FUNCTIONALIZATION AND FOLK PSYCHOLOGY: HOW MENTAL STATES EARN THEIR KEEP

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1. The Challenge for Non-reductive Physicalism

We would like to believe that mental states fit seamlessly into the causal order. Our perceptions, thoughts, beliefs, and desires influence and are, in turn, influenced by the distribution and trajectory of physical properties and objects in the world. For instance, activity in the peripheral nervous system sparks painful sensations, eliciting a desire to take aspirin. Subsequent thought and planning brings on bodily motions leading to the introduction of an anti-inflammatory into the bloodstream, resulting (if things go well) in dampened neural activity and no more felt pain. However, it is notoriously hard to reconcile this quotidian picture with a scientifically informed one. In particular, how do we allow for mental causation within a world thoroughly governed by physical law? The presumed causal closure of the physical dictates that every physical event (if it is to be understood as determined by anything at all[1]) must have a cause grounded in the physical domain. At least in principle, there would have to be a chain of physical events nomologically sufficient to account for that physical event. So in order to avoid the conclusion that mental causes exert occult influences upon the physical order, we must make sure that the mental state responsible for some physical effect could not occur in the absence of the physical events *also* responsible for that effect. Philosophers of mind are thus faced with the task of forging some logical or nomological connection between the mental and physical orders.

As Jaegwon Kim points out, the popular idea that mental properties *supervene* upon physical properties does little to clarify this connection.[2] Indeed, it only serves to extend the problem of mental causation to cases where we think mental states have *mental* effects. For suppose we thought that some mental property had the power to effect some change in the distribution of mental properties in the world. Supervenience requires this mental change to depend upon some corresponding change in the distribution of physical properties. But once again, in order to avoid some sort of spooky non-physical intrusion into the physical domain, we must assume that this physical change has an underlying physical cause. So we are still left with the question of how the mental state which purportedly brings about some sort of mental effect relates to the physical states responsible for the physical changes underlying that same mental effect. Rather than explaining the connection between the mental and the physical, supervenience is itself the condition begging for explanation.

2. Functionalization to the Rescue

It is widely thought that the most promising approach to understanding mental activity within a thoroughly physical world lies in the *functionalization* of mental discourse.[3] Functionalization is supposed to provide a way of understanding how physical activity could "realize" mental activity, without having to identify mental properties with specific physical ones. The idea is that we begin by identifying certain global patterns of causal interactions as *what it takes* for a system to engage in mental activity. These are patterns that exhibit what

Daniel Dennett might call a "discernibly *rational* structure," and the reasons we find these particular patterns important will emerge later on in this paper. An individual's being in a specific mental state is then identified with its undergoing specific "phases" of those overall patterns.[4] For a mental state to be realized, then, the underlying physical substrate must have the powers to bring about the realization of other mental states or intentional activity. Thus there is a sense in which functionalization *guarantees* the causal efficacy of the mental realm. For a physical system to realize a mental event, it *must* have the causal powers to bring about (or to be brought about by) further physical activity, which in turn is understood as realizing other mental states and actions. Otherwise the requisite global pattern of activity would not be present. In sum, realized mental states *must* be causally connected to other realized mental states and movements understood as actions.

The chief task for the functionalist, then, is to supply an account of how abstract patterns of activity could exhibit the discernibly rational structure associated with mental activity. And the real challenge is that of capturing the *normativity* inherent in such patterns. They must be robust enough so that, in the case of doxastic or belief-like states, one can justifiably say that a subject has gotten things *right* or *wrong* and, in the case of conative or desire-like states, that a subject's desires have been *satisfied* or *unsatisfied*.[5] I would maintain that the so-called "laws" of folk psychology play the role of specifying intuitive constraints a pattern must meet for it to count as discernibly rational. Folk-psychological states thus interact with one another in their familiar, intuitive ways because that is simply what it takes for a pattern of behavior to warrant the attribution of intentional states. Beliefs and desires that do not interact with one another as they intuitively *should* simply cannot be identified *as such*.[6]

Thus the functionalization of the mental has the virtue of explaining why the so-called "laws" of folk psychology are so uninformative and peculiarly resistant to empirical falsification. Whereas the laws that are the stock and trade of pure natural science relate conditions or qualities of objects that can be discerned independently of one another,[7] mental states are recognizable as such only in terms of their potential relations to other mental states and actions. Several of the behavioral and mental consequences of beliefs, desires, pains, and so on are built in as constraints upon something being understood as engaging in mental activity at all, which are then codified in folk-psychological platitudes. Since the presence of one mental state implicates the existence of others, functionalization also explains why the attribution of intentional, mental states is "holistic." We cannot identify any particular mental state without at the same time identifying a host of others. But rather than showing that the naturalization of intentional vocabulary is a hopeless endeavor (as Davidson suggests), such holism arises quite naturally out of its functionalizability.

