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Brain Overclaim Syndrome and Criminal Responsibility: A Diagnostic Note

Stephen J. Morse*

This brief diagnostic note identifies a cognitive pathology, “Brain Overclaim Syndrome [BOS],” that often afflicts those inflamed by the fascinating new discoveries in the neurosciences. It begins by suggesting how one should think about the relation of neuroscience (or any other material explanation of human behavior) to criminal responsibility, distinguishing between internal and external critiques based on neuroscience. It then describes the signs and symptoms of BOS, the essential feature of which is to make claims about the implications of neuroscience for criminal responsibility that cannot be conceptually or empirically sustained. It then applies the diagnostic lens of BOS to the claims in Roper v. Simmons. Finally, the article recommends Cognitive Jurotherapy [CJ] as the therapy of choice for BOS.

I. INTRODUCTION

Brains do not commit crimes; people commit crimes. This conclusion should be self-evident, but, infected and inflamed by stunning advances in our understanding of the brain, advocates all too often make moral and legal claims that the new neuroscience does not entail and cannot sustain. Particular brain findings are thought to lead inevitably to moral or legal conclusions. Brains are blamed for offenses; agency and responsibility disappear from the legal landscape. For example, in *Roper v. Simmons*,¹ advocates for abolition of the death penalty for adolescents who committed murder when they were sixteen or seventeen years old argued that the demonstrated lack of complete myelination of the cortical neurons of the adolescent brain was reason to believe that sixteen and seventeen year old murderers were insufficiently responsible to deserve capital punishment. These types of responses, I claim, are the signs of a disorder that I have preliminarily entitled Brain Overclaim Syndrome [BOS].

This brief diagnostic note first lays the contextual foundation for how one should think about the relation of neuroscience to criminal responsibility. Then it attempts to identify the nature of the pathology, to offer the criteria for the

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¹ 543 U.S. 551 (2005).

diagnosis, to evaluate the disorder in the *Roper* arguments, and to suggest the route to total cure. Footnotes will be scarce. Most of this note is an extended conceptual argument or based on this investigator's first-hand clinical observations. Where it depends on assertions about the state of the science, it takes positions, albeit sometimes controversial, that have strong support. Trust me: I'm a doctor (of psychology).

II. DECLARATION OF INTEREST

Many journals in psychiatry and medicine now ask authors to include a "declaration of interest" to indicate possible conflicts of interests or other influences on the author's conclusions. For example, sources of support for the research should be disclosed. As a diagnostic investigator and in the spirit of disclosure, please permit me to list the most important philosophical, moral and legal commitments with which I approach this investigation. First, 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. Second, I am a non-reductive materialist who believes, roughly, with John Searle and many others, that conscious mental states are real, that they are caused by lower level biological processes in the brain, that conscious states are realized in the brain—the mind-brain—but not at the level of neurons, and that conscious states can be causally efficacious.² Third, I am a compatibilist who believes that moral and criminal responsibility are compatible with determinism or universal causation. Fourth, I believe that desert is a necessary condition of just punishment under current law and that it should be at least a partial justification for the fair imposition of punishment under any proposed criminal law. Last, I oppose the death penalty.

III. THINKING ABOUT NEUROSCIENCE AND CRIMINAL RESPONSIBILITY

This section considers the logical and conceptual space in which claims about the relation of neuroscience to responsibility can arise.

To think sensibly about the relation of any other variable—whether that variable is biological, psychological, sociological, or astrological—to criminal responsibility first requires that one have an account of criminal responsibility. After all, one cannot relate two variables to one another unless one has a definition of both. Assuming that one has a definition of criminal responsibility, then the argument based on the other variable may be either internal or external. An internal argument accepts that criminal responsibility is a coherent concept and uses the other variable to explain the positive rules and practices we have or to criticize those rules and practices normatively for the purpose of improving them.

² JOHN R. SEARLE, MIND: A BRIEF INTRODUCTION 113–14 (2004) (terming his position about consciousness "biological naturalism").

An external argument uses the other variable to demonstrate that the concept of criminal responsibility is incoherent or unjustifiable and therefore it should be abandoned. Thus, any commentator who accepts that at least some people who commit crimes are responsible and may justifiably be punished are necessarily making an internal argument, at least implicitly, because the justifiability of responsibility is assumed.

A. A Positive Account of Criminal Responsibility

As a matter of current, positive common law, an agent will be *prima facie* criminally responsible if the agent acts intentionally and with the appropriate mental state, the *mens rea*, required by the definition of the offense, such as purpose, knowledge, recklessness, or negligence. Criminal law typically defines an act as an intentional bodily movement performed by an agent whose consciousness is reasonably intact. Mental states have their ordinary language, common-sense meanings. If the agent does not act at all because the bodily movement was not intentional or the agent's consciousness was substantially compromised, the agent is not *prima facie* responsible. Similarly, if the agent lacks a requisite mental state, the agent is also not *prima facie* criminally responsible. Even if the agent is fully *prima facie* responsible, however, the agent ultimately may still not be criminally responsible if an excusing condition, an affirmative defense, such as legal insanity (essentially a rationality defect) or duress (a compelling "hard choice" situation, such as a "do-it-or-else" threat at gunpoint) was present when the agent committed the offense. A defendant who wants to avoid imputation of criminal responsibility must create reasonable doubt about whether he or she acted intentionally, consciously and with the required *mens rea*, or the defendant must establish an affirmative defense. Although one might quibble about details, I believe that this account accurately reflects the law's current conception of criminal responsibility.

The concept of the responsible legal person implicit in this account is an intentional, reasonably fully conscious and potentially rational agent who is not exposed to an unreasonably hard choice about whether to offend. The specific criteria for *prima facie* responsibility and excuse are all behavioral, broadly conceived as conduct and mental states. The causes for the behavioral criteria are not part of the criteria themselves. For example, an agent's capacity for rationality might be diminished by faulty neurotransmitters, psychological stress, trauma, or a host of other causes. The excusing condition is the lack of rational capacity.

The underlying biological, psychological, sociological, and astrological causes for any of the criteria for criminal responsibility, including mental states, can be nothing more than evidentiary support for the assertion that the criterion in question was in fact satisfied at the time of the crime. Causation cannot be an excuse *per se* for an internalist, who accepts responsibility, because all behavior is caused and thus all behavior would have to be excused. I have termed the erroneous belief to the contrary the "fundamental psycholegal error." It is as

erroneous when the postulated cause of behavior is neurological as when it is psychological, sociological, or astrological. Once one has assumed that responsibility is possible, causation cannot excuse *per se*.

All the criteria for criminal responsibility are normative. The meaning of rationality and how much rational capacity must be present for responsibility, for example, are legal issues that the law must decide. Other disciplines might provide potentially relevant knowledge about human behavioral capacities, but the other, empirical disciplines must fall silent about the ultimate criteria the law adopts. No general finding from any other discipline entails any general legal conclusion about legal responsibility unless it conclusively undermines the possibility of responsibility at all, in which case it is the basis for an external rather than an internal critique. Moreover, demonstrable differences among people or groups of people concerning the criteria do not mean that the law must treat them differently. For example, one person may be more rational than another, but they both may be rational enough to deserve the same punishment for the same crime committed under similar circumstances. No normative differences are logically entailed by behavioral differences unless, counter-factually to reality, the behavioral differences precisely track the normative differences.

Finally, we assess all the criminal law's behavioral criteria for responsibility primarily by considering evidence of the defendant's conduct, including speech acts, and drawing inferences from that conduct. Based on the behavioral evidence, it seems patently obvious, and few commentators disagree, that most agents who appear to violate criminal prohibitions act intentionally, consciously, with the requisite *mens rea*, possess the capacity for rationality (by any sensible standard), and do not act under a hard choice threat.

B. *Internal Arguments: Neuroscience and the Assessment of Criminal Responsibility*

The new neuroscience might logically assist assessment of criminal responsibility in specific cases and in general. In specific cases, we will virtually never have direct neuroscientific evidence contemporaneous with the time of the crime. At most, we will have *ex ante* or *ex post* evidence that can produce inferences of varying validity about brain structure and function at the time of the crime. Moreover, at present, neuroscience is insufficiently advanced to offer precise data that will be genuinely legally relevant. Thus, even if the science is good enough to pass muster for admission as expert scientific evidence under federal and state evidentiary rules, it may still be inadmissible because it will not be probative. As neuroscience advances, it may become probative in a wider class of cases, but we have not yet reached this stage.

Despite the foregoing qualifications, neuroscience evidence may be relevant in two classes of specific cases. First, in cases in which the behavioral evidence concerning *prima facie* liability or an affirmative defense seems clear, neuroscientific evidence may demonstrate that appearances are deceptive. For

example, neuroscience might indicate that a defendant who appeared to have been acting consciously was in fact acting in an unconscious or automatic state, such as sleepwalking or in the wake of physical trauma. Or, neuroscience might indicate that an apparently entirely rational defendant lacked the capacity for rationality. I speculate that such cases will be rare. Further, when the behavioral evidence is clear and the potentially conflicting neuroscience will be inevitably speculative to a greater or lesser degree, common sense dictates that we should believe the behavioral evidence rather than the neuroscience evidence because the criteria for responsibility are behavioral. Still, this is a logical possibility.

A second class of specific cases involves those in which the behavioral evidence is in doubt. For example, suppose the defendant had received a blow to the head not long before committing an offense and whether the defendant acted consciously is unclear. Neuroscience will rarely be dispositive in such cases because the relation of the brain to complex behavior is itself immensely complex and beyond all but the most general current understanding. Nonetheless, in some cases valid neuroscience will help the finder of fact resolve the legal issue, although caution must always be exercised because the neuroscientific evidence often will not be sufficiently contemporaneous to permit valid inferences about the time of the crime. Such cases may arise relatively frequently, especially as advances in neuroscience allow more precise specification of how the brain affects behavior. I do not know how large this class of cases is, but it is surely considerably larger than the first class.

Neuroscience might be relevant in general if its findings demonstrate that the current criteria for criminal responsibility are unjust because they do not comport with our biologically-based understanding of behavior. For example, some claim that the number of defendants who do not meet the criminal law's current criteria for conscious action is much larger than we believe. This type of claim goes far beyond the argument that neuroscience will be relevant in large numbers of specific cases. It may suggest that the law's criteria are too narrow generally and must be normatively reformed to be just. Such claims would of course be hard to support if the behavioral evidence were clearly to the contrary. What kind of neuroscience evidence would it take to convince us that when we act, most of the time most of us are not conscious (according to any sensible standard of consciousness)?

C. External Arguments: Criminal Responsibility Rejected

At the extreme, claims about the general implications of neuroscience may cease to be the basis of a normative critique of criminal responsibility conceptions and may become an external critique of the coherence or justice of the possibility of responsibility *tout court*. Two types of external criticism are possible. First, the externalist might claim that responsibility is impossible because its criteria are based on a conception of human action that is simply wrong. We are not the type of creatures we take ourselves to be. For example, suppose, despite all common-

sense first-person and third-person evidence to the contrary, neuroscience could show that all human conduct is done in a state indistinguishable from spasm or sleepwalking, or, more extravagantly, that we do not have mental states at all. In a word, suppose neuroscience could demonstrate conclusively that all of us all the time are automatons or without any mental life whatsoever and that thinking otherwise is simply an illusion. In the philosophy of mind, such arguments are associated with various forms of reductive or eliminative materialism.

No current conception of responsibility that would support imposing deserved blame and punishment can accept blaming and punishing those who act automatically or creatures that have no mental life. If this were really the case, rationality would demand that the criminal law would have to abandon any robust notion of responsibility and seek alternative means of ordering human affairs and protecting society. (One might ask whether automatons or creatures without minds can rationally decide how to respond to their own status as automatons, but let us leave this question for another day.)

The second type of external critique accepts that we are the types of intentional, conscious, potentially rational creatures that we take ourselves to be, a position associated with various forms of non-reductive materialism in the philosophy of mind. But the second external critique denies that *anyone* can be genuinely responsible because neuroscience and other disciplines conclusively demonstrate that all our actions are mechanistically determined and determinism (or universal causation or some such) is incompatible with ultimate responsibility. In the philosophy of responsibility, this position is termed “incompatibilism.” This is a perfectly respectable conceptual position, but it cannot be proven metaphysically or normatively to be right. Many thorough-going naturalists, such as myself, who believe that all the phenomena of the universe are causally explicable by natural physical laws, believe that responsibility is compatible with determinism, a position termed “compatibilism.” Indeed, compatibilism is probably the dominant position among philosophers of responsibility. It is surely the position that best explains our responsibility practices, which hold some people accountable but excuse others. Science cannot resolve the dispute because the issue is metaphysical and normative and it is unlikely ever to be resolved by logic. Finally, proponents of deterministic type arguments cannot have it both ways. They must either accept jettisoning any responsibility for anyone or they must recognize that determinism, which is not selective or partial, is not a criterion that bears on responsibility.

In conclusion, the first type of external critique fundamentally denies our ordinary understanding of ourselves and is conceivably demonstrable by scientific findings. Until it does so, however, it is unlikely to undermine the powerful sense we all have of the efficacy and importance of mental states and reason. The second external critique is also unlikely to be successful because many people, the compatibilists, believe already that it is just to hold others responsible despite the belief that determinism or universal causation is true. Some day, an external critique may convince us to abandon criminal responsibility, but for now such

arguments are academic in the most literal sense. Only internal critiques have a chance on the ground.

Now that we have explored generally the logical relation between brain explanations and criminal responsibility, let us turn to the errors that are the signs and symptoms of Brain Overclaim Syndrome.

IV. BRAIN OVERCLAIM SYNDROME: THE SIGNS AND SYMPTOMS

New, powerful scientific findings about the correlates and causes of behavior often have a potent and, alas, rationality-unhinging effect on the thinking of Potential Commentators [PCs]. Most flow from misunderstanding the relation between brains and responsibility that the last section considered. This section attempts to catalogue those effects that I have identified to date, many of which are related to each other, but the list has no pretensions to being complete. After all, this is a preliminary diagnostic investigation and future investigators may discover hitherto unidentified signs and symptoms. The final pathway in all cases, however, is that more legal implications are claimed for the brain science than can be justified.

A. *Confusion About the Relation Between Brain and Complex, Intentional Action*

For a materialist, the brain always plays a causal role in behavior. Despite all the astonishing recent advances in neuroscience, however, we still know woefully little about how the brain enables the mind, and especially about how consciousness and intentionality can arise from the complicated hunk of matter that is the brain. At a recent conference on the abnormal brain, the eminent philosopher of mind and action, John Searle, opened his keynote speech by telling the following anecdote.³ Some years ago, Searle said, he decided to learn what the new neuroscience had to teach about the relation of brain to mind and action. He devoured the most important texts only to be dismayed that these texts did not all begin with a disclaimer that we do not know much about this relation yet. Just so.

Brain imaging studies have been the most potent pathogen causing BOS, so it is useful to say a few words about such studies. Imaging is at present very expensive and requires carefully chosen and cooperative subjects. Consequently, the number of experimental subjects and controls in any study tends to be small and precise replications are infrequent. The problem of small samples will probably be remedied by advances in the efficiency of the technology of imaging—indeed, this is already happening for readings of activity at the surface of the brain—but for now it is a dominant feature of imaging studies.

Statistically valid findings are based on mean differences and do not imply that there is an absolutely clear distinction between the experimental and control

³ John Searle, Keynote Address at the Arizona State University College of Law Conference: The Abnormal Brain and Criminal Responsibility (Apr. 29, 2005).

groups. Usually there is substantial overlap, meaning that some individual experimental brains look like individual control brains and *vice versa*. For example, suppose the experimental hypothesis is that task X will cause brain region Y to be activated. After controlling for other variables that might cause Y to be activated in both the experimental and control conditions (the “subtraction” method), the investigators discover that there is still a difference: Y is activated statistically significantly more in the experimental subjects. Nonetheless, some experimental subjects will not have Y activated by X and some control subjects will. Therefore, one could not predict perfectly from the brain image whether the subject was an experimental or a control. The question would always be how much overlap there was between the two groups. The greater the overlap, the more difficult it would be to predict that subject’s experimental or control status from the image.⁴

Discovering the neural correlates of mental phenomena does not tell us how these phenomena are possible. For example, we may be able to identify the neural correlates of consciousness, but we do not have a clue about how those parts of the brain make subjective experience possible. Moreover, the causation of virtually any complex behavior is affected by psychological and sociological variables, even when brain causation has been identified. For example, the brains of late adolescents are almost certainly the same around the globe—holding nutrition and the like constant—but the rates of behaviors associated with immature adolescent brains, such as impulsive criminality, vary widely from place to place and from time to time. Monolithic brain explanation of complex behavior is almost always radically incomplete.

Certain lesions can of course disable various human capacities, but few criminal responsibility cases in which the result is not already obvious based on behavioral evidence will involve a precise, identifiable neurological mechanism that will demonstrate that criminal responsibility was not present. Further, current neuroscience cannot begin to demonstrate that our view of ourselves as generally conscious, intentional, and potentially rational agents is false.

Until we know vastly more than we do now, in most cases we will not be in a position to add much to assessing responsibility behaviorally in individual cases, and even less do we have the resources to mount a potentially convincing external

⁴ At the conference at which this diagnostic note was first presented, I asked with what accuracy, based only on the images of myelination, one could accurately distinguish the individual brains of sixteen and seventeen year olds on the one hand and eighteen and nineteen year olds on the other. One neuroscientist claimed that the scientist could do this with great accuracy if the scientist were furnished with the sex and handedness of the subject. This claim would have been quite believable if the comparison groups were thirteen and fourteen year olds versus twenty-five and twenty-six year olds, but it seemed doubtful to me because development is continuous and the groups were so close in age. After the conference, I therefore asked the question of other equally credentialed and experienced neuroscientists and neuroanatomists. My informants uniformly agreed that they could not very accurately distinguish sixteen and seventeen year old brains from eighteen and nineteen year old brains. I do not know who is right. To the best of my knowledge, a study to determine accuracy of this type has not been performed, but the outcome would be very interesting.

critique of responsibility *vel non*. In individual cases in which neuroscientific findings could be demonstrated to be genuinely relevant and probative, they should of course be admissible consistent with the usual evidentiary standards for scientific evidence.

B. *The Confusion of Internal and External Critiques*

Causation is not *per se* an excusing condition and partial causation does not exist. If this is a causal world, as neuroscientists and I believe, then all phenomena are fully caused by their necessary and sufficient causal conditions. Partial knowledge about causation does not mean that there is partial causation. Causation is also not the equivalent of being subjected to compulsion, which exists when the agent is non-culpably faced with a normative hard choice. All behavior is caused, but not all behavior results from a threat at gunpoint or the equivalent. And to think that causation *per se* excuses is an external critique. If causation excuses *per se* or is the equivalent of compulsion, responsibility as we know it is impossible. As an argument from *within* our responsibility practices, it is the fundamental psycholegal error to argue that causation excuses. The discovery that the brain, including a brain abnormality, played some causal role in the production of what is undeniably human action does not lead to any legal conclusions about responsibility. The proper internal question is whether the neuroscience evidence helps to establish the presence or absence of action, mental states or a genuine affirmative defense, such as lack of rational capacity.

C. *Misunderstanding the Criteria for Responsibility*

The criteria for responsibility are behavioral and normative, not empirically demonstrable states of the brain. Even if there were a perfect correlation between brain states and the behavioral criteria for responsibility, the brain states would be nothing more than evidence of the behavioral states. Such a correlation is a fantasy based on present knowledge and probably always will be when we are considering complex human actions. If the person meets the behavioral criteria for responsibility, the person should be held responsible, whatever the brain evidence may indicate, such as the presence of an abnormality. If the person does not meet the behavioral criteria, the person should be held not responsible, however normal the brain may look. Brains are not held responsible. Acting people are. To believe that brain evidence has more than simple evidentiary value for assessing responsibility is to misconceive the criteria for responsibility.

One could claim, of course, that normatively the law should adopt brain-based criteria for responsibility, but this would be a category mistake. Even if it is not, it amounts to an external critique. In the alternative, one could argue that the positive account of responsibility that I have presented is fundamentally incorrect and that the brain science is more relevant to the properly understood criteria of responsibility. Perhaps so, but this requires an argument to demonstrate that the

account is wrong. Finally, one could argue that the behavioral and normative criteria should be different as a result of what we have learned from brain science and other disciplines. This would be an internal critique that would depend on a normative argument about the relevance of brain science to responsibility. If this argument went through, however, it would not undermine this diagnostic note's claims about the relevance of brain science to current, positive responsibility criteria, and, even then, the brain science would still be relevant only as evidence concerning the new, improved behavioral responsibility criteria.

D. *The Confusion of the Normative and the Positive*

Factual behavioral differences between people do not entail the necessity of differential legal treatment unless one is operating under a normative theory that indicates why the factual difference should make a legal difference. I am not suggesting that it is impossible to *derive* an "ought" from an "is," a contentious issue most famously addressed by David Hume. I am agnostic about this. I am claiming, however, that one cannot *assume* an "ought" from an "is." This requires an argument.

Suppose that we can reliably identify valid group differences, say, between men and women on measures of upper body strength, a capacity useful in some occupations, such as fighting fires. Should the ranks of firefighters be limited to men? Of course not, because we might decide that values of equality trump those of efficiency or because we think that we can individualize decisions about an applicant's ability to do the job. Even if proportionately fewer women might qualify, some surely will, and we would not be able to predict whether an applicant could do the job based solely on sex. Virtually no finding, no practice, however hoary, necessarily entails any normative outcome without an argument about why it should. This is as true of neuroscience evidence as of any other kind of scientific evidence. Neuroscience evidence may provide premises in normative arguments, but it does not alone entail conclusions. To think otherwise is to confuse the positive with the normative.

