

DOES CRIMINAL RESPONSIBILITY REST UPON A FALSE SUPPOSITION? NO.

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ABSTRACT

Our understanding of folk and scientific psychology often informs the law's conclusions regarding questions about the voluntariness of a defendant's action. The field of psychology plays a direct role in the law's conclusions about a defendant's guilt, innocence, and term of incarceration. However, physical sciences such as neuroscience increasingly deny the intuitions behind psychology. This paper examines contemporary biases against the autonomy of psychology and responds with considerations that cast doubt upon the legitimacy of those biases. The upshot is that if reasonable doubt is established regarding whether psychology's role in the law should be displaced, then there is room for future work to be done with respect to the truth of psychology's conclusions about criminal responsibility.

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INTRODUCTION

On an early May morning in 1987, Kenneth Parks arose from bed and drove twenty-three kilometers to the Ontario home of his in-laws with whom he was considered close. While they were asleep in bed, Parks bludgeoned his mother-in-law with a tire iron, strangled his father-in-law until the man passed out, and stabbed them both with a kitchen knife. The woman died; the man barely survived. Parks then drove to a police station where he confessed but seemed confused about what had transpired. The police noticed something odd: Parks appeared oblivious to the fact that he had severed tendons in both his hands during the attack. His obliviousness to pain, along with other factors such as a family history of parasomnias (a category of sleep disorders that includes sleepwalking), led experts to testify that Parks was sleepwalking during the attack. Parks was acquitted of murder, with the Supreme Court of Canada explaining that: “Automatism, although spoken of as a ‘defence,’ is conceptually a sub-set of the voluntariness requirement, which in turn is part of the *actus reus* component of criminal liability. An involuntary act, including one committed in an automatistic condition entitles an accused to an unqualified acquittal”¹ In other words, one who acts as an automaton, as it were, cannot be held criminally responsible for one’s acts.

Although one might be skeptical about the genuineness of some defenses involving sleepwalking, the legal conclusion in this case—that Parks was not culpable for his mother-in-law’s death and his father-in-law’s injuries—is roughly consistent with folk psychology. By folk psychology, I mean the pre-theoretical, commonsense psychology (conceptions of belief, desire, intention, autonomy, free will, and so on) that people use to make sense of behavior.² The folk psychology invoked by the court in Parks’s case suggests that one is not morally responsible—and should not be held criminally liable—for acts one does not commit

1. R. v. Parks, [1987] 2 S.C.R. 871, 872 (Can.). There is a long history of cases that reached similar conclusions. See, for example, *Fain v. Commonwealth*, 78 Ky. 183 (1879), in which Mr. Fain shot and killed Henry Smith at a hotel in Kentucky. At the murder trial, the court determined that Smith had done nothing to incite in Fain a desire to shoot him. The Kentucky Court of Appeals overturned Fain’s conviction based upon the fact that Fain suffered from somnambulism (sleepwalking), reasoning that if it is possible to commit a homicide while asleep and unconscious—and if Fain was in such a state—then he should be acquitted because “he was not legally responsible for any act done while in that condition.” *Id.* at 191.

2. See Shaun Nichols & Joshua Knobe, *Moral Responsibility and Determinism: The Cognitive Science of Folk Intuitions*, 41 *NOÛS* 663 (2007); and Joshua Knobe & Gabriel S. Mendlow, *The Good, the Bad and the Blameworthy: Understanding the Role of Evaluative Reasoning in Folk Psychology*, 24 *J. OF THEORETICAL AND PHIL. PSYCH.* 252 (2004), for an analysis of folk psychology and what experimental data says about our intuitions regarding moral responsibility.

voluntarily. The idea is that Parks should be considered culpable only if he caused the death and injuries in a very specific way—a way that did not involve acting unconsciously or machine-like. To put it another way, in order to have found Parks guilty, the court would have needed to determine that Parks willed the voluntary movement of his hands, fingers, and arms on the tire iron and knife used in the killing. One might think the law’s stance on this point results in further—and more controversial—implications. For example, is there an unspoken presupposition in the law that Parks possessed the capacity to exercise free will? If so, does that mean that his mental state would not have been subject to the causal influence of his bodily state, particularly his brain state?³

In many respects, these suppositions underlie our desert-based legal institutions given the idea that actions cannot correctly be described as voluntary unless one’s will is free.⁴ As Michael Moore put it: “[D]esert [culpable wrongdoing] can exist only if the natural properties on which it supervenes (such as voluntariness of action, intentionality, etc.) are not illusory.”⁵ To put the point a bit more starkly, the foundation upon which criminal justice rests is perhaps at risk if we fail to get a couple of big, metaphysical questions right. These are well-worn questions, and the reader may rest assured that this paper will attempt to solve neither the problem of free will nor the mind-body problem.⁶ Instead, this paper pursues a more tractable inquiry: namely, the merit in basing criminal responsibility on the scientific theories within the field of psychology.⁷

3. Michael S. Moore, *Responsible Choices, Desert-Based Legal Institutions, and the Challenges of Contemporary Neuroscience*, 29 SOC. PHIL. AND POL’Y 233, 244 (2012).

4. Strictly speaking, there is no “free will requirement” in the criminal law, but rather requirements of voluntariness, intention, proximate causation of relevant effects, and other concepts that we might describe as running parallel to our folk psychology understanding of behavior. *Id.* at 243.

5. *Id.* at 236. In section I.B., Moore discusses the folk psychology presupposed by legal institutions and political philosophies.

6. However, it is worth noting that the assumption that the reducibility of psychology to neuroscience entails a threat to free will (and thereby a threat to moral responsibility) is not necessarily justified. Although many people make precisely this assumption (including researchers in neuroscience), there is of course much debate about its merits in the free will literature. Nor is it obvious that one should operate with an implicit libertarian conception of free will and moral responsibility (i.e., free action is uncaused action). That said, I will not focus on these and related questions in this paper.

7. Unless otherwise noted, I use the term *psychology* generally without specifying its many subfields, though cognitive, experimental, and clinical psychology are most relevant to the thesis of this paper. And, to be clear, I am distinguishing the science of psychology from folk psychology. Although I assume that the former corresponds in many ways to the commonsense positions of the latter, I will suggest that the science of psychology also has its own modes of inquiry and domain of study. As I will discuss, it might be true that the science of psychology has a somewhat vague domain of study, but this is in part simply because the entities it studies are far more complex than, say, atoms or worms.

In one sense, in the context of law, psychology addresses the big questions to which I have alluded on a case-by-case basis. For example, our understanding of psychology often informs legal conclusions with respect to questions regarding the voluntariness of a particular defendant's action or the extent to which an action may have resulted from a psychiatric disorder. Indeed, the field of psychology often plays a direct role in the law's conclusion regarding a defendant's guilt, innocence, and term of incarceration. On the other hand, physical sciences such as neuroscience⁸ increasingly deny both the intuitions behind our folk psychology and the scientific conclusions of psychology proper.⁹ To be sure, there are profound differences between folk psychology and psychology as a science, not least of which is that folk psychology is a commonsensical theory (one we use to interpret human behavior) while experimental and clinical psychology is a part of science proper. Still, folk and scientific psychology are tied together in important ways: Generally speaking, the core concepts of Western law are based on folk psychology, and professional psychologists provide evidence of those concepts as expert witnesses in the legal context.¹⁰ In a sense, then, scientific psychology bolsters folk psychology by providing more nuanced categories and concepts that are based upon scientific evidence (even if not physical science)—such as measuring variables including movements and times (all of which are embedded in the physical world) in order to draw conclusions on mental phenomena.

With this in mind, this paper examines the extent to which critiques of folk and scientific psychology are justified by inquiring whether the physical sciences—particularly, neuroscience—have ontological authority over the mental sciences—or psychology—such that psychology should be thought of as a “higher-level” domain that is reducible to some aspect of neuroscience.¹¹ More specifically, this paper argues that if psychology

8. Strictly speaking, one might describe neuroscience not as a “physical science,” but rather as a “special science.” In other words, while neuroscience might be thought of as fundamentally physical, it is different than, say, physics. *See, e.g.,* Jerry Fodor, *Special Sciences and the Disunity of Science as a Working Hypothesis*, 28 *SYNTHESE* 97 (1974). I use the term physical science more generally, with the idea being to highlight its distinction from psychology.

9. Although there are no doubt exceptions, Moore rightly suggests that neuroscientists typically deny Cartesian dualism, free will, and many other folk psychology assumptions about behavior. Moore, *supra* note 2, at 244.

10. *See* FORENSIC MENTAL HEALTH ASSESSMENT: A CASEBOOK (Kirk Heilbrun, David DeMatteo, Stephanie Brooks Holliday & Casey LaDuke eds., 2014) (discussing principles used by mental health professionals to provide evaluations that facilitate better-informed legal decision-making).

11. A theory's predictive power—which will be addressed in Part I— is perhaps the most important factor in determining whether it is justified in the domain of the law. However, even though the issue of ontology might not seem directly relevant in the law, this paper contends that a more

and the physical sciences are fundamentally different modes of inquiry, then it is a mistake to suggest that the former may be reduced to the latter.¹² I will conclude by examining a framework for how one might deem psychology true, settling upon a version of *scientific realism* (roughly, “the view that scientific theories correctly describe the nature of a mind-independent world”¹³) that may be reconciled with *empiricism* (roughly, the view that all knowledge and belief are based upon evidence from experience¹⁴) in terms of *detectability*.¹⁵ The consequent is that such a framework will allow us to describe more clearly the role that psychology plays in our understanding of criminal responsibility and the extent to which that role is justified.

A brief note about what this paper does not argue: It does not argue that neuroscience and psychology are mutually exclusive or that they are monolithic fields moving in wholly separate directions. For example, it is of course standard for social and cognitive psychologists to utilize neuroimaging evidence in their work, and it is likewise standard for neuroscientists to formulate hypotheses on the basis of theories from cognitive and social psychology. Moreover, it is not the case that neuroscience is committed to the denial of all folk level concepts, nor is it the case that psychology embraces all such concepts.¹⁶ So it is no doubt true that both neuroscience and psychology may invoke similar representational and motivational states with respect to, say, explaining how beliefs and desires work. Indeed, most neuroscientists and psychologists agree—and much of the literature on criminal responsibility does not deny—that one’s mental states are subject to the causal influence

clearly developed picture of a theory’s underlying ontological commitments might put that theory on a firmer footing.

12. Roughly, I mean that while the physical sciences and psychology perhaps overlap in their modes of inquiry and domain of study occasionally, each involves fundamentally different ways of examining fundamentally different phenomena. I will try to make this point more clearly in Part I. Incidentally, to the extent this is a *category mistake*, its original use has perhaps been turned on its head. See GILBERT RYLE, *THE CONCEPT OF MIND* (1949).

13. See ANJAN CHAKRAVARTY, *A METAPHYSICS FOR SCIENTIFIC REALISM* 4 (2010).

14. See Peter Markie, *Rationalism vs. Empiricism*, STAN. ENCYCLOPEDIA PHIL. (July 6, 2017), <https://plato.stanford.edu/entries/rationalism-empiricism/#Empi> [<https://perma.cc/3ZMJ-FWVN>].

15. By *detectability*, I mean something similar to Dudley Shapere’s notion of *observation*, which generally includes the position that observational evidence may be based upon information that is not directly accessible to the senses, but rather received by receptors that are more dependable than sense-perception. Dudley Shapere, *The Concept of Observation in Science and Philosophy*, 49 PHIL. SCI. 485, 508–11 (1982). Shapere does not explicitly equate detection with observation but considers this position.

16. For instance, although the work of many neuroscientists seems to suggest that there is no true free will, many psychologists have of course reached similar conclusions. See, for example, the vast work of Benjamin Libet and John Bargh.

of one's brain states.¹⁷ Nevertheless, there is a real and practical problem that deserves attention. Stephen Morse has called it "Brain Overclaim Syndrome": an unjustified approach to "think[ing] about the relation of neuroscience (or any other material explanation of human behavior) to criminal responsibility...that cannot be conceptually or empirically sustained."¹⁸ This paper seeks to examine the problem from a new perspective.¹⁹

I. ONTOLOGICAL AUTHORITY, REDUCTION, AND PSYCHOLOGY

Actus reus—or guilty act—is one of most fundamental elements of a crime. Although Parks's case involved a homicide, Parks' "act" is not a properly-construed legal act because there was no voluntary muscular contraction when he squeezed his fingers around the tire iron and knife. Thus, the voluntariness of the act is of central importance. As the court suggested in *R. v. Parks*, one who acts as an automaton cannot be held criminally responsible for one's acts.²⁰ In easier cases, one might think that folk psychology is sufficient to explain what it means to act voluntarily. In more difficult cases—those involving sleepwalking and mental abnormalities, for example—we often rely upon the scientific field of psychology to understand whether an act is voluntary. It is proper to ask whether this reliance is justified. This question is even more important if it is true that psychology should be ultimately subsumed by a more

17. More specifically, most would agree that mental states are brain states, not merely that the former are subject to the causal influence of the latter. See, e.g., Stephen J. Morse, *Brain Overclaim Syndrome and Criminal Responsibility: A Diagnostic Note*, 3 OHIO ST. J. CRIM. L. 397, 398 (2006), declaring "I am a thorough-going, matter-up materialist who believes that all mental and behavioral activity is the causal product of lawful physical events in the brain."

18. *Id.* at 397. Somewhat related, it should be noted that regardless of whether one thinks that psychology might be reducible to neuroscience in its current form or whether one thinks that psychology might be reducible to neuroscience in principle (i.e., some future, more perfected version of neuroscience), there are of course many challenges with contemporary neuroscience that are similar to those faced by contemporary psychology (e.g., problems with replicability, faulty statistical methods, and so on). Even under the latter view of neuroscience (an in-principle perfected version), neuroscience would at a minimum still need psychology to tell it what it is studying, so to speak. For example, suppose a neuroscientist claims to have identified the neural regions underlying the experience of disgust. The neuroscience would presumably make the case for this by showing that particular patterns of neural activation correlate with particular behavioral patterns that we associate with the feeling of disgust. These dependent variables (feelings, behavior, particular judgments) are posits of folk and scientific psychology.

19. For other recent approaches to this and related problems, see Eric Hochstein, *Giving Up on Convergence and Autonomy: Why the Theories of Psychology and Neuroscience Are Codependent as Well as Irreconcilable*, 56 STUD. HIST. & PHIL. SCI. 135 (2016).

20. See Richard B. Brandt, *The Principles of Criminal Law*, in *THE NATURE AND PROCESS OF LAW* (Patricia Smith ed., 1993), for a general overview of the elements of a crime, including the requirement that an act is voluntary.

fundamental physical science that will transform our views about criminal responsibility.²¹

*A. Physical Science and Ontological Authority*²²

The notion of reduction has *prima facie* appeal to the scientific-minded inasmuch as the basic idea is to reduce scientific domains to their most fundamental “levels.” But before one can address the notion of reduction directly, one must come to grips with certain biases regarding the presumed ontological supremacy of the physical sciences. In other words, even if one should assume the notion of reduction is justified within scientific domains, one must first examine the assumption that psychology is the science that ought to be reduced. To be sure, no one seriously denies the importance of, say, physics or that the world is perhaps largely physical, but is the jump to granting ontological authority to the physical sciences justified in every case?²³ The answer to this question will frame the argument regarding the extent to which psychology is justified in forming a basis for the law’s conception of criminal responsibility.

There are two well known problems with drawing a sharp line between physical science and psychology.²⁴ First, let us assume that there are no clear cases of *psychophysical laws* (law connecting mental and physical states).²⁵ Assuming *arguendo*, it does not follow that *psychology* is completely unlike physical science with regard to laws. Indeed, nothing

21. See, e.g., Robert Sapolsky, *The Frontal Cortex and the Criminal Justice System*, 359 PHIL. TRANSACTIONS ROYAL SOC’Y LONDON 1787 (2004); Josh Greene & Jonathan Cohen, *For the Law, Neuroscience Changes Nothing and Everything*, 359 PHIL. TRANSACTIONS ROYAL SOC’Y LONDON 1775 (2004).

22. I will not take up the related issue of *physicalism*, the thesis that the world is limited to the physical, because it introduces more issues than can be dealt with in the context of this paper. For example, physicalism itself may be reductive or non-reductive, and the reduction in question is not limited to scientific domains. One prominent variation is Jaegwon Kim’s causal closure naturalism, which is “the thesis that the natural world, that is the space-time-causal world, is causally closed.” Jaegwon Kim, *From Naturalism to Physicalism: Supervenience Redux*, 85 PROC. AM. PHIL. ASS’N 109, 113 (2011). Kim suggests that we make the move from naturalism to (non-reductive) physicalism because the “world is a fundamentally physical one, and that physics is the science that promises us the most comprehensive coverage of the world at its deepest levels.” *Id.* at 118. Kim supports this assertion with the premise that physical effects do not have nonphysical causes, i.e., the physical world is causally closed. *Id.* This premise lays the foundation for Kim’s mind-body supervenience, the thesis that every property in the world is physical or supervenes on physical properties. Although these are important issues, I will not take up the details of Kim’s argument because I do not think they have a direct bearing on my discussion of physical science and ontological authority.

23. Tim Crane & D.H. Mellor, *There Is No Question of Physicalism*, 99 MIND 185 (1990).

24. These two objections are from Crane and Mellor.

25. As I will discuss in Part II, there is reason not to grant these assumptions, e.g., based upon psychological laws regarding perception and psychophysics, which might help show how physical states relate to consciousness and sensations.

precludes psychology from defining its own mental ontology in the same way that physical science defines its ontology. This point foreshadows the close relationship between the presumed ontological authority of physical sciences and reduction. As Tim Crane and D.H. Mellor rightly suggested almost three decades ago with respect to chemistry, in the same way that “chemistry’s ontological authority does not depend on its being reducible to physics via physicochemical laws,” by analogy psychology does not depend upon the existence of strict psychophysical laws.²⁶ Second, let us assume that the totality of all true physical theories—in physics perhaps—is close to comprehensive. But, again, even if we grant this point, it does not preclude psychological laws. Rather, it would only be necessary that psychological laws be consistent with the true laws of physical science; truth must of course be consistent with truth, but this platitude grants no ontological authority to the physical sciences.²⁷ In the end, the larger point is that if the above-noted problems are legitimate, then at a minimum it seems reasonable to embrace agnosticism with respect to psychological laws, stopping short of granting ontological authority to the physical sciences. The point seems right absent a more clearly established demarcation that grants the ontological authority of the physical sciences over psychology.

The most common objection to this conclusion is perhaps based upon the principle of parsimony.²⁸ If neuroscience explains approximately the same entities as psychology, then Occam’s razor would suggest that we ought to reduce psychology based upon psychology’s surplusage. However, it would seem that in this case both psychology and neuroscience are needed to explain the relevant entities and phenomena that are of principal concern in each field respectively. As discussed below, psychology and the physical sciences surely overlap in many cases, but if psychology is a fundamentally different mode of inquiry than neuroscience, then reducing psychological entities and phenomena is untenable.

B. Psychology and Reduction

Reduction is at times discussed loosely, and I want to begin by spelling out what is meant by reductionism. According to Ernest Nagel’s well known theoretical framework: *Reduction* is a deductive procedure that

26. Crane & Mellor, *supra* note 23, at 198.

27. *Id.* at 202.

28. See HUGH G. GAUCH, JR., *SCIENTIFIC METHOD IN PRACTICE* (2003) for a pragmatic defense of parsimony.

provides an explanation of the “higher level” theoretical claim upon the reducing level premises and a conclusion from such premises: *Homogeneous reduction* is an explanation in which the relevant descriptive and subject-matter terms in the conclusion are included in the premises—a deductive explanation.²⁹ *Inhomogeneous reduction* is an explanation in which at least one descriptive term in the conclusion neither occurs in the premises nor is definable by those that do.³⁰ In cases of inhomogeneous reduction, a “higher-level” theory may be reduced to a “lower-level” theory by using “bridge laws” that explain the relations of dependence between the two theories.³¹

With this rough and ready idea of what reductionism is, one can highlight what is at stake. There are different ways to consider reductionism’s role in threatening the ordinary notion of criminal responsibility. Reductionism might seem to mean that we are in a state of perpetual *somnambulism*, so to speak. Like the sleepwalking Mr. Parks, reductionism might mean that we are nothing more than an automaton. But unlike cases of sleepwalking, reductionism might further mean that our lack of responsibility is permanent. Reduction might thus result in the view that it is absurd to *ever* hold one criminally responsible for one’s acts because, as Moore puts it, “the reduction of minds to brains, and of actions to physical movements, is taken by some to eliminate the self (or the “I”) of conscious experience and agency.”³² Thus, under at least one interpretation of reductionism, even the cases in which we deem it appropriate to hold a defendant criminally liable, doing so is actually akin to holding a defendant criminally responsible for his acts committed while sleepwalking.³³

Still, before reductionism can even get off the ground, one’s assumptions must be acknowledged and the extent to which those assumptions are justified. There is an unstated—and I argue unfounded—assumption that the so-called higher level theory is inferior to the so-called lower level theory. The defense of this assumption is critical because the

29. Ernest Nagel, *Issues in the Logic of Reductive Explanations*, in *EMERGENCE* (Mark Bedau & Paul Humphreys eds., 2008).

30. *Id.*

31. *Id.*

32. Moore, *supra* note 3, at 258.

33. Alternatively, one might argue that reduction threatens our understanding of criminal responsibility *negatively* via *eliminative materialism*. This sort of threat is actually non-reductive. The idea is that notions such as moral blameworthiness are illusions because “we *cannot* reduce intentions to brain states, minds to brains It is because mental states (given their Intentionality) cannot be reduced to brain states that they can have no place in (what will turn out to be) the best explanation of human behavior, an explanation, in terms of brain states.” *Id.* at 259. This issue strays too far from my argument and I will not address it here.

assumption justifies the reductionary move. Psychology is a paradigmatic example because there exists a prevalent assumption that psychology will be reduced absolutely to, for example, neuroscience. But in the same vein as the discussion above, one might reasonably ask from where the ranking of levels is derived; how does one level achieve authority over another? It is by no means clear that one may infer which theory is “higher” and which theory is “lower” from the mere fact that one theory may be derived from another theory. There may be cases in which this sort of hierarchical framework seems ostensibly appropriate, but this may be less about a reducible hierarchical framework and more about the fact that some theories provide more empirical adequacy, predictive power, success, simplicity, and so on, depending upon the phenomena under consideration and the mode of inquiry employed.³⁴ Thus, one must be careful to distinguish questions regarding the extent to which something is a “higher” level and reducible, from questions regarding the extent to which a theory has more predictive power. Otherwise, one might be guilty of comparing neuroscience’s apples to psychology’s oranges. Although the apples are undeniably more filling in many cases, the oranges are, to be sure, more fruitful in others. If psychology and neuroscience in some cases examine fundamentally different phenomena using fundamentally different modes of inquiry, then the suggestion that the former is a higher-level theory that may be reduced to the latter’s more basic theory is based upon an inappropriate paradigm. And while they are important considerations, predictive power and success ought to be viewed as separate issues.

This could perhaps be illustrated more clearly with an example. The (much maligned) Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) is used in the fields of psychology and psychiatry to classify mental disorders in the United States by cataloguing symptoms and behavioral characteristics.³⁵ As a diagnostic manual, its aim is not to carve nature at its joints. Nevertheless, it is illustrative here: A person may be diagnosed with a personality disorder (say, “Borderline Personality Disorder” (BPD)) based upon whether the person exhibits certain features, including certain traits and mental states (e.g., impulsivity, instability of

34. One can certainly order scientific disciplines in a top-bottom ranking on the basis of their object of study: the bigger and more complex the object, the higher the level. A dog is bigger than a cell, which is bigger than an enzyme, which is in turn bigger than an electron. Accordingly, zoology is in a “higher” position than cell biology, which is over biochemistry, which is in turn less fundamental than particle physics. This straightforward ordering is not the sort of ordering with which this paper takes issue.

35. See JASON SCHNITTKER, *THE DIAGNOSTIC SYSTEM: WHY THE CLASSIFICATION OF PSYCHIATRIC DISORDERS IS NECESSARY, DIFFICULT, AND NEVER SETTLED* (2017).

affect, unstable interpersonal relationships and self-image) gleaned from various methods of evaluation. The origin and nature of the relevant traits are not delineated precisely; indeed, theories regarding the cause of BPD are based upon a host of factors, including social environments, temperament, neurochemical abnormalities, and genetics.³⁶ The point is that a complete picture of the relevant diagnostic criteria is hardly delineated in full.³⁷ As such, it is perhaps difficult to argue that psychology describes truly and completely the nature of the mind-independent world with respect to particular psychological diagnoses. The underlying phenomena may very well be mind-independent, but we might be skeptical about the extent to which, say, the DSM-5 accounts for this truly.

But does it follow that we should think of psychology and neuroscience as higher and lower-level theories, respectively—such that psychology should ultimately be subsumed by neuroscience? To be sure, the above example suggests that we may very well find it difficult to be realists with respect to all aspects of psychology—certainly not in the precise manner that a diagnosis might imply. However, the example also shows how certain areas of psychology might be autonomous while still having a neural basis in some sense. Although the hierarchy of physical sciences tends to be based upon ontological inclusion relations (e.g., atoms are included in molecules, molecules are constituents of DNA, DNA is a component of biological organisms), these ontological inclusion relations do not hold between psychology and the physical sciences despite psychology having some sort of neural basis. And, despite a neural basis, psychology might still be considered autonomous from neuroscience because neuroscience fails to answer some of the questions of psychology.³⁸ To the extent that something such as BPD is a multifaceted phenomenon regarding the way a personality *is*, there exists any number of psychological questions regarding one's state of mind, conscious experience, and so on, which cannot be reduced along ontological inclusion relations coherently.

36. See BORDERLINE PERSONALITY DISORDER (Barbara Stanley & Antonia New eds., 2017), for a comprehensive overview of all aspects of BPD.

37. AM. PSYCHIATRIC ASS'N, DIAGNOSTIC & STAT. MANUAL OF MENTAL DISORDERS (5th ed. 2013). To be sure, the DSM is widely criticized because (arguably) little of it is based upon actual science and it is mostly a tool that is used by health insurance companies to issue reimbursements.

