

# What is Natural?: A Critical Analysis of Nonreductive Physicalism

JOSH REEVES

## Abstract

Attempts to understand the naturalness of religion will eventually raise issues relating to the philosophy of nature, for the term *natural* can be explicated in multiple ways. This paper examines one of the most prominent philosophical positions on the subject in the science and religion literature, a proposal developed by Nancey Murphy that she calls *nonreductive physicalism*. While it admirably tries to occupy a middle ground between physicalism and dualism, I argue in this essay that nonreductive physicalism is not yet a convincing option because Murphy does not present her supervenience doctrine in a compelling way. Without that key piece of her proposal, she has not shown how one can be both a physicalist and a nonreductionist at the same time.

## Keywords

Nancey Murphy, nonreductive physicalism, philosophy of nature, reductionism, supervenience

## Introduction

ANY SATISFYING ATTEMPT to address the naturalness of religion will eventually confront issues relating to the philosophy of nature, primarily because philosophical presuppositions inextricably shape the debate. If nature is a vast machine, full of inert particles operating by the laws of nature, then one should expect a fully naturalized account of religion to align with a reductionistic worldview. By contrast, if properties normally associated with the human mind, such as purpose, values, or intentionality, can be accounted for in a naturalistic framework, then a wider variety of religious behavior might be accounted for in a scientific manner.

In this essay, I will critically examine one of most recent and influential attempts to develop a philosophy of nature in the interdisciplinary field of

science and religion. Nancey Murphy (Brown et al., 1998, Murphy, 1999, Murphy, 2006, Murphy & Brown, 2007) has advocated a position she calls *nonreductive physicalism*, which attempts to reconcile the phenomena of mind and its apparent causal power within a physicalistic framework. While Murphy has developed her position in cooperation with many colleagues, she merits special consideration because she has developed the central philosophical position to which the others add complementary scientific, theological, or ethical data. If successful, nonreductive physicalism would provide resources for accounting for the naturalness of religion: if mind is a part of nature, then we have gone a long way towards understanding why religion is too.

Unfortunately, I will argue, Murphy's position does not plausibly explain how one might be both a nonreductionist and a physicalist because her account of supervenience, the philosophical core of her project, is not compelling. Murphy attempts to reformulate the meaning of supervenience to avoid common objections to it. In so doing, however, she fails to recognize the way her reformulation resembles other, previously rejected, alternatives in the literature. I conclude by arguing that Murphy's best arguments support emergence theories of nature, which are not compatible with physicalism.

## 1 Varieties of Supervenience

One cannot assess Murphy's position without a clear understanding of the philosophical concept of supervenience. In some ways this is unfortunate because there is a lack of consensus on supervenience's usefulness. As far back as 1984, Post (cited in Bailey, 1999: 53) could say, "Supervenience seems over the years to have become an accordion-word: indefinitely stretchable, covering a bewildering variety of ideas related perhaps only by family-resemblance." Nevertheless, supervenience provides a useful framework for understanding how higher-level properties are dependent upon lower-level physical properties, without being identical with any particular physical state. In order to adequately discuss Murphy's theories, it is necessary to consider how supervenience is normally discussed in the literature.

While the discussion of supervenience can become quite technical, it is simply a formal way of presenting the idea that one set of facts can fully de-

termine another set of facts (Chalmers, 1996). In order to illustrate this, consider Jaegwon Kim's (1996: 222) example of the relationship between beauty and a statue. That beauty has a supervenient relationship with the physical statue can be seen in a number of ways. First, beauty is fully determined by the physical object. No further effort is required to attach beauty to the statue once the physical work is complete. Second, while we can say that beauty is a result of the statue's texture and shape, it would not make sense to call beauty a physical property. Thus, the physical and aesthetic properties are distinct, yet the aesthetic property is dependent on the physical. Advocates of supervenience would describe beauty as an *irreducible* result of the physical statue. Third, it would be impossible for two identical statues to exist that do not share the same aesthetic qualities. If two statues are physically equal, then they are equally beautiful. Yet it is important to recognize that the reverse does not hold true. Early physicalist theories on the mind/brain relationship failed because they equated higher-level properties such as pain to a particular brain state. Consequently, these positions made the implausible assertion that organisms without the ability to reproduce that particular physical brain state do not feel pain. Supervenience theory, in contrast, says that beauty is not restricted to a particular statue, but can be realized by any number of statues.

