Necessity Is Unnecessary: A Response to Bradley

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In “Functionalism and the Independence Problems,” Darren Bradley defends functionalism against three objections, engaging directly with my development (Rupert 2006) of the first, in particular. In this brief response, I argue that Bradley’s rejoinders do not shield functionalism from the brunt of my criticisms.

Bradley rightly distinguishes between three kinds of problem for functionalism: one to do with necessary connectionns between properties, a second to do with conceptual connections, and a third to do with the explanatory role of properties individuated functionally (or with explanations that invoke functional concepts). To my mind, how easily a functionalist can solve the latter two depends, to a great extent, on how she solves the first: if Bradley vindicates property-functionalist laws, this seems to clear the path for robust functionalist explanation. Partly for this reason, I focus on the first problem.

In Rupert (2006), I claim that functionalists should want to minimize their contentious metaphysical commitments and that they should, in particular, want to avoid commitment to necessitarianism about laws. Bradley agrees with this general thought but contends that, contrary to my suggestion, property-functionalists needn’t hold that laws of nature are necessarily true, not even if we limit discussion to laws proper to the domain of concern (psychology, for example, if the topic of interest is functionalism in the philosophy of mind).

Take the more limited claim first. If the domain is functionalist psychology, pain causes wincing, for instance, does not hold necessarily, according to Bradley. Why? Because, in some worlds, pain does not exist. In such worlds, the law in question doesn’t hold. Thus, at least some functionalist laws do not hold necessarily.

So far as I can tell, Bradley has lost sight of the logic of necessity. Laws of nature are typically represented by universally quantified conditionals. In worlds in which there is no pain, all of relevant conditionals—the instances of the universally quantified conditional—are vacuously true. Thus, the universally quantified conditional is true. And, of course, if the functionalist is right about the nature of the property pain, then, in worlds in which there is pain, the universally generalized conditional is nonvacuously true. On the assumption that it is not vague whether a given world contains instances of pain, this covers all cases. In which case, the law-statement is true in all possible worlds. Thus, functionalist laws hold necessarily.

Bradley remarks that other laws govern worlds in which there is no pain. I’m not entirely sure what governing amounts to, but assume that a law’s governing a world requires that the world in question contain positive instances of the law’s

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antecedent-property, instantiations of which nomologically necessitate an outcome (a change, or what have you). If so, functionalists needn’t hold that their laws govern all possible worlds. This, however, is a red herring. I made no claims about governing. The question with regard to necessitarianism is one of truth; put in the formal mode, it is the question whether true law-statements are true in all possible worlds. Consider the analogy to mathematical truth. It is necessarily true that twice two be four, regardless of whether there’s a possible world that consists of only one simple object, floating in a vacuum.

Be that as it may, weak necessity suffices to ground the problem of metaphysically necessary effects, for the problem follows from the fact that, according to functionalism, it is metaphysically necessitated that instantiations of the antecedent-property (e.g., pain) be followed by certain effects; there is no possible world in which the relevant effect-event did not occur (in the context in question), yet the supposed functionalist cause-event did (in that context). If this fact grounds an objection to (role) functionalism, it does so regardless of whether the necessity in question is weak or strong.

But, what is the problem? I emphasized the potential proliferation of sham properties (2006, 258), the thought being that, if we allow the introduction of necessarily connected functionalist properties into our scientific ontology, we open the door to an infinite number of sham properties, the causal efficacy of which is simply “defined” into existence (cf. Antony and Levine 1997, 91–92). A common response appeals to prevailing scientific practice (Roth and Cummins forthcoming, Sober 2011). Granted, working scientists do sometimes appeal to functional properties of a sort, but I’m concerned about the most plausible metaphysical interpretation of their practice, a matter to which I return below.

Regarding necessitarianism about laws in general, Bradley notes that, even if functionalist laws are necessary, it doesn’t follow that all laws are (and for that reason, I’ve got things wrong when I saddle the functionalist with a necessitarian view of natural laws—although I might add that I do hedge on this point [2006, 259]). This position occupies a point in logical space. What, however, might motivate such a view?

