

Peer Review

Review of: "Free Will: Reality and Perception"

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Kudos to the author for taking on such a difficult subject with such stylistic finesse. I found the argument against libertarian free will convincing given its limited scope. Yes, it sidestepped some difficult questions, but the intent of the essay was not to provide a full-throated defense, but to set up a discussion of the utility of free will beliefs. I must admit that I was already a convert; I agree with Prof. Krueger that the appeal to free will often involves the kind of circularity one encounters in appeals to supernatural forces.

I have two comments, one that focuses on an important exception to the claim that belief in free will hinders scientific progress. The other is a more minor gripe about how people talk about reasoning.

The first comment is that the attribution of free will is necessary to induce causality. Specifically, causal inference using the experimental method requires an assumption equivalent to “experimenters have free will.” Inferring a causal relation in science is done most directly and defensibly by running an experiment that manipulates independent variables and measures their effect on one or more dependent variables. If the manipulation has an effect, then we infer some sort of causal relation from one or more of the variables manipulated to one or more of the variables measured. But what is a “manipulation”? As formalized by Spirtes, Scheines, and Glymour (1993) and by Pearl (2000), a manipulation is a type of intervention performed by a free agent who is external to the system being studied. The intervention must be by a free agent because its purpose is to render the independent variable truly independent, beyond the influence of anything else that might exert its own influence on the dependent variables via some separate pathway that is not mediated by the independent variables under consideration. Woodward (2003) offers a strong defense of this claim. To illustrate, how could we infer that vaccines prevent measles if we didn’t intervene as free agents on children to give them the right vaccine and observe how many of them get measles? If the agents administering vaccines were not acting freely, if

their actions were determined by others or by some ideology, then those others or the ideology could be responsible for any change in measles uptake. This is the heart of the experimental method.

Do we have to attribute libertarian free will to make such causal inferences? What is libertarian free will if not taking actions in a way that renders the action independent of other influences? Even if you allow that other factors have some kind of influence on the action, free will must possess gatekeeping power or else it is not actually free. The agent must have the power to take the action or not, rendering the action temporarily independent of any other influence.

In sum, the experimental method assumes free will. If causal forces in the world are responsible for our manipulations, we are not actually manipulating anything and thus we have no right to make causal inferences from our experiments; we are just observing correlations among determined entities. This fact about the logic of experimentation does not, by itself, imply there is free will. Who knows how experimenters' actions are actually determined? But it does imply that we have to represent the world as if there is free will in order to draw causal inferences. More generally, we need to attribute free will in order to distinguish counterfactual from actual worlds. In that sense, scientific progress depends on the attribution of free will, even if it does not require belief in free will itself. That is, we must represent the world in a way that assumes we have free will whether or not we believe that free will actually exists.

The second, more minor point is a gripe about a common error that I see. Toward the end of Prof. Krueger's essay, he argues that "the reflective and rational System 2" is not the locus of free will. I would like to point out that it is not the locus of rationality either. The sense of rationality that gives it any force in this context has to do with coherence: An act by an agent is rational if and only if it serves the agent's goals. But acts that arise out of System 1 (intuition) can be rational: I refrain from crossing the street because my intuition tells me that the large oncoming visual and auditory array is a truck that would crush me if I stepped forward. And System 2 (deliberation) can produce irrational nonsense: Try as I might, I always get the wrong answer on my daughter's 11th grade math homework.

The question of rationality is independent of the system one uses to reason, just like the metaphysics of free will turns out to be independent of whether or not we ascribe it in a particular case.

Pearl, J. 2000. *Causality: models, reasoning and inference*. Cambridge: MIT press.

Spirtes, P., Glymour, C., & Scheines, R. (2001). *Causation, prediction, and search*. MIT press.

Woodward, J. (2003). *Making things happen: A theory of causal explanation*. Oxford University Press.

Declarations

Potential competing interests: No potential competing interests to declare.