Here is Chalmers' (1996: 33) formal definition of supervenience: B-properties supervene on A-properties if no two possible situations are identical with respect to their A-properties while differing in their B-properties. The slogan that is often used to summarize the implications of supervenience is no mental difference without physical difference (Kim, 1996: 10).

To position Murphy's account in the philosophy literature, it is necessary to discuss some of the distinctions that philosophers make about supervenience. Following Bailey's (1999) helpful article, most of the differences between the various definitions of supervenience can be categorized according to two variables: the modal strength of the supervenience relationship and the situation being compared. Here are three options for modal strength

- (M1) Weak necessity: that is, the covariance holds in the actual world but need not hold in any other possible world.

- (M2) Natural (or “physical” or “nomic”) necessity: that is, the covariance holds in the actual world and all naturally possible worlds – very roughly, all worlds where the fundamental, true laws of nature sufficiently resemble the actual laws.
- (M3) Logical necessity: that is, the covariance holds in that actual world and all the logically possible worlds- roughly, those where a priori necessary truths still hold.

For reasons I will discuss below, weak supervenience is not an attractive option for most philosophers of mind. Instead, it will be helpful for my purposes to focus on the differences between logical and natural necessity. As I will show, whether mental content logically supervenes or (more weakly) naturally supervenes on physical brain states is an important question for philosophers of mind.

The distinction between logical and natural supervenience can be illustrated in the following way. If biological properties are logically supervenient upon physical properties, then God could not have created a world that is physically identical to ours but biologically distinct (Chalmers, 1996: 35). Or, in other words, after creating the physical properties, the biological properties come along for free. Logical supervenience also allows for the possibility that a super-being, who knew every physical law along with the position of every particle in the universe, could “read off” all the biological facts.

Natural supervenience occurs when A-facts naturally necessitate B-facts, yet it is logically possible that it could have been otherwise in other worlds. If the biological world only naturally supervenes on the physical world, then “after making sure of the A-facts, God has to do more work in order make sure of the B-facts: he has to make sure there is a law relating the A-facts and the B-facts” (Chalmers, 1996: 38). With natural supervenience, it would have been within God’s power to attach any number of different biological properties to our world. I will return to the distinction between natural and logical supervenience below.

The other variable in the standard definition of supervenience concerns the “situation” one is comparing; for my purposes, I will only compare local or global situations. The supervenience relationship is local if the relation-

ship is between two objects (or individuals). To state it another way, local supervenience holds “if no two possible individuals that instantiate the same A-properties instantiate the same B-properties” (Chalmers, 1996: 34). Local supervenience fails if the A-property is somehow dependent upon context. For instance, one can have an atom-for-atom replica of a dollar bill, but one may be counterfeit because the U. S. treasury did not make it.

Global supervenience is weaker and says that “B-properties supervene globally on A-properties ... if the A-facts about the entire world determine the B-facts: that is, if there are no two possible worlds identical with respect to their A-properties, but differing with respect to the B-properties” (Chalmers, 1996: 34). If a property supervenes locally, then it supervenes globally, but not vice-versa. To illustrate this, Chalmers uses the example of biological fitness. Biological properties globally supervene on physical properties, because two identical physical worlds would have the same exact biological laws. But it might be possible that two identical organisms could differ in some biological properties (and thus not locally supervene) because one could be more fit in its environment. I will return to the topic of local and global supervenience when I examine Murphy’s formulation of supervenience.

