In addition to the importance of causal factors in providing an explanation, it matters for our discussion whether "all" the causal factors of an event have explanatory power and value. If we accept that all causal factors are explanatorily valuable, then the exclusion of supernatural entities from explanation requires one to believe that they are causally inefficacious.

Various attempts have been made to describe and formulate the criteria according to which an explanation becomes valuable and meritorious. David Lewis and Peter Lipton both consider that all phenomena can be studied from numerous perspectives, and that since an explanation is always about a particular aspect of a phenomenon, it is important for that explanation to be exactly related to the relevant aspect. Lewis asserts that when a scientific question concerns a particular part of a causal history, no amount of information about other parts of that history, however correct and strong, will be useful (Lewis 1986, 227). Lipton also introduces his own approach for elucidating this point, considering the contrastive structure of why-questions. Lipton says that when we ask "why did P happen?", we are actually asking "why did P happen and not Q?", where there are different options for the value of Q. Depending on which contrastive situation is posited in the why-question, different explanations will be required. Lipton asserts that a proper explanation should be truly relevant to the difference between the situation that actually occurred and the contrastive situation which is supposed in the explanandum query. This point demonstrates

[3] In this section, by "scientific explanation" we mean informal explanation, not formal deductive explanation.

[4] For example, causation is the key concept in the "Causal-Mechanical" model of Salmon (1984), and in the "Unification Theory of Explanation" suggested by Kitcher (1989) it has an implicit role.

that some causal factors are important and useful in an explanation, but not all of them (Lipton 2000, 230).

According to Lipton, the causal role of a factor in the history of an event is not enough to make it useful in an explanation of that event; since, in view of the main focus of the explanandum-query, this historical factor may be irrelevant. Considering Lipton's and Lewis's points, one can thus conclude that the exclusion of supernatural entities from scientific explanation does not necessitate refusing to allow them any causal role at all, because there are always causal factors which are not applied in explanation.

But there is a subtle distinction which discredits the latter corollary. Recognition of a factor as powerless or irrelevant in a *certain* explanation is different from claiming that that factor is essentially irrelevant in *any* explanation. Of course, a large set of causally effective factors may count as unimportant in a given explanation, and this doesn't mean that their causal role should be denied or neglected. But in the case of methodological naturalism we are talking about the general concept of scientific explanation. When we totally exclude supernatural entities from scientific explanations, ultimately we deprive supernatural entities of the possibility of being explanantia. As Torrance remarks, the theistic supposition, that it is possible for God to have explanatory significance in some field of scientific inquiry, is inconsistent with methodological naturalism (Torrance 2017, 695). But it seems that anything that has a causal role in producing a phenomenon can remain as an option for explaining some aspect of it. Therefore one cannot rationally exclude a causal factor from all possible explanations of a given phenomenon. Hence, in order to be defensible, methodological naturalism must also include the assumption that the physical world is *causally closed*, namely the "Principle of the Causal Closure of the Physical".

4 The Causal Closure of the Physical

Several versions of the causal closure principle[5] have been introduced, drawing on different aspects of causation. Since the causal relation is transitive, all causally connected chains that finally realize a specific event should be counted as the cause of that event, although we can distinguish proximal and distal causes. Therefore, when we speak about causation generally and without any constraint, we must include both distal and proximal causation. Jaegwon Kim defines the causal closure as a principle according to which "if you pick any physical event and trace out its causal ancestry or posterity, that will never take you outside the physical domain. That is, no causal chain will ever cross the boundary between the physical and the non-physical" (Kim 1998, 40). Following Robert Garcia, we name this version of causal closure, which restricts all chains of causal history to physical events, "Pure Closure".

If we suppose that non-physical factors can play a role in the chains of causal history of a physical event, then we cannot generally exclude them from explanations of the physical world unless their causal role is posited as not as substantial as the causal role of other physical factors. So, exclusion of supernatural entities from explanations of the physical world is rational only if we deny the existence of non-physical chains in the causal history

[5] This principle is borrowed from philosophy of mind; in that field it concerns the relation between a physical brain and a non-physical mind. But here we apply it to the domain of supernatural entities which are non-physical.

of physical events, or the significance of their causal role. In other words, for the acceptance of methodological naturalism we have to suppose the "Pure Closure" principle.