3. The Threat of Mental Absorption

By functionalizing mental properties, we can respect the causal closure of the physical world. There are no physically ungrounded or "spooky" intrusions into the causal order. Any power mental states have to bring about physical change ultimately resides in the causal powers of their physical realizers. Compare the causal powers of beliefs to, say, those of sparkplugs. While sparkplugs undoubtedly exert influences over a car's engine, no one seriously supposes that the property of being a sparkplug injects any physically ungrounded causal powers into the world. Sparkplugs are not metaphysically spooky entities. At this point, however, some have worried why functionalization would not then "lead to the conclusion that the mental has no distinctive role of its own, having been entirely absorbed into the physical domain."[8] If mental properties simply "inherit" their causal powers from the causal powers of physical systems, why should we not regard mental causation as merely epiphenomenal? What role do these functionalized concepts play in the prediction and explanation of human activity that could not otherwise be played by the non-intentional and causally more fundamental vocabulary of the basic sciences?

4. Avoiding Absorption

So why does functionalization not ultimately render the concepts of folk-psychology otiose? Most anti-reductionists have tried to defend the autonomy of mental concepts on narrowly scientific grounds. However, I think this is a mistake, for the concepts of folk psychology acquire their primary applications *outside* scientific contexts. Rather than providing causal explanations of human motions, my suggestion is that intentional states serve instead to help unpack the *norms* that gain a grip on us in our moral and epistemic transactions. Begin by observing that instances in which one is interested in another's intentional states typically are *not* circumstances in which one is trying to account for another's movements. When I am interested in your beliefs, it is usually for the purpose of finding out how the world is (not just how you take it to be). That is, I am not as interested in explaining your behavior as much as I am interested in using you as a possible source of information. Similarly, your local barkeep is not in the business of predicting or explaining your actions when he asks, "What's your pleasure?" Rather, he is interested in your desires because of his committment to their *accommodation*. Even in cases where we are interested in another's beliefs and desires for the purpose of rationalizing their actions, usually we do so with the aim of determining just what we ought to *do* with them. The appropriate reactive attitude to an apparently vicious bit of behavior turns upon whether the action is a result of an inaccurate or incomplete grasp of the way things are or whether it stems from a truly vicious character. Attributions of belief and desire (and other folk-psychological states) thus inform our deliberations about how we *should* react to others. In these deliberations, we assume that a subject's mental states have some bearing upon how they behave, but that does not preclude their causal potency from residing in the causal potency of the physical states which realize them.

Now it is no great news that intentional vocabulary and mental causation appears required to make sense of our ordinary notions of free agency and moral responsibility. Compatibilists, for instance, typically use intentional vocabulary to unpack the notion of free will. To say that agents "could have done otherwise" is to say that they "would have done otherwise, had certain conditions applied," where those conditions are typically unpacked in *intentional* terms. The general idea is that a free choice occurs if the right sorts of mental states or deliberation accompany it.[9] Similarly, moral responsibility apparently requires that one's actions somehow be under the control of one's states of mind. The functionalization of the mental shows how mental states *can* possess the causal potency that they would need to have for the compatibilist strategy to get off the ground. But just as functionalization provides the compatibilist with what he needs, the essential role that intentional vocabulary appears to play in making sense of agency and moral responsibility can provide the distinctive role for mental vocabulary that the functionalist seeks. Agency merely requires intentional vocabulary to be causally *relevant*; it does not further demand that it finds a home within a finished science of the production of human movements.

5. Understanding Empirical Inquiry as Such

Indeed, I would suggest that an adequate conception of scientific practice itself actually requires us to recognize the propositional attitudes that comprise the basic framework of folk psychology. Science, and empirical inquiry more generally, is a norm-governed enterprise. There is a question of doing it more or less well, with which we inquiring beings cannot help but be concerned.[10] Those who would seek to relegate folk psychology to the dustbin of history would have a hard time avoiding this conclusion. After all, eliminativists seek to *discredit* the framework of folk psychology on the grounds of something like "empirical stultification."[11] So in order to evince the norms governing scientific activity for the purpose of adequately regulating our empirical investigations, we inquirers need an account of empirical enquiry *as such*.