## **2 Nonreductive Physicalism**

Murphy (2002: 149; Murphy & Brown 2007, 206) argues that supervenience is a breakthrough concept for solving the mind/body problem, while at the same time arguing that “standard definitions of supervenience are not only in need of qualification but are entirely wrongheaded.” She agrees (Murphy & Brown 2007, 21) with critics of standard definitions of supervenience who argue that supervenience cannot prevent reduction of higher-level concepts to lower-level ones, referencing the well-known work of philosopher Kim (1996). Because Murphy denies that her own theory is vulnerable to Kim’s critique, he is worth a brief examination.

Kim argues that supervenience fails to explain how mental properties can possess causal powers without being dualistic. He accepts that supervenience is a causal relation: in order for mental properties to be causally effective, they must be able to effect change in physical properties (top-down cau-

sation). This ability to affect physical properties is entailed by physicalism: even when mental properties cause other mental properties (causation on the same level), they are in effect causing the physical state that must underlie any mental property. The question then arises, does the mental property ( $M_1$ ) that is causing another mental property ( $M_2$ ) have a physical state underlying it ( $P_1$ )? If no, then this position is dualistic, because nonphysical entities with causal powers are interacting with physical entities. If yes, then it is more likely that the physical state ( $P_1$ ) underlying the mental state ( $M_1$ ) is the source of causation (it causes  $P_2$ , which causes  $M_2$ ). As Kim (1996: 232) says, “There are no new causal powers that magically accrue to over and beyond the causal power of .” Thus, if lacks causal powers, the theory turns into a form of epiphenomenalism where, “Mental events are effects of physical processes, but they do not in turn cause anything else, being powerless to affect physical events or even other mental events (1996:129).” Murphy’s response to Kim’s challenge is to redefine supervenience out of harm’s way, so to speak. She argues that traditional categories of supervenience miss an important feature of the way supervenience was originally used in ethics, namely the ability to change based on context. To illustrate the difference, Murphy (1999:557; Murphy & Brown 2007, 205) quotes the ethicist Hare:

“First, let us take that characteristic of ‘good’ which has been called its supervenience. Suppose that we say, ‘St. Francis was a good man.’ It is logically impossible to say this and to maintain at the same time that there might have been another man placed exactly in the same circumstances as St. Francis, and who behaved in exactly the same way, but who differed from St. Francis in this respect only, that he was not a good man.”

Murphy (1999: 558) thinks this concept of supervenience is superior to the way it normally is construed.

Francis’ character traits and actions ... only constitute him (or someone like him) a good person ... under *certain circumstances*. That is, it is conceivable that identical behavior circumstances would not constitute goodness. For example, we would evaluate Francis’ life much differently if he had been married and the father of children.

When examining how the moral adjective *good* supervenes on action, Murphy wants us to consider how different historical and environmental contexts affect the supervenience relation. It supervenes on actions only if certain conditions are met in the external world.

Here is Murphy's (Murphy & Brown 2007, 206) most recent definition of supervenience: Property S supervenes on base property B if and only if x's instantiating S is *in virtue of* x's instantiating B *under circumstance c*.

In order to take context into account, Murphy patterns her definition of supervenience after its use in ethics, where it has been argued that goodness is a noncausal consequence of an action. As Searle (1992:125) says about ethical supervenience; "... the features of an object that make it good do not *cause* it to be good, they rather *constitute* its goodness." Murphy acknowledges that her position differs from most philosophers of mind, who understand the mind/body relation as causal in nature.

As a result of her reformulated account of supervenience, Murphy claims that Kim's argument does not obtain in her case. If Murphy's definition of supervenience is correct, then reduction would be impossible because one could never guarantee that the link between a particular brain state and a mental state will hold in the future. In a new circumstance and context, a different mental state might supervene on the same brain state. Her theory also provides an account of mental efficacy that fits within a physicalist framework. She states (2002: 153), "Note that the question here is not whether the subvenient property causes the supervenient, but rather whether casual relations described at the subvenient level are sufficient to determine the sequence of events as described at the supervenient level." Murphy thinks they are not sufficient, despite the fact that she accepts ontological reductionism.

