

# Neuroimaging and the “Complexity” of Capital Punishment

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“Can brain scans be used to determine whether a person is inclined toward criminality or violent behavior?”

**T**his question, asked by Senator Joseph Biden of Delaware at the hearing considering the nomination of John G. Roberts to be Chief Justice of the United States, illustrates the extent to which cognitive neuroscience—increasingly augