

# Response To Jeff Koperski

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## SUMMARY

This paper is a response to a paper by philosopher of science Jeff Koperski entitled “The Nature of the Laws of Nature.” Koperski addresses the question, “What ultimately accounts for changes of state that occur within systems according to fixed regularities?” In addition to Hume’s approach, which reduces natural laws to mere regularities between events, Koperski says that non-Humeans have historically favored one of two replies: The first is that the causal powers/capacities of physical entities account for regular change. The second reply is to appeal to the laws themselves. Koperski prefers an approach appealing to divine decrees to explain regular change. I argue that by neglecting causal powers and capacities, Koperski courts the danger of either occasionalism or determinism, both of which are inimical to human freedom.

## RESPONSE TO JEFF KOPERSKI

I want to reassure you who are theologians and biblical scholars that Jeff Koperski’s paper treats philosophical questions which are hard for even philosophers to understand! So don’t feel bad if you had difficulties following it. These are hard questions.

It seems to me that part of the difficulty is that Jeff tends to conflate two different questions about natural laws. First, is what is the ontological status of natural laws? Are they actually existing things or not? Second, what is the nature of natural laws? What are their defining characteristics? The two questions need to be clearly distinguished.

The central question of Jeff’s paper, which he says all sides in the debate over the nature of the natural laws are trying to answer, is said to be the following: “What ultimately accounts for changes of state within systems that occur according to fixed regularities?” Leaving to the side Hume’s regularity approach, Koperski says that non-Humeans have historically favored one of two replies.

The first is that physical entities are endowed with causal powers that enable them to do such and such. Causal powers/capacities account for regular change. To my mind that seems to make good sense. We’ll come back to it.

The second reply is to appeal to the laws themselves. *They* are what ensure that a system will progress from one state to the next in a predictable fashion. Jeff says that both responses share a common intuition: “There must be *something* that moves systems from one state to the next in regular ways, if not causal powers then laws.” So the second answer assumes that natural laws

have a positive ontological status, that they exist in a metaphysically heavyweight sense, being just as real as fundamental particles like electrons.

This second reply seems to me confused. Natural laws are either true or false. Whether natural laws are expressed as mathematical equations or as prose sentences, in either case, even if we grant positive ontological status to natural laws, they are not the sort of thing that can have an effect upon physical states of affairs. For whether natural laws just are mathematical equations or propositions expressed by prose sentences, they are abstract entities. But abstract entities are causally effete; they have no effect upon anything. That is part of what it means to say that something is abstract. They cannot come into contact with physical objects and are not agents endowed with causal powers. Thus, natural law cannot fill the office of efficient causation that moves a system from one state to another. The laws, if true, can accurately describe such a transition or enable us to predict that transition, but they cannot explain it.

Now in the end Jeff eschews the view that natural laws explain what he calls “the change part of the question.” “Laws,” he says, “*never* make things happen. . . . What then does account for change?” He answers, “Forces and energy are responsible for moving systems from state to state.” What natural laws do is explain why change occurs according to fixed regularities. “Laws constrain nature to act in regular, sometimes predictable ways.” But if laws are abstract objects, this is just as impossible as causing change to occur. Mathematical objects and propositions cannot constrain nature because they are causally effete.

I myself, as an anti-Platonist, one who rejects the existence of abstract objects, don't think that natural laws exist in a metaphysically heavy sense. When we speak of laws of nature this is but a useful *façon de parler* for talking about how the physical world operates. If we were to draw up an ontological inventory of all the things that exist, it is not as though we should have to include in our list, in addition to God and the things in the physical world, the laws of nature. Natural laws, it seems to me, are just codifications of how the world works.

Now as a theist, Jeff favors what he calls the early modern view. This, too, is an anti-Platonist view, which holds that “Laws are nothing more than patterns within God's will for how nature must behave.” They are not thought of “as autonomous agents that God created in order to govern nature.” OK; so what we call natural laws are just God's regularly willing that certain things should happen in the physical world. Since God is a causal agent, He can bring about effects in the world. “The laws are not abstract powers that must somehow be connected to actual events. God

is directly responsible for the observed regularities in nature.” The problem is that this view seems dangerously close to occasionalism, the doctrine, affirmed by medieval Islamic theologians and later by Nicolas Malebranche, that God is the only cause there is and that what we call secondary causes are merely the occasions upon which God produces some effect. Thus, the flame does not really ignite the gasoline when they come into contact. They are utterly unconnected causally, and the flame has no power to cause combustion nor the gasoline any disposition to ignite. The reason fire always causes gasoline to combust is merely that God regularly wills to bring about such an effect. Occasionalism is a pernicious doctrine because it denies, in effect, that we are moral agents capable of effecting anything and therefore destroys moral praise and blame.

Late in his paper Jeff acknowledges the spectre of occasionalism, but he would ward it off by affirming that God decrees the laws of nature to constrain systems to change in a regular pattern. Here the paper needs clarification. Sometimes it seems that Jeff thinks that God decrees laws of nature, which serve to constrain the ways states change. That lapses back into thinking that the laws of nature are abstract objects of some sort, decreed by God, that somehow constrain change, which is impossible, as we have seen. But in his conclusion, Jeff says that the laws of nature just *are* God’s decrees. God decrees that things change in certain regular ways. Jeff thinks this avoids occasionalism because “If God’s decrees constrain the behavior of natural entities. . . , then those decrees do not ‘make things happen’.” But this reply is unavailing. For on this view God’s decrees causally prevent things from happening. When the flame comes into contact with the gasoline, anything could happen; but God by constraining change determines that the gasoline will combust. Again, applied to human agents this implies a determinism which, however congenial to Muslim theologians, is incompatible with morally responsible choices and makes God the author of evil.

So what’s the problem with the view that Jeff calls “decretal dispositionalism” which holds that “God created all causal powers by fiat and then embedded them is [*sic*] the corresponding entities”? I’d prefer to say that God created various entities with different causal powers. It’s not as though causal powers are metaphysically heavyweight objects which are instantiated in physical things. It’s just that God creates physical entities which can do different things. Jeff objects that “many important physical properties are not embedded in material objects, center of mass, for example.” This example is misleading. The center of mass of the solar system is an abstract object, a point moving around in space as the planets change position. As such, it does not on any view cause anything. Any explanation appealing to it is just shorthand for a more complex physical explanation.

Second, Jeff objects that the appeal to causal powers is a step backwards in the history of science. Jeff exclaims, “Not only did natural philosophers believe that laws exist, they found them!” I think this claim is fatuous. No one can find an abstract object. What Jeff really means is that scientists were able to formulate accurately laws of nature. Absolutely; and that is not incompatible with the claim that what explains why certain laws are true rather than others is the causal powers which physical things possess. Remarkably, Jeff agrees that “all the law-based discoveries were compatible with [the dispositionalist] metaphysics.” But, he demands, why be a dispositionalist? Well, because the laws of nature as such cannot affect anything and because we want some explanation of why the laws of nature contingently describe our world.

Jeff’s third reason I have trouble understanding. He says that in contemporary physics,

Instead of force *simpliciter* there are contact forces, special force laws, constitutive equations, and fundamental forces. There are not just laws, but entire families of differential equations all developed with an eye to helping understand the underlying physics. Why then would philosophers now want to retreat to the far less precise notion of dispositions or causal powers?

I don’t see any incompatibility between using such complex laws and thinking that physical things have causal powers. The reason that philosophers might want to appeal to such powers is that the laws of nature *contingently* apply to the physical world. Various universes operating according to different laws of nature could have been real. So why is the universe governed by these laws? An account which explains why the laws of nature obtain has greater explanatory depth than one which just says, “That’s the way it is.” That last answer may be just fine for the scientist who is exploring the universe that does exist; but we’re asking about a philosopher who asks deeper questions about why the world explored by the natural scientist operates according to the laws that it does.

Jeff says, “What then does account for change? . . . Forces and energy are responsible for moving systems from state to state, including forces that come into play at higher levels.” So here’s my question: how is that any different from appealing to the causal capacities of things in nature? Don’t the fields which “lie at the ground floor of fundamental physics” have various causal capacities to produce change?

Finally, despite my genuine interest in Jeff’s paper and the questions it raises, I don’t see its relevance for this conference. For the entire paper is predicated on the assumption that “divine

intervention entails the breaking of a natural law.” But as many contemporary philosophers have pointed out, the characterization of miraculous interventions as violations of the laws of nature is incoherent on any of the views discussed by Koperski. Jeff never supports the claim in his abstract that “What the problem of divine intervention amounts to is a function of which view one holds.” On the contrary, whether one adopts a regularity account, a causal dispositions account, a universals account, or a nomological realist account, a violation of nature’s laws is incoherent, since whatever happens must be comprised by natural law. On none of these theories, then, should miracles be understood as violations of the laws of nature. Rather miracles are naturally (or physically) impossible events, that is to say, events which at certain times and places cannot be produced by the relevant natural causes. When a miracle occurs, natural laws are not violated because the laws are idealizations describing what will happen under certain conditions, including that no supernatural forces are intervening. So God’s intervening in the series of secondary causes in the world to bring about an event beyond the causal capacity of the natural causes operative at that time and place does not break any natural laws. Thus, I think Jeff’s paper is predicated on a false assumption, rendering the remaining discussion of unclear relevance to the question of divine intervention.