### 3 Evaluation

Murphy's reformulation of supervenience is not plausible for several reasons, which I will attempt to demonstrate by revisiting the two variables that distinguish supervenience theories. I will first consider the second major variable in definitions of supervenience: the situation being compared. As I discussed previously, the two major contenders are local and global supervenience. Local supervenience (which compares individuals) is a stronger definition; under local supervenience, two identical subvenients have the same supervenients, regardless of the external environment. Global supervenience (which compares worlds) is more sensitive to circumstances: under

global supervenience, value fails to supervene on two identical pictures of the Mona Lisa if, for example, only one was painted by Leonardo da Vinci.

Murphy's definition closely resembles global supervenience because the main purpose behind her reformulation is to explain how different contexts and histories can affect the supervenience relation. In fact, *contra* Murphy's account of the supervenience literature, the reason why philosophers formulated global supervenience is because it was recognized that context *could* affect the supervenience relationship. If two entire worlds are identical with respect to their A-properties (and thus their B-properties) then, by definition, they share the same context. Indeed, it is surprising that Murphy does not fully address global supervenience. In her *Zygon* (1999: 558 n. 5) article she says in a footnote, "I believe that this claim about global supervenience is true but uninteresting for the issues at hand." But how could that be, given how closely it resembles her view? It would seem incumbent upon Murphy to either distinguish her notion of supervenience from global supervenience, or else use the categories that are already accepted in the literature. Murphy's failure to interact with other formulations of global supervenience is highly problematic, for it seems the only benefit that Murphy gains from not engaging with them is the ability to ignore criticisms that most philosophers offer against applying global supervenience to the mind/body problem.

Unfortunately for Murphy, it is hard to see how mental facts could be affected by context, and thus how context-based theories of supervenience are helpful. To illustrate, consider another example from Kim (1996: 9), the *Star Trek* transporter. Imagine that a transporter is constructed to move objects over long distances. As individuals step into the booth, a scanner obtains exhaustive information about his or her body structure, and on that basis, constructs a molecule-for-molecule identical duplicate in another location. However, instead of transporting molecules to that location, the transporter simply deconstructs the person in one place, and uses new molecules to construct the duplicate. As a result, the question arises, what is the relationship between the two identical persons, the person before being transported and the person after being transported? Will the physical duplicate be a psychological duplicate as well, sharing the same intelligence, preferences for food and music, etc. (Kim, 1996: 9)?



According to the local definition of supervenience, the physical duplicate is also a psychological duplicate, because there can be no mental difference without physical difference. Two persons that are physically identical must be psychologically identical. However, a definition like Murphy's that is based on context allows different mental events to supervene on identical physical events depending upon the circumstances. Because a person is in a different circumstance after being transported, he or she should be psychologically distinct.

From the *Star Trek* example, it should be clear why many physicalists endorse local supervenience for the mind/body relationship. In the local definition of supervenience, the physical is seen as ontologically prior to the mental, and so "the mental nature of a thing is entirely fixed by its physical nature" (Kim, 1998: 11). Philosophers of mind prefer supervenience because it "represents the idea that mentality is at bottom physically based, and that there is no free-floating mentality unanchored in the physical nature of objects and events in which it is manifested" (Kim, 1998: 15). Yet, in Murphy's version, there is nothing to ground the mental, in that there are an endless number of circumstances in which the supervenience relation can be realized. If in one circumstance, the neural firing of my brain means, "I love my mother" and the identical neural firing the next day means "I need to pick up bread from the grocery store," what use is it to study brain patterns? Likewise, the serotonin levels of patients with depression would not be significant for understanding the illness; rather, physicians should restrict themselves to studying the circumstances that gave rise to the depressive mental content. Context-dependant supervenience seems to make the physical brain unimportant for understanding mental events, which is a strange outcome for Murphy considering her assertion that nonreductive physicalism is supported by neuroscience.