38. Of course, neuroscience can answer the questions of psychology in some cases. For example, damage to some visual pathways can cause distortions in vision, and one might explain psychological phenomena relating to those distortions in terms of neurological phenomena. The point is simply that neuroscience does not always answer the same questions as psychology, notwithstanding overlapping areas.

Neither reduction nor subordinating psychology seem appropriate in this case because it is difficult to be a realist with respect to all the parts of the multifaceted phenomenon. If the physical sciences have not been delineated infallibly and with finality, then one should not expect such success from psychology either.³⁹ The fact that sophisticated theories regarding mental states have not been delineated in exceptionless rules seems to differ little from the failure to do so in quantum mechanics, for example.⁴⁰ Now it may be reasonably argued that such a comparison is far from apt. After all, it is probably right to say that no other set of theories in the history of science has been as accurate as physics,⁴¹ and perhaps we are relatively close to delineating physics infallibly and with finality. However, if even the epitome of scientific theories leaves room for improvement, then the general point still seems to hold: Because psychology is incomplete, it should not be reduced to a physical science. To suggest that the multifaceted mental states, conditions, and abnormalities—with which psychology is uniquely concerned—can and should be reduced to some more fundamental level seems both unrealistic and to miss the point of psychology. Psychology and the physical sciences surely complement each other in many cases. But if the former is a fundamentally different mode of inquiry than the latter, then a reductionist framework is perhaps untenable.

If it is right to say, as argued, that neuroscience lacks ontological authority over psychology and that psychology should not be considered a “higher-level” domain reducible to neuroscience, the reductive thesis regarding the ontological authority of the physical sciences does not undermine psychology’s role with respect to informing the law’s conception of criminal responsibility. To put the point another way, there is at a minimum reasonable doubt whether the reductive thesis regarding the ontological authority of the physical sciences demonstrates that psychology’s role in the law is unjustified. Nonetheless an important question remains: to what extent might one be a scientific realist about the claims that psychology makes in the legal domain?

39. Crane & Mellor, *supra* note 23, at 197.

40. *Id.*

41. See, e.g., RICHARD P. FEYNMAN, QED: THE STRANGE THEORY OF LIGHT AND MATTER 5 (2014) (“The theory of quantum mechanics also explained all kinds of details, such as why an oxygen atom combines with two hydrogen atoms to make water, and so on. Quantum mechanics thus supplied the theory behind chemistry.”).

II. SCIENTIFIC REALISM AND EMPIRICISM IN THE LAW

Even if there are problems with the reductive thesis regarding the ontological authority of the physical sciences, it does not follow that the conclusions of psychology with respect to criminal responsibility are true. We perhaps need a framework for examining the truth of psychology's conclusions, including those that might form the basis of the law's core principles—such as *actus reus*. In this part, I provide a sketch for such a framework. This suggested framework settles upon a version of scientific realism that may be reconciled with empiricism vis-à-vis detectability. The conclusion suggests that if psychology consists of empirical laws, then scientific realism is a coherent position with respect to those aspects of psychology relating to laws.

There has by now developed a variant of scientific realism for almost any taste. The broadening notion of what counts as scientific realism enhances the demarcation of philosophical positions, particularly as they relate to specific metaphysical commitments. Put another way, scientific realism may be thought of in terms of a spectrum that permits incremental movements toward metaphysics on one terminus of the spectrum and empiricism on the other terminus. However, given the wide range of positions that fall under the umbrella of scientific realism, it is not always clear what is at stake when a position is labeled “realist.” One might ask, for instance, whether realism is necessarily opposed to empiricism and whether realists are necessarily committed to metaphysics. I suggest that these questions should be answered in the negative. This is particularly true when one considers the diversity of positions that might be called *empirical*. The epistemic component of empiricism is that all knowledge and belief is based upon evidence from experience. The empiricist traditionally interpreted experience as sense-perception.⁴² It is only through this interpretation—an interpretation that treats empiricism as an enterprise that conflates experiential evidence with sense-perception—that empiricism fails as a basis for scientific epistemology. But, as this paper suggests, one need not interpret empiricism so anachronistically.

A. Realism, Empiricism, and Detectability

As noted, scientific realism may be defined roughly as the view that scientific theories describe the nature of a mind-independent world.⁴³ This seemingly innocuous approximation has been targeted on at least three key

42. See Shapere, *supra* note 15, at 508.

43. See CHAKRAVARTTY, *supra* note 13, at 4.

fronts, which include problems regarding: (1) the legitimacy of the inference to the best explanation (IBE); (2) the underdetermination of theory choice by data (UTD); and (3) the pessimistic induction (PI).⁴⁴ In responding to these problems, many scientific realists have shifted—on a number of levels—to a more tempered account of realism. It is this general shift that has dissolved any semblance of a strict realism-empiricism dichotomy. It is this shift that paves the way for one to take a realist stance with respect to psychology’s claims about the law. Here are two examples. First, consider the PI charge that most historical scientific theories are considered false by present day scientific standards; therefore, by induction, our present-day theories (such as those within the field of psychology) will likely be recognized as false at some future time. The realist often responds to this problem by softening her epistemic convictions. She might claim, for instance, that one need not believe that scientific theories are true *per se* or true *simpliciter*, but rather “approximately true” only.⁴⁵ To be sure, this is a reasonable stance considering the sophistication of current scientific theories. Less certain, however, is whether the realist can overcome the inherent vagueness in a notion such as “approximate truth.”⁴⁶ The more relevant point here is that the realist’s move away from a hard and fast notion of true theories shifts the realist closer to contemporary variants of empiricism. This is because contemporary variants of empiricism may very well be reconciled with the notion of approximate truth, at least to the extent that approximate truth means something less than truth. Second—and related to the first shift—many realists now embrace the position that realism applies only to theories that are “genuinely successful” or “mature.”⁴⁷ This shift is a further narrowing of the sorts of theories that count as true descriptions of a mind-independent world—an incremental step from theories that might