But what form is that account going to take? A satisfactory description of rational empirical inquiry cannot prejudge the outcomes of such activity. It would have to be silent as to the specific results of our empirical investigations. In particular, it cannot take on substantive commitments regarding the material constitution of inquirers or the particular physical processes that happen to underlie their actual investigative activity. So while certain characteristic neural processes might enable humans to engage in empirical investigations, it would be inappropriate to reduce inquiry to such activity. It is perfectly conceivable that our investigations could have delivered a vastly different result without undermining our conception of ourselves as inquiring beings. This would explain (and indeed justify) our intuition that rational activity could be multiply realizable, and that identifying inquiry with the particular physical processes or organs that enable us to be inquiring beings threatens to be overly parochial. A description of empirical inquiry pitched at the level of, say, activation vectors in a neural network (Churchland and Churchland), is pitched at the wrong level to deliver the normative clout required of a description of empirical inquiry as such. It is not at all clear why some kinds of brain activity are to be rationally preferred over others. The most reasonable conclusion, then, is that the terms used to describe empirical inquiry as such would be abstract and *functionalizable*. Inquiring beings are identified as such by virtue of participating in certain global patterns of activity that are discernibly rational.

Some functionalizable vocabulary is thus required in order to describe empirical inquiry as such.[12] It remains to be seen, though, that the best account of rational activity will incorporate the folk-psychological attitudes in particular. However, I do not think it much of a stretch to contend that it will. Intentionality and intentional attitudes are ground-level elements in our current best conception of ourselves as inquiring beings. Inquiry would seem to be a process aimed at producing judgments concerning the truth of propositions.[13] Our best conceptions of scientific practice, for example, involves the construction and evaluation, on the basis of empirical evidence, of theories, or at least something that is answerable for its correctness to the way things are. And the value of reaching correct verdicts is that we will, by and large, be in better position to bring about circumstances we find desirable.

So the idea is that while mental states might not figure prominently within the scientific image, nevertheless they might form an indispensable part of the *meta*-language of science.[14] In any event, it is incumbent upon eliminativists to devise competing visions of *rational activity* that do not smuggle in the familiar propositional attitudes. Now one might try to argue for this indispensability on the grounds that there just could not be any other options. No alternative could possibly garner the normative clout required of an account of empirical

inquiry as such. In short, the elimination of folk-psychological concepts is unthinkable. This reply resembles the tired old charge that eliminativism is a patently self-defeating doctrine or that it commits "cognitive suicide" (Rudder Baker): that eliminativists cannot give up the folk-psychological notion of belief because its very assertion or acceptance already implies that one must have beliefs. To which the appropriate reply is that the assumption that eliminativists must be committed to beliefs in order to advance their thesis already begs the question against them.

A far more respectable response calls attention to the progress that science has made under the governance of an overall conception of rational inquiry that appeals to intentional categories. Those who favor the eventual elimination of folk-psychological categories occasionally point to its stability in comparison to the relatively rapid pace of discoveries in the basic sciences as a sign of its degeneracy or stagnation. But if mental concepts help to make sense of rational empirical practice as such, then this argument can be turned on its head. Far from impeding its progress, folk-psychological concepts have helped foment the rapid pace of empirical discovery. Indeed, now we even have an explanation of why folk-psychological concepts have been remarkably constant through this age of great scientific ferment. So one can agree with eliminativists that intentional categories and concepts are theoretical; they are just not part of a theory that operates at the "object language" of science. Indeed, it is part of a highly successful theoretical framework, which has proven its success by furthering fruitful empirical inquiry.

6. Mental Concepts in Scientific Psychology

Before closing, there is one final loose end I would like to address. Scientific inquiry tends not to traffic in the normative; it is more concerned with determining how things actually are, rather than how they ought to be. So if, as I have been arguing, folk-psychological states are thoroughly fraught with ought, then what role could they play within an appropriately scientific picture of human behavior? After all, sparkplugs do not find a place in the ontology of science; so why should beliefs? Is there a possible conception of scientific psychology that makes room for such normatively characterized concepts, or does this discussion ironically wind up terminating in some attenuated form of eliminativism?

I think not. Consider what cognitive psychologists actually spend their time investigating. Some, for instance, uncover the circumstances in which we humans are prone to perceptual errors or illusions, and then attribute these cognitive foibles to the manner in which our perceptual systems are put together. Others try to determine how (and why) our mental capacities can be affected or even disrupted by social, biological, or chemical influences. In general, we can fairly characterize these folk as attempting to discover the limitations that our specific physiological and biological makeup impose upon our capacities to carry on broadly rational patterns of activity. Their job thus resembles those in engineering fields who subject different kinds of materials to various sorts of stresses with the aim of determining their capacities to perform specific tasks (for instance, that of being a sparkplug). So I propose we think of psychology as a form of "reverse engineering" or even "product testing," in which we regard psychologists as investigating the circumstances in which human beings (creatures "designed" as it were, through natural selection to be rational) tend to suffer cognitive breakdowns or other peculiarities, due to the specific mannners in which our kind manages to implement or realize those patterns that are constitutive of rational activity.