The superiority of context-independent accounts of supervenience can be further illustrated by considering one of Murphy's examples. She argues that there are clear cases in neuroscience where circumstances affect the relation between brain and mind. Murphy (1999: 560) says, "Two subjects induced to hold different expectations will often have different perceptual experiences resulting from the same physical stimulus." Even though the subjects receive identical electrical shocks to their back, they will experience the sensation

either as burning heat or icy cold, depending on their mental set. Murphy (1999: 561) explains:

The mental set will, of course, be realized neurobiologically, but it is multiply realizable: it can be the realization of a variety of perceptions of the environment (an ice-cube tray on the counter, burn ointment), or the result of statements by the experimenters, or any one of an unbounded set of other devices resulting in what we can only meaningfully describe at the mental level as the expectation of heat.

This, says Murphy, is a clear example of how the same physical state (the application of shock) can produce different mental events (the feeling of hot or cold).

Upon examination, however, it is not clear that Murphy's example justifies her conclusions. Murphy assumes that different mental expectations do not cause (or are not caused by) different physical structures. However, Murphy has to claim, as a physicalist, that every mental set is realized physically. As a result, when the experimental subject sees the burn ointment and so forth, his or her internal structure is affected. This means that when the physical stimulus is applied to two subjects with different mental sets, the stimulus is applied to two subjects who are *not* alike physically. In the end, most philosophers agree with Chalmers (1996: 34), "If two creatures are physically identical, then differences in environmental and historical contexts will not prevent them from having identical experiences." Murphy's own example illustrates that while context and the environment do play a role in human behavior, they can only affect experience by virtue of affecting the internal structure.

Now consider the modal force of Murphy's definition. Which of the three options (weak, natural, logical) previously listed most accurately describes Murphy's approach? Judging from the evidence, it seems that either weak or natural supervenience most accurately fits her intended purpose, given that strong supervenience cannot prevent reduction. There are two reasons to consider Murphy's supervenience as a variation of weak supervenience. First, she explicitly follows Hare's use of supervenience, which Kim (1993: 62 n.14) identifies as weak. Second, she claims that supervenient properties have a noncausal relationship with the subvenient base. Perhaps claiming the relationship between mental and physical properties is noncausal is easier to understand if it is a variation of weak supervenience, for weak supervenience

nience makes no claim about how two properties, like mental and physical properties, co-vary with each other.

The problem for Murphy is that weak supervenience is widely rejected as being helpful for solving the mind/body problem (Chalmers, 1996: 38). Here is why: if the moral adjective “good” weakly supervenes on St. Francis’ actions, then it is a supervenience relation that only holds in our particular world. In other worlds that are exactly parallel to ours – with the same distribution of atoms, and thus with the same circumstances – it would be possible for St. Francis’ actions to be considered evil (Bailey, 1999: 59). In this view, there is no deep metaphysical reason to think that St. Francis’ actions are related to the category “good”; it is just a strange quirk about our world that could have been otherwise. This type of supervenience does not anchor mental properties strongly enough to physical properties and so would fail to meet Kim’s (1998: 12) definition of “minimal physicalism.”

Furthermore, I question whether Murphy really wants a mental property to be causally unrelated to its physical base. Early in her *Zygon* (Murphy, 1999: 554) article, she defines causal reductionism as, “... the view that the behavior of the parts of the system (ultimately, the parts studied by subatomic physics) is determinative of the behavior of all high-level entities.” She then explicitly endorses the “number of contemporary thinkers” who reject causal determination in favor of “downward causation,” where the whole causally influences the parts. Therefore, she is arguing that the higher-level, supervenient properties make a causal difference to the subvenient, physical base. In fact, Murphy (1999: 553) says that one of the purposes of her essay is “to explain how conscious states can be identified with physical states yet without ceding all causal agency to the purely physical level.” If Murphy wants her concept of supervenience to fit with the larger aims of her project, she needs to claim that mental properties are causally related to physical properties.