44. See *id.* at 5–8, for a description of these problems. I will focus on PI. The other problems may be summarized as follows: IBE, often referred to as *abduction*, is the position that one ought to “infer the hypothesis that, if true, would provide the best explanation for whatever it is you hope to explain.” For example, an IBE answer to the question of why scientific theories are so successful might be that the scientific theories are *true*. Roughly, UTD is the thesis that there are multiple ways to account for scientific evidence (data from observation, experimentation, and so on) and that it is not always clear which theory is true with respect to the data. See *id.*

45. *Id.* at 7–8.

46. The extent to which there exists a satisfactory account of approximate truth is unclear. The literature on the topic is expansive and falls more generally under the terms verisimilitude and truthlikeness, though each may be distinguished. See, e.g., Thomas Weston, *Approximate Truth and Scientific Realism*, 59 PHIL. SCI. 53 (1992); Gustavo Cevolani & Luca Tambolo, *Progress as Approximation to Truth: A Defence of the Verisimilitudinarian Approach*, 78 ERKENNTNIS 921 (2013); Graham Oddie, *Truthlikeness*, STAN. ENCYCLOPEDIA PHIL. (May 9, 2007), <http://plato.stanford.edu/archives/fall2008/entries/truthlikeness/> [https://perma.cc/LLV7-R85G].

47. CHAKRAVARTTY, *supra* note 13, at 7–8.

be considered more speculative and an incremental step toward empiricism generally.

These shifts culminate in variants of realism that closely resemble variants of empiricism. More specifically, one might argue that the realist's notion of *genuinely successful* can be taken to mean *empirically successful*.⁴⁸ For example, the realist and the empiricist might both agree that some notion of experience is the source of our knowledge of the natural world; moreover, that notion of experience may very well be linked to a notion of *detectability*. Consider Anjan Chakravartty's "semirealism," which is roughly the position that "concrete structures are relations between first-order properties of things."⁴⁹ One of the central goals of Chakravartty's project is to respond to PI by building upon the foundation laid by entity realism (ER) and structural realism (SR).⁵⁰ The basic idea is that semirealism embraces ER's focus on our causal interactions with the world in order to shed light on the structure of the world.⁵¹ Crucial to this goal is the notion of detectability, and it is this notion that pushes Chakravartty's semirealism closer to variants of empiricism. Semirealism embraces the notion that realists may commit to the ontological status of a particular with respect to relations of *detection* properties (causal properties one has detected), while remaining noncommittal with respect to *auxiliary* properties (any other properties associated with a particular theory).⁵²

Now, no one would argue that this resembles anything close to traditional empiricism, nor is it clear that contemporary commentators have argued explicitly that *detectable equals observable*, but this is the position I want to stake out. Although the literature may not endorse this position explicitly, others have suggested that empiricism ought to be conceived of in a comparable way. Two examples worth noting include Dudley Shapere's attempt to reconcile the fundamental tenets of empiricism with sophisticated scientific methods that allow us to

48. For a general discussion of this point, see section 1.3 of Anjan Chakravartty, *Scientific Realism*, STAN. ENCYCLOPEDIA PHIL. (April 27, 2011), <http://plato.stanford.edu/archives/sum2013/entries/scientific-realism/> [https://perma.cc/4543-SWGA].

49. CHAKRAVARTTY, *supra* note 13, at 41.

50. ER is the position "that under certain conditions, one has good reason to believe that the entities described by scientific theories exist in a mind-independent reality," including because of our causal contact with the entities in question. *Id.* at 30. SR is the position that "insofar as . . . scientific theories offer approximately true descriptions of a mind-independent reality, they do not tell us about its *nature*, or more specifically, the nature of its unobservable parts. Rather, they tell us about its *structure*." *Id.* at 33.

51. *Id.* at 56.

52. *Id.* at 47–48. Chakravartty subsequently argues that his position allows the realist to "identify concrete structures having this epistemic warrant, and to explain why precisely these structures are likely to be retained as theories change."

“observe” via detection,⁵³ and Jim Bogen’s suggestion that “an epistemically prudent empiricism . . . would allow commitment to claims about unobservable phenomena (including causal factors and processes and not just regularities) that can be legitimately inferred from perceptual and instrument generated data.”⁵⁴ This sort of empiricism and the sort of scientific realism expressed in semirealism blur the lines between what counts as empiricism and what counts as realism. They also help show that scientific realism may require very little in terms of metaphysical commitments, perhaps allowing one to be a realist with respect to certain aspects of psychology. The below discussion examines how those commitments might be centered upon detectability.

B. Realism and Metaphysical Commitments

In Part I.B, using the DSM-5 diagnosis of BPD as an example, it was suggested how it is perhaps untenable to argue that psychology describes truly and completely the nature of the mind-independent world with respect to such psychological diagnoses. One might very well find it difficult to be a realist with respect to all aspects of psychology, particularly in the manner the DSM-5 might imply. However, this is simply because psychology—like other sciences—has not established holistic theories regarding mental states that have been delineated in empirical laws. But this does not mean that no empirical laws exist that we may deem true, as was assumed. Below is a sketch of how one might take a realist position with respect to some parts of psychology, but not others.

First assume that one of the goals of the sciences, including psychology, is to describe some aspect of the world. It has already been argued that we ought to dispense with any hierarchical notion of the sciences that subordinates psychology, and now it will be argued that we ought to dispense with this notion specifically with respect to the view that psychology lacks scientific *laws*.⁵⁵ From the outset, one should note that the notion of a scientific law may be interpreted in a rather wide variety of ways. Laws are often tied to empiricist traditions (hence the name, *empirical laws*), which describe laws as generalizations that are universal and true. If there are such laws in psychology, then one might be a realist

53. See Shapere, *supra* note 15, for a brief discussion of this issue and Shapere’s position.

54. Jim Bogen, ‘Saving the Phenomena’ and *Saving the Phenomena*, 182 SYNTHESE 7, 20 (2011).

55. There is perhaps no consensus regarding what constitutes a law. For an overview of the various positions on this issue, see John W. Carroll, *Laws of Nature*, STAN. ENCYCLOPEDIA PHIL. (December 26, 2010), <http://plato.stanford.edu/archives/spr2012/entries/laws-of-nature/> [<https://perma.cc/U3FQ-Z5V8>].

about these fundamental aspects of psychology that are supported by methods of detection based upon experimentation and the resulting data.

Consider the many laws involving perception or psychophysics, for instance, such as Stevens's Power Law, which states that equal physical stimulus ratios produce equal subjectively perceived intensity ratios.⁵⁶ Although it may not be clear how (if at all) such laws apply to all the specific applications of psychology (in the diagnosis of all cases of mental abnormalities, for instance), psychology might be defined generally by this and other psychophysical laws. One might thus be an anti-realist about one particular aspect of psychology (*e.g.*, about some particular mental state or abnormality), yet continue to remain a realist about the phenomena underlying laws that are fundamental to psychology and that are perhaps detectable via experimentation. Although this might be a less stringent notion of what a law is in some respects, it can reasonably be argued that the underlying phenomena is detectable—and this perhaps goes a long way in terms of eroding away the strict distinction between realism and empiricism to which the paper has alluded. Detectability, then, draws together variants of scientific realism and variants of empiricism, and it is this drawing together that simultaneously dissolves many of the potential metaphysical commitments of scientific realism. The larger point about the metaphysical commitments of scientific realism is this: realism comes in degrees of selectivity, and the realist may commit to the mind-independent reality of one thing, while stopping short in her belief about a great many other things. The realist—like the empiricist—may begin by basing their beliefs on sense-perception, move to things that may be observed via detection only, and then embrace agnosticism well before they reach the more abstract realm of forms, universals, and other areas of metaphysics in which there is less room for agreement. Based upon the similarities between contemporary scientific realism and empiricism, this hardly seems surprising. In a similar way, it is equally unsurprising how one might be a realist with respect to certain core aspects of psychology that we consider detectable.

CONCLUSION

What are we to make of the case of Mr. Parks, particularly the suppositions on which the law bases his lack of criminal responsibility? If psychology informs the law's conclusion with respect to issues such as the lack of voluntariness (or the presence of voluntariness in other cases), and

56. Stanley Smith Stevens, *On the Psychophysical Law*, 64 PSYCH. REV. 153 (1957).

physical sciences such as neuroscience deny the scientific conclusions of psychology, then to what extent is the law's notion of criminal responsibility justified? This paper provided a generalized answer to these sorts of questions by examining whether physical sciences such as neuroscience have ontological authority over mental sciences such as psychology such that psychology should be subsumed by neuroscience. The paper has attempted to show that if psychology and the physical sciences are fundamentally different modes of inquiry, then it is a mistake to suggest that the former may be reduced to the latter. But this is only half of the story.

A framework for addressing the extent to which psychology might be deemed true is still needed. The paper has taken an initial step toward this end by proposing a version of scientific realism that may be reconciled with empiricism in terms of detectability. Specifically, it was argued that if psychology includes empirical laws that are supported by methods of detection based upon experimentation and the resulting data, then one might sensibly be a realist with respect to those aspects of psychology. Unfortunately, this is not an easy business, and these matters have certainly not been resolved with finality. More work must be done to shore up the loose ends, particularly with respect to the different modes of inquiry within psychology and the establishment of an appropriate mechanism for selecting which aspects of psychology are to be interpreted realistically.⁵⁷ But the contention is that there is at least reasonable doubt about whether psychology's role in the law should be displaced based upon the reductive thesis regarding the ontological authority of the physical sciences. This doubt helps clear the way for adopting a version of scientific realism with respect to psychology's conclusions about criminal responsibility.

57. One approach that seems promising—and that seems generally consistent with the groundwork I have tried to lay—is Daniel A. Weiskopf's view that cognitive models of psychological capacities, despite being non-mechanistic, meet the normative standards for explanation and should not be reduced to mechanistic approaches. Daniel A. Weiskopf, *Models and Mechanisms in Psychological Explanation*, 183 *SYNTHESE* 313, 314–15 (2011). The basic idea behind Weiskopf's approach is that “a system's behavior can be explained from many distinct epistemic perspectives, each of which is illuminating. Viewed from one perspective, the brain might be a hierarchical collection of neural mechanisms; viewed from another, it might instantiate a set of cognitive models that classify the system in ways that cut across mechanistic boundaries.” *Id.* at 334.