This conception of cognitive psychology allows us to understand why most interesting psychological generalizations are contingent, even though the familiar "laws" of folk psychology are not. Not all physical systems realizing the same abstract patterns of activity will have the same causal powers.[15] Different ways in which an abstract pattern is physically realized will have regularities peculiar to them, due to the nature of the specific physical processes realizing those patterns. This means that particular realizations of mental activity will have causal regularities of their own, which are neither required nor prohibited for a system to count as implementing intentional, rational activity.[16] For instance, rational systems constituted in the particular manner in which we are might be peculiarly susceptible to hypnotism or dreaming. While such phenomena seem vitally important for a complete understanding of *our* mental lives, they hardly seem essential for mentality *as such*.

On this conception, scientific psychology investigates how humans manage to implement patterns of activity which are crucial for an accurate understanding of ourselves as rational, inquiring beings. Mental concepts resist elimination from within psychological discourse because they serve to define the very subject matter under investigation. Insofar as psychologists specifically investigate the capacities of our bodies to realize mental states, the generalizations they discover will necessarily involve folk-psychological concepts. Nevertheless, these generalizations will be contingent, limited as they are to specifically human (or animal) realizations of intentional, mental activity. Now does this mean that psychology is, in some sense, not a fundamental science like physics—one that does not limn the ultimate causal forces in the universe? Perhaps. But it is hard to see why this should generate any concern. As anybody in the engineering wing of a university would attest, not all serious scientific inquiry needs to be fundamental in *that* sense.

NOTES

[1] This parenthetical qualification is necessary to allow for physical indeterminacies, as might be mandated, for example, by the theory of quantum mechanics.

[2] Kim also argues that Davidson's "anomalous monism," insofar as it denies that there are systematic connections between the mental and physical realms, fails spectacularly at providing what we want out of a mind-body theory.

[3] Considerations of space force me to disregard certain "qualia-based" objections to functionalism. For discussion of these, see my "Phenomenal Consciousness, Sense Impressions, and the Logic of 'What It's Like.'"

[4] As an aside, I think that characterizing mental states in terms of specific "phases" of patterns preserves the sense that certain mental states are more "episodic" than dispositional. Also observe that since we do not need to identify specific phases of a physically implemented pattern of activity with specific physical *states*, I think we can avoid commitment here even to a token-token identity thesis.

[5] To be sure, there are no wholly convincing functionalizations of mental activity currently on offer (but see Beisecker's "Importance" for a beginning). However, rather than taking this to be a sign that the endeavor is hopeless, I take it to be a sign that philosophers of mind have insufficiently appreciated the essentially normative character of intentional mental activity.

[6] So belief and desire would seem to come as parts of a single package, neither intelligible without the other. For instance, I doubt that beliefs could be understood as such unless their truth is likely to bring about the satisfaction of desires while their falsity is liable to lead to frustrated desires.

[7] This is a (perhaps clumsy) attempt to express the intuition that the properties which figure in statements of physical law should, as much as possible, be intrinsic.

[8] Kim calls this "the exclusion problem": "Given that every physical event that has a cause has a physical cause, how is a mental cause also possible?" (38) This essay is my attempt to address the exclusion problem.

[9] Perhaps the most popular form of this strategy holds that to be a expression of one's free will, an action must be under the influence of a certain privileged class of desire, such as those endorsed by a second-order volition (Frankfurt) or those which accord with one's conception of the good (Watson). One great advantage of this approach is that it is able to explain why alternate courses of action are relevant for the attribution of free will and hence, moral responsibility. Although alternative futures might not have any "objective" reality outside the minds of deliberators, they might nevertheless enjoy the same sort of *intentional* existence that, say, Santa and golden mountains do. And the compatibilist holds that this kind of existence is good enough, at least for ascriptions of moral responsibility and everything else we want the notion of free will to do for us.

[10] Due to space constraints, I will ignore the social and linguistic characters of contemporary scientific inquiry. Beings like us use others as sources of information and justification, which in turn brings on dimensions of cooperation and trust within scientific (and linguistic) communities. Suffice it to say that these features would impose additional norms upon inquirers which would also need to be captured by an account of scientific inquiry as such.

[11] See, for instance, the first and third essays of Churchland and Churchland.

[12] It bears mentioning that here I am providing, not just an argument *that* mental states are functionalizable, but also an explanation for *why they would be*.

[13] Please note that there is nothing in this minimal conception of belief that requires them to be functionally discreet, localizable states inside the heads of subjects.

[14] Our conception of empirical enquiry is concerned mostly with belief and not conative attitudes such as desire. So where does desire fit in? As I mentioned earlier, I believe that any wholly satisfactory conception of belief would have to include desire as well.

[15] As Searle points out in connection with the Chinese-Room thought experiment, different computers implementing the same program might have vastly different causal powers. A computer made of toilet paper is bound to be more absorbent than a functionally equivalent one made out of silicon chips.

[16] Note too that we are now also in a position to explain why the quotidian "laws" of folk psychology are so incomplete or open-ended.

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