Murphy’s theory would be more compelling if it were a variant of natural supervenience. Indeed, there is some evidence for the natural supervenience interpretation in Murphy’s own writings, by accepting the emergent principle of Donald Campbell, for instance. That emergentist principle (as cited in Murphy, 2002: 156) states,

Biological evolution in its meandering exploration of segments of the universe encounters laws, operating as selective systems, which are not described by the laws of physics and

inorganic chemistry, and which will not be described by the future substitutes for the present approximations of physics and inorganic chemistry.

This leads directly to Campbell's account of downward causation, which Murphy takes as supporting her own position.

But if Murphy's theory of supervenience is a variant of natural supervenience, then calling oneself a physicalist is really a misnomer (Clayton, 1999: 615). Contrary to Murphy (2002: 147), nonreductive physicalism and emergent monism are not essentially the same position. Natural supervenience provides a helpful way of explaining why. Emergence is true if, after God created all the physical facts of the world, God had more work to do in order to fix the supervening (or emergent) properties. However, physicalism would be true and emergence false if, after creating the physical facts, all the higher-level facts came along for free. If this is correct, then there is little conceptual room for a physicalist to accept nonreductionism. To summarize the criticism, the closer that Murphy moves toward a physicalist conception of the world, the more incoherent the non-reductive part of her theory becomes. The closer that Murphy moves toward the nonreductive aspect of her theory, the closer she moves towards emergence theory.

## 4 Conclusion

Murphy's research program depends almost entirely on her ability to articulate a coherent explanation of how one can accept nonreductionism and still be a physicalist. Once the weaknesses of her theory of supervenience are revealed, I think it becomes clear that she has not offered such an explanation. By not engaging the entire philosophical literature on supervenience, Murphy missed the most significant criticisms against positions of her general type. If a convincing middle ground between emergence and dualism is to be found, my intuition is that it will likely be some version of emergence theory.

## References

Bailey, A. 1999. Supervenience and Physicalism. *Synthese*, 117, 53–73.

- Brown, W. S., Murphy, N. C. & Maloney, H. N. 1998. *Whatever happened to the soul: scientific and theological portraits of human nature*, Minneapolis, Fortress Press.
- Chalmers, D. J. 1996. *The conscious mind: in search of a fundamental theory*, New York; Oxford, Oxford University Press.
- Clayton, P. 1999. Shaping the Field of Theology and Science: A Critique of Nancey Murphy. *Zygon*, 34, 609–618.
- Kim, J. 1993. *Supervenience and mind: selected philosophical essays*, New York, NY, USA, Cambridge University Press.
- . 1996. *Philosophy of mind*, Boulder, Col., Westview Press.
- . 1998. *Mind in a physical world: an essay on the mind-body problem and mental causation*, Cambridge, Mass., MIT Press.
- Murphy, N. 1999. Physicalism without Reductionism: Toward a Scientifically, Philosophically, and Theologically Sound Portrait of Human Nature. *Zygon*, 34, 551–571.
- . 2002. Supervenience and the Efficacy of the Mental. In: Arbib, M. A. (ed.) *Neuroscience and the Person*. Berkeley: Center for Theology and Natural Sciences.
- . 2006. *Bodies and souls, or spirited bodies?*, Cambridge, Cambridge University Press.
- Murphy, N. C. & Brown, W. S. 2007. *Did my neurons make me do it?: philosophical and neurobiological perspectives on moral responsibility and free will*, Oxford, Oxford University Press.
- Searle, J. R. 1992. *The rediscovery of the mind*, Cambridge, Mass., MIT Press.