In conclusion, based on the foregoing confusions and others that may be identified, the final pathway, the final expression of BOS is to make claims about the relation of the brain to responsibility that cannot be sustained logically or empirically.

V. EVALUATING *ROPER*

Few if any responsible commentators who accept the coherence and validity of criminal responsibility ascriptions—the internalists—claim that most adolescent offenders commit their crimes in automatic states or without *mens rea*. Crimes committed impulsively, for example, are still committed consciously and intentionally. Nor do most commentators claim that late adolescent offenders do not know the nature and quality of their acts, do not know their acts are wrong, or

act in response to duress. No evidence from the behavioral or neurosciences even hints that the contrary might be true. Rather, the claim is that culpable adolescents, whose behavior meets the *prima facie* case for guilt and who do not have an affirmative defense, are nonetheless less criminally responsible because they have insufficiently developed rationality. Thus, to be relevant, any evidence must be addressed to the sixteen and seventeen year olds' capacity for rationality, broadly speaking.

In *Thompson v. Oklahoma*,⁵ the Supreme Court barred capital punishment of murderers who killed when they were fifteen years old or younger, and in *Atkins v. Virginia*,⁶ the high Court categorically prohibited capital punishment of convicted killers with mental retardation. Although the Court provided many reasons for its *Thompson* and *Atkins* holdings, crucial to both was the conclusion that younger adolescents and persons with retardation are categorically less culpable, less responsible, and therefore do not deserve capital punishment. The operative language in *Atkins* concerning culpability and responsibility is instructive. The Court wrote:

Mentally retarded persons frequently know the difference between right and wrong Because of their impairments, however, by definition they have diminished capacities to understand and process information, to communicate, to abstract from mistakes and learn from experience, to engage in logical reasoning, to control impulses, and to understand the reactions of others Their deficiencies do not warrant an exemption from criminal sanctions, but they do diminish their personal culpability.

. . . .

With respect to retribution—the interest in seeing that the offender gets his “just deserts”—the severity of the appropriate punishment necessarily depends on the culpability of the offender.⁷

All the criteria the Court mentions are behavioral (broadly understood to refer to cognitive and “control” functioning⁸) and their relevance to criminal responsibility is based on the relation to desert.

Advocates of abolition in *Roper* seized on this language to make similar arguments concerning sixteen and seventeen year old murderers. Although apparently normal adolescents do not suffer from abnormal impairments, lack of full developmental maturation allegedly distinguishes them from adults on

⁵ 487 U.S. 815 (1988).

⁶ 536 U.S. 304 (2002).

⁷ *Id.* at 318–19; *see also Thompson*, 487 U.S. at 834–35.

⁸ I put “control” in scare quotes because I am highly skeptical about claims concerning lack of control as an independent mitigating or excusing condition. I argue that lack of control can always be reduced to a cognitive deficiency. Stephen J. Morse, *Uncontrollable Urges and Irrational People*, 88 VA. L. REV. 1025, 1054–63 (2002).

behavioral dimensions, such as the capacity for judgment, that are relevant to rationality and therefore to responsibility and desert.

What was striking and new about the argument in *Roper*, however, was that advocates of abolition used newly discovered neuroscientific evidence concerning the adolescent brain to bolster their argument that sixteen and seventeen year old killers do not deserve to die. Editorial pages encouraged the High Court to consider the neuroscientific evidence to help it reach its decision. Although neuroscience evidence had been adduced in earlier, high profile cases, such as the 1982 prosecution of John Hinckley, Jr. for the attempted assassination of President Reagan and others, *Roper* has been the most important case to propose use of the new neuroscience to affect responsibility questions generally. Indeed, the American Medical Association, the American Bar Association, the American Psychiatric Association, and the American Psychological Association, among others, all filed or subscribed to *amicus* briefs urging abolition based in part on the neuroscience findings. The real question was whether and how the new neuroscience was relevant to responsibility ascriptions and just punishment for adolescent offenders (or anyone else).