Bradley cites work by Alexander Bird (2001, 2002) in which Bird argues that contingent “lower-level” laws can give rise to necessary “higher-level” ones. Bird claims that a given higher-level law might be necessary because (a) a substance—salt, for example—the behavior of which is covered by higher-level laws might come into existence only when certain lower-level laws hold—only when lower-level electrostatic laws pertaining to ionic bonding hold, for instance—and (b) those same lower-level laws might necessitate further behavior of that substance, behavior described by higher-level laws—when the relevant lower-level laws governing ionic bonding allow for the formation of salt, the resulting substance cannot but dissolve in water.

Elsewhere (Rupert 2008a, 599–603), I criticize Bird’s argument at some length. The gist is this. By assumption, the lower-level laws in question are contingent; so, for example, ionic bonding (and electrostatic phenomena, more generally) works a certain way in the actual world, but it needn’t work in that way. In that case,
however, even if a given law is necessary for the appearance of a given substance, the holding of that law does not guarantee that the lower-level properties involved in that law will ground the further behavior of interest, that is, will guarantee that in all possible worlds, the higher-level law of interest (e.g., salt dissolves in water) will hold. If, for instance, the properties involved in ionic bonding (certain electrostatic properties) enter into their causal relations only contingently, then even if certain bits of their earth-style behavior may be required for the appearance of salt, other manifestations of the properties involved in ionic bonding could be different in all sorts of further ways. Perhaps in some worlds, when ions holding the precise degree of negative charge one finds in chloride come into the presence of any polarized covalent bond—as one finds in water—they generate highly depolarizing effects in the covalently bonded substance, thereby preventing the ionically bonded substance from dissolving. One might insist that electricity simply doesn’t work that way, but doing so would seem to presuppose that the relevant lower-level laws are necessary after all, contradicting our assumption.

Let us turn now to the discussion of the Causal Theory of Properties (CTP). Contra Bradley’s description of my view (10), I allow that realizer properties can be functional properties (e.g., “Any given property is either nothing more than a set of relations to other properties that are nothing more than sets of relations or is individuated in terms of realizers that are nothing more than sets of relations to other properties that are nothing more than sets of relations, and so on”—Rupert 2006, 259). So what is the gist of my complaint about the relation between functionalism and CTP? It’s that it isn’t functional-role properties all the way down; eventually the chain of functional-role property realizers should be grounded in facts that are not essentially relational, that is, in realizers that aren’t necessarily connected to their effects. The alternative view seems merely to move the metaphysical (and explanatory) bump in the rug (Prior, Parfit, and Jackson 1982, Prior 1985). If we think it’s worth asking after the realizers of functional properties, then why, in the case in which these realizers themselves be functional properties, wouldn’t we equally wish to ask after the realizers of these properties? Either there’s no need to ask the original question (and perhaps there isn’t; see Rupert 2008b), or inquiring minds set the process in motion and proceed to nonarbitrary completion. But, if CTP is true, there is no nonarbitrary completion.

Bradley is right: functionalism doesn’t entail CTP. But, keep in mind the dialectical situation. I meant to be addressing philosophers (Shoemaker, for instance) who, because of their other philosophical commitments, would not find metaphysically necessary effects objectionable. If the best available response to my criticism of functionalism is to embrace a view that entails metaphysically necessary effects, yet that exculpatory view is itself problematical, then my criticism of functionalism sticks, regardless of the fact that functionalism doesn’t entail the exculpatory view. It’s one thing to say P entails an objectionable Q. It’s another thing, yet one entirely pertinent to a debate about P, to say that P is on-balance indefensible unless one adopts objectionable Q (and this point applies, mutatis mutandis, to necessitarianism about natural laws).
Bradley brings my primary concern into focus in his discussion of the causal efficacy of derivative properties such as grue—a discussion that, if it is to vindicate functionalism, should speak directly to my worries about such properties as lig and dax (the former is the property being in some state or other that causes bells to dax, and the latter, the property being in some state or other that is caused to occur in bells by realizers of lig—2006, 258). In a nutshell, I was worried that the functionalist can’t distinguish between genuine properties and sham properties in a way that places functional-role properties on the virtuous side of the line.

Bradley gestures at a solution to the line-drawing problem by appealing to David Lewis’s distinction between natural and nonnatural properties: functionalist properties are natural, but the others (lig, dax, and grue) are not. I am sympathetic to Bradley’s general strategy, but in the immediate context, it succeeds only if accompanied by a plausible account of naturalness that excludes lig and dax from the set of natural properties while including functional properties therein. And this Bradley does not offer.

A notion of naturalness germane to the present discussion should somehow derive from or capture an important criterion of scientific legitimacy. One obvious thought is that the set of natural properties is (or has its membership determined by the membership of) the set of causally efficacious ones. Alas, whether functionalist properties are causally efficacious is the matter at issue, so this route offers only impasse.

A second way of proceeding adverts to the laws of nature; on this view, a property is natural if it’s a component of a law of nature. Now we find ourselves wanting a plausible account of laws of nature according to which laws are metaphysically necessary relations or, if only some laws are, legitimates the necessary status of only a proper subset of the laws.

To my mind, the plausibility of functionalism here runs upon the rocks. Let me put my concern first in terms of causality, and then return more directly to the question whether a theory of laws can offer a criterion of natural-ness that will pull functionalism’s fat out of the fire. Think of this as a matter of parsimony. It is one thing to hypothesize that there’s a property of interest (perhaps multiply realizable, perhaps irreducible) that causes a certain outcome; it’s another to assert that the connection between that property and its effects is necessary. What causal-explanatory work does the addition of metaphysical necessity do? Consider this: The folk attribute beliefs to each other on the basis of observable cues and theoretical guidance, and many have claimed that folk psychological explanation and prediction invoke functional states. Should we take the relative success of folk psychology to be an argument for functionalism? No, for we can explain the success of the typical subject’s predictions about others without supposing that the effects of the states so attributed follow necessarily. The hypothesized properties (those that average person attributes to her conspecifics as well as the properties cognitive scientists hypothesize when accounting for the ways in which the average person interacts with her conspecifics) can do their causal-explanatory work on the basis of contingent but causally consistent relations.
Return now to the question about laws. Might an appeal to laws of nature vindicate functionalist properties, by showing that they're natural? A brief survey of theories of laws of nature may be illuminating. Think first of the best-system approach to laws, according to which the laws of nature are the components of the system of theoretical generalizations that strikes the best balance between simplicity and explanatory power. Imagine now that psychological predicates appear in these laws. A necessity operator (box: pain causes wincing) adds nothing to the explanatory force (and certainly nothing to the simplicity) of the system. It might be that the laws must contain a counterfactual conditional operator if they’re to play the role in scientific reasoning that we normally take laws to play, but full-blown necessity is, well, unnecessary.

Adopting the Dretske-Tooley-Armstrong view of laws does not change matters. One can get all of the explanatory force one needs from contingent relations of necessitation holding between universals.

The regularity-based view of laws promises no salvation either. Such properties as lig and dax enter into perfectly regular relations. The problem is that an infinite number of such properties do, including functionalist ones, and we’re left without a way to divine legitimacy. One might think a manipulationist view will help us to distinguish between legitimate and illegitimate properties, but this suggestion simultaneously cuts against the necessity claim, for thinking in manipulationist terms pushes to the fore my objection from metaphysical profligacy. There’s no need to appeal to necessary connections to explain the positive results of manipulation (cf. Sober’s [2011, 576–577] manipulationist thought experiment).

Put in the form of an argument:

P.1: The perhaps-functionalist properties of interest can be attributed to target systems on the basis of observation (with some degree of intersubjective reliability) (if they can’t, they’re certainly in a boat with lig and dax).

P.2: If they have effects of interest (say, those confirmed by manipulation), they consistently have those effects either necessarily or only contingently.

P.3: It would be metaphysically profligate to take the effects in question to follow necessarily when the assumption of contingency would suffice for causal-explanatory purposes (that is, doing so would violate any plausible version of the methodological dictum of simplicity).