Garcia distinguishes between two interpretations of the pure closure principle, as follows:

(A) Every physical effect E has a direct *physical* [sic!] *sufficient* cause C, in that C has physical properties $P_1 \ldots P_n$, and $P_1 \ldots P_n$ together are (at least) an INUS[6] condition for E.
(B) Every physical effect E has a direct *physically-sufficient* cause C, in that C has physical properties $P_1 \ldots P_n$, and $P_1 \ldots P_n$ are together sufficient to bring about E. (Garcia 2014, 100)

In the first definition of the pure closure principle, physical realization of a cause is important and its physical properties are the INUS condition for the effect. Non-physical factors can therefore still contribute to the causation of physical events (Garcia 2014, 100–101). But the constraint of the second definition is stronger. According to it, realized physical properties are the only sufficient causes; so there is no need and no space for the contribution of non-physical factors.

According to the first definition, although physical factors could be identified as causes, they do not need to be sufficient causes. Therefore, in physically similar situations, non-physical factors may determine the ultimate event. As a result, we cannot generally exclude them from explanations. So a methodological naturalist cannot adhere to this version of the causal closure principle.

Arguably, then, for commitment to methodological naturalism we have to accept version (B) of the causal closure principle, which denies the contribution of non-physical factors in the causation of physical events. Garcia names this version "Stringently Pure Closure".

We should also distinguish between the restricted and unrestricted domain versions of the causal closure principle. Some philosophers define the causal closure in a particular physical level. They believe that closure is more plausible if we limit it to the micro-physical (or quantum) level. In the unrestricted interpretation of the principle, we generalize causal closure to the domain of all physical realities and for all time (Kim (1998, 40), and Spurrett and Papineau (1999) support the unrestricted version).

It seems that when we look at the range of issues with which science is concerned, we can conclude that the subjects of scientific explanation extend from the micro-physical to macro-physical, biological, psychological, sociological and cosmological facts, and to the phenomena of all past times. So, if we want to restrict scientific explanations to natural explanations we have to commit to the "Domain Stringently Pure" version of causal closure, which asserts that the domain of physical reality is causally closed and that non-physical factors have no causal activity on any level.

Every weaker version of the causal closure principle leaves some space for causal activity by non-physical factors within the realm of the physical phenomena which are the subjects of scientific explanation. Since, according to the "Domain Stringently Pure" version of the causal closure principle, the natural and supernatural worlds are causally isolated, methodological naturalism implies that if there were any supernatural entity it would be

[6] INUS is the abbreviation of "an Insufficient but Necessary part of an Unnecessary but Sufficient set of conditions" for an event (Mackie 1965).

causally inefficacious in the physical world. This sort of ineffectiveness of the supernatural is clearly contrary to a traditional theistic account of God, which sees God as the creator and sustainer of the world. So it seems that the methodological naturalist cannot coherently believe in a God who acts in the world. In the next section we will vindicate this claim.

5 Methodological Naturalism and Evidentialism

As we have argued, methodological naturalism is based on the presupposition of causal isolation of the natural and the supernatural worlds. Here one may ask how a methodological naturalist could be justified in believing in the existence of any supernatural entity? To answer this question we need to dig into some epistemological consequences and requirements of methodological naturalism.

As a methodology of science, methodological naturalism aims at obtaining knowledge about the natural world: therefore it seeks to distinguish between reliable and unreliable propositions, and related and unrelated evidence. Methodological naturalism implies that only those propositions are reliable that are supported by empirical evidence. Thus, Forrest claims that "[t]here must be empirical evidence for any claim with existential import, and any area of human thought, including religion, in which existential claims are made is subject to the criteria by which existential claims are tested" (Forrest 2000, 18).

In other words, methodological naturalism denies revelation and religious experience as valid sources of knowledge about the natural world. So the methodological naturalist is committed to the claim that the scientific beliefs which constitute her scientific knowledge have been justified by her perceptual beliefs and their entailments.

So the epistemological implications of methodological naturalism lead us to a version of "Evidentialism", according to which the epistemic justification of a belief is determined by the quality of evidence that the believer has for that belief (Feldman and Conee 1985, 15).

In his famous paper, "The Ethics of Belief", William Clifford argues that the evidence which can justify our beliefs is exclusively empirical. Although he allows that our beliefs themselves extend beyond the boundaries of pure experience, he emphasizes that these efforts to go beyond experience should be limited, and hence he introduces the "uniformity of nature" as the unique assumption that underpins and is required for forming justified beliefs. Clifford claims that the empirical and evidential methodology of belief justification results in practical certainty: so we no longer need faith (Clifford 1886, 7–8). In the same vein, as defenders of evidentialism, Feldman and Conee assert that the strength of evidentialism is that it can explain why clairvoyant-like beliefs (or any non-empirical non-testable ones) are not well-founded (Feldman and Conee 1985, 30).