Here is the opening of the summary of the *amicus* brief filed by, *inter alia*, the American Medical Association, the American Psychiatric Association, the American Academy of Child and Adolescent Psychiatry, and the American Academy of Psychiatry and the Law: “The adolescent’s mind works differently from ours. Parents know it. This Court [the United States Supreme Court] has said it. Legislatures have presumed it for decades or more.”⁹

Precisely. The brief points to evidence concerning impulsivity, poor short term risk and long term benefit estimations, emotional volatility, and susceptibility to stress among adolescents compared to adults. These are common sense, “fireside” conclusions that parents and others have drawn in one form or another since time immemorial. In recent years, common sense has been bolstered by methodologically rigorous behavioral investigations that have confirmed ordinary wisdom. Most important, all these behavioral characteristics are clearly relevant to responsibility because they all bear on the adolescent’s capacity for rationality. Without any further scientific evidence, advocates of abolition would have an entirely ample factual basis to support the types of moral and constitutional claims they made.

The *Roper* briefs were filled with discussion of new neuroscientific evidence that confirms that adolescent brains are different from adult brains in ways consistent with the observed behavioral differences that alone bear on culpability and responsibility. Assuming the validity of the neuroscientific evidence, what does it add? The rigorous behavioral studies already confirm the behavioral differences. No one thinks that these data are invalid because adolescent subjects are faking or for some other reason. The moral and constitutional implications of

⁹ Brief of the American Medical Association et al. as Amici Curiae in Support of Respondent at 2, *Roper v. Simmons*, 543 U.S. 551 (2005) (No. 03-633).

the data may be controversial, but the data are not. At most, the neuroscientific evidence provides a partial causal explanation of why the observed behavioral differences exist and thus some further evidence of the validity of the behavioral differences. It is only of limited and indirect relevance to responsibility assessment, which is based on behavioral criteria.

Advocates claimed, however, that the neuroscience confirmed that adolescents are insufficiently responsible to be executed, thus confusing the positive and the normative. The neuroscience evidence in no way independently confirms that adolescents are less responsible. If the behavioral differences between adolescents and adults were slight, it would not matter if their brains are quite different. Similarly, if the behavioral differences were sufficient for moral and constitutional differential treatment, then it would not matter if the brains were essentially indistinguishable.

Decisions regarding whether the mean differences are large enough and whether the overlap between the two populations is small enough to warrant treating adolescents differently categorically as a class rather than trying to individuate responsibility are normative, moral, political, social, and ultimately legal constitutional questions about which behavioral and neuroscience must finally fall silent. Even if there were virtually no behavioral or brain overlaps between, say, sixteen and seventeen year olds on the one hand and eighteen and nineteen year olds on the other, it would still not entail that we must categorize rather than individuate. After all, because there is overlap—indeed, substantial overlap in the groups just mentioned—we know that some sixteen and seventeen years olds will be behaviorally and neurologically indistinguishable from many eighteen and nineteen year olds. Finally, even if there were no behavioral or brain overlap whatsoever, it would still not entail that abolition was constitutionally mandated. As a normative matter, the Court could decide that sixteen and seventeen year olds are responsible enough to be executed despite all of them being less responsible than older murderers. Assuming the validity of the findings of behavioral and biological difference, the size of that difference entails no necessary moral or constitutional conclusions.

In the event, the *Roper* majority cited many reasons for its decision, including the abundant common sense and behavioral science evidence that adolescents differ from adults. This evidence demonstrates, said the Court, “that juvenile offenders cannot with reliability be classified among the worst offenders,” for whom capital punishment is reserved. The Court cited three differences: adolescents have “[a] lack of maturity and an underdeveloped sense of responsibility;”¹⁰ adolescents are more “vulnerable or susceptible to negative influences and outside pressures, including peer pressure,” a difference in part explained by the adolescent’s weaker control or experience of control over his or her own environment; adolescents do not have fully formed characters.¹¹ As a

¹⁰ *Roper*, 543 U.S. at 569 (quoting *Johnson v. Texas*, 509 U.S. 350, 367 (1993)).

¹¹ *Id.*

result of these factors—all of which, we may note, are behavioral and all of which can be confirmed with behavioral evidence alone—juvenile culpability is diminished and the penological justifications for capital punishment apply to adolescents with “lesser force.”¹² The Court’s opinion thus reflects two conclusions: the group difference between the rationality of late adolescents and of adults is constitutionally significant for Eighth Amendment purposes and it is large enough to justify abandoning individualized decision-making concerning responsibility for the former.