P.4: The assumption of contingent law-like or consistent causal relations (mere nomic necessity, one might say) suffices for causal-explanatory purposes.

Thus, the relation between the properties of interest and their effects is contingent, in which case, we should not take these to be functionalist properties.

The upshot might be a weaker conclusion than the one reached in Rupert (2006). It’s not so much that functionalist properties couldn’t possibly have the effects of interest. Rather, it’s that we have principled reason to think such properties don’t play a role in science and, more generally, aren’t among the sparse properties (Schaffer 2004). Of course, Ramsey sentences or mathematical formulae can be used to describe psychological properties (or degrees of fitness, or whatnot), but I
maintain that such descriptions pick out causally efficacious properties by characterizing the pattern of contingent relations those properties happen to enter into in our world, rather than by capturing those properties’ metaphysical conditions of individuation.

Bradley suggests two fallback positions, first, that many philosophical projects presuppose a solution to the problem of grue and thus that functionalists shouldn’t be taken specially to task for not having a solution in hand, and, second, that there may be no relevant difference between grue (and lig and dax, I presume) and functionalist properties, but given our interests, conversational practices, etc., we have the intuition that there is.

I have no settled opinion concerning the potential extent of the damage done by Goodman’s grue. Regardless, if the argument given above sound, it’s sound, regardless of how many other positions are subject to a parallel attack. To be more charitable, I suspect Bradley takes the evidence of widespread need for a solution to the problem of grue to be evidence that there is a relevant difference between grue, on the one hand, and genuine properties, on the other, even if we can’t, at present, identify this difference. Reasonably so, but this observation doesn’t, by itself, tend to legitimate functional-role properties. I am here concerned about the ease with which we can cook up descriptions of a wealth of (possibly) sham-causal properties—defined, not by Boolean combinations and time indexes, but by stipulated necessary connections between causes and effects. For all we know, the correct treatments of these two classes of properties come apart (grue-like properties, on the one hand, and sham-causal properties such as lig and dax, on the other). Thus, I see no reason to assume that, if we find a solution to the problem of grue that also seems relevant to the question of metaphysically necessary effects, that solution will yield the functionalist’s favored result. Perhaps everyone needs a solution to the problem of grue, and perhaps when it arrives, it will illuminate very clearly the metaphysical deficiencies of functional-role properties.

Bradley’s second fall back position suggests an error theory of sorts, but it strikes me as unmotivated. One needn’t accept a world rife with oddball properties, then attempt to explain why our standard practices and common intuitions don’t reflect this overpopulation. The solution, in my opinion, is to cut things off at the first step, by refusing to posit (gratuitous) modal relations between causes and effects.

I close with some brief remarks concerning the topics of analyticity and explanation. I agree with Bradley that the sentence “The cause of e caused e” is true, for any e. My complaint is that, although the cause of e certainly caused e, it didn’t cause e in virtue of having the property of being a cause of e. The cause of the fire most certainly caused the fire, but it didn’t do so in virtue of having the property being a fire-causer. So, although there are analytic statements about causes, I resist the idea that there are analytic statements that identify causally operative properties.

I also agree with Bradley that it might be useful in some contexts to cite functional-role properties in explanations, given our varied interests and the vagaries of pragmatics (Rupert 2006, footnote 9). For instance, a speaker might draw her audience’s attention to the location (say, inside the organism) of an important causal factor by mentioning a subject’s belief, which the speaker herself conceives
of as a functional-role property. Notice, however, that this use of mental-state talk depends in no way on there being a metaphysically necessary connection between cause and effect. Imagine that we want to indicate that something internal to an agent caused her behavior. So, we tell our audience that the behavior issued from the agent’s belief, assuming our audience will take an agent’s beliefs to be located inside her body. Then, we add, “And by the way, a belief is the sort of thing that not only produces this behavior in our world and worlds nomically like it, but the belief produces this behavior in all possible worlds.” The necessity claim contributes nothing to the identification of the location of the cause.

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References