According to the standard of evidentialism, the doxastic attitudes of a person should fit his perceptual evidence. From this point of view, being epistemically obligatory is equal to being epistemically justified (ibid., 19); and, conversely, just as relevant evidence obliges us to believe a proposition, the non-existence of any evidence compels us to deny that proposition.

Thus, evidentialism excludes revelation and religious experience in justifying our beliefs, and admits only sense perception as the source of evidence; so it can be viewed as an expression of the epistemic basis of methodological naturalism.

Based on the above discussion, if we suppose that the supernatural realm has absolutely no *causal role* in the natural world, there will be no empirical evidence that confirms the existence of supernatural entities. Forrest expresses this point as follows: "To become more

than a logical possibility, supernaturalism must be confirmed with unequivocal empirical evidence, and such confirmation would only demonstrate that this newly verified aspect of reality had all along never been supernatural at all, but rather a natural phenomenon which just awaited an appropriate scientific test" (Forrest 2000, 25).

Indeed, access to such evidence is in principle impossible, because if supernatural entities are causally isolated from the natural world, their existence or non-existence will not be reflected in the realities of the natural world. In words of Torrance: "Naturalism […] rules out the possibility of recognizing that God has anything to do with the natural order" (Torrance 2017, 699). Hence, someone who accepts methodological naturalism has no option but to deny the existence of the sorts of supernatural entities posited by theists. This worldview is exactly what at the outset we called "metaphysical naturalism".

It is important to point out that our argument concentrates on the transition from a methodological *commitment* to a metaphysical *commitment*, not from a methodological *claim* to a metaphysical *claim*. Indeed, our conclusion is not that there are no supernatural entities, but rather that upon acceptance of methodological naturalism, rejection of these entities is justified, and endorsement of them (or remaining agnostic about them) is unjustified.

So we reach the same conclusion as Forrest, although from a different route, in that we agree with her when she says "if supernatural causal factors are methodologically permissible, the cosmos one is trying to explain is a non-natural cosmos. Conversely, if only natural causal factors are methodologically and epistemologically legitimate as explanations, then only a naturalist metaphysics is philosophically justifiable" (Forrest 2000, 12).

In contrast with her argument, however, we perceive an a priori and conceptual linkage between methodological naturalism and metaphysical naturalism. We have demonstrated that methodological naturalism comes with some supporting metaphysical and epistemological presuppositions, which make metaphysical naturalism the most rational, parsimonious and coherent worldview.

6 Conclusion

Our purpose in this paper was to prove that commitment to methodological naturalism necessitates the adoption of metaphysical naturalism. The main claim of methodological naturalism is the exclusion of supernatural entities from scientific explanation. We saw that there is a consensus among philosophers about the importance of the role of causal factors in the explanation of events. But naturalism excludes the supernatural from explanations generally. So, according to naturalism, supernatural entities cannot play *any* causal role in the natural world; otherwise, it would not be reasonable to totally exclude them. This conclusion was expressed by a strong version of the causal closure principle according to which supernatural entities have no causal role in the natural world, neither as a chain in the causal history of physical events, nor as a part of a necessary condition at any level and at any time.

Methodological naturalism implies evidentialism, which obliges us to base the justification of our beliefs purely upon empirical evidence. And at the same time, since supernatural entities are causally isolated from the natural world, it is impossible for them to be reflected in the empirical evidence. As a result, someone who accepts methodological naturalism has to deny the existence of the supernatural and commit to metaphysical naturalism. Our argument contrasts with Forrest's, who emphasizes that the relation between methodological and metaphysical naturalism is a posteriori, meaning that when a naturalistic methodology is used, the knowledge obtained will represent a naturalistic worldview. Contrary to Forrest, we showed

that by analyzing the presuppositions of methodological naturalism, a methodological naturalist is rationally entitled to accept metaphysical naturalism. In other words, we have demonstrated that there is a deep conceptual relation between these two theses.

Whereas Forrest tries to affirm metaphysical naturalism by referring to the success of methodological naturalism, we have argued that without acceptance of metaphysical naturalism, methodological naturalism fails to be a credible methodology.

The core of this argument is the recognition that the causal closure principle is the link between methodological and metaphysical naturalism: for this principle at once assumes the causal isolation of the natural world, compels us to adopt a naturalistic methodology for discovering the world, and discredits our beliefs about the supernatural.

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