Characteristically, the Court did not cite much evidence for the empirical propositions that supported its diminished culpability argument. What is notable, however, is that the Court did not cite *any* of the neuroscience evidence concerning myelination and pruning that the *amici* and others had urged them to rely on. It did cite six behavioral sources, five of which were high quality behavioral science. Perhaps the neuroscience evidence actually played a role in the decision, as many advocates for the use of neuroscience would like to believe, but there is no evidence in the opinion to support this speculation.

As this note has argued, the behavioral science was crucial to proper resolution of the case and furnished completely adequate resources to decide the issue. The neuroscience was largely irrelevant. The reasoning of the case is consistent with this argument and the opinion showed no signs of Brain Overclaim Syndrome. In my view, *Roper* properly disregarded the neuroscience evidence and thus did not provide unwarranted legitimation for the use of such evidence to decide culpability questions generally.

VI. THE ROYAL ROAD TO COMPLETE RECOVERY: COGNITIVE-JUROTHERAPY [CJ] FOR BOS

The signs and symptoms of BOS are all cognitive. I therefore propose that CJ is likely to be the best treatment. The therapeutic techniques, all of which require motivation, effort and practice, follow directly from the signs and symptoms of BOS.

First, the Potential Commentator [PC] must have a good understanding of the relevance of the new neuroscience to complex behavior generally, including an understanding of the relevant literature in philosophy of mind. Reasonable minds can differ about the basic neuroscience and the philosophy of mind, of course, and disagreement is not a sign of BOS. But naive neuroscience and philosophy of mind and question-begging about these subjects are signs, although they are completely curable.

Second, the PC must understand whether his or her contribution is an internal or external criticism, and what type it is within the two broad domains. Confusion between and within the critical domains must at all costs be avoided. This is also simple enough if one understands the distinctions.

¹² *Id.* at 571.

Third, the PC must be very clear about precisely what criteria for criminal responsibility he or she is using and about whether it is a positive account of the current state of the law or a proposed account of what the law should be. There may of course be disagreement about the current state of the law, and, once again, disagreement is not a sign or symptom of BOS. But using naive criteria and question-begging about the criteria, without argument, are signs. If the PC is offering a proposed account, the PC should set forth the argument for why the legal system should accept this account. In either case, the criteria should be clear enough to permit reasonably apparent conclusions about the relevance of brain evidence to those criteria.

Fourth, the PC must understand the positive/normative distinction, and if he or she wishes to use brain findings as premises in an argument for legal change, the normative reasons for preferring the change should be crisply identified.

All of the above is really just a “high falutin,” partially tongue-in-cheek way of suggesting that people need to think more clearly and make more transparent, logical arguments about the relationship of anything to criminal responsibility. The question is why more PCs do not do this. I do not know the answer, but I suspect that two primary culprits are at work: intellectual naiveté and ideological blinders. Sophisticated, non-hand waving treatment of these issues requires a lot of capital investment by lawyers in disciplines outside the law and by non-lawyers in the law. Many PCs do not have the capital, but this is easily remedied by appropriate investment.

Ideological blinders are harder to fix, and sometimes it is not clear what role ideology is playing. Is the PC making an argument he or she knows is not the best argument because it supports his or her position and it does (barely) pass the “smell test”? I suppose that this is less objectionable for a practitioner than for a scholar, although it is less objectionable even for scholars if they are openly engaging in advocacy. Or, is the desire to achieve a certain result so important that the PC does not even recognize that the argument deployed is weak? This is a problem for anyone.

My impression is that most people who wish to inject neuroscience into criminal responsibility assessments believe that the neuroscience must necessarily be exculpatory. We have seen that this does not follow, and, indeed, even if neuroscience could be demonstrated to be routinely relevant, it is a knife that cuts both ways. Unless one makes the fundamental psycholegal error of believing that causation *per se* excuses, it is clear that neuroscience might also be a means to inculcate. One is reminded of the analogy to DNA evidence. For the moment it is being used extensively to exculpate alleged murderers on death row, but as many have pointed out, if inaccuracy is the primary criticism of application of the death penalty, DNA could erode that critique and give new impetus to capital punishment.

VII. CONCLUSION

As the biological and behavioral sciences offer ever more sophisticated understandings of normal and abnormal behavior alike, there will be constant pressure to use their findings to affect assessment of criminal responsibility and other legal doctrines. A lot will be at stake morally, politically and legally, and much will be debatable. I hope, however, that this modest contribution will help identify and ameliorate a pathological entity that can deleteriously affect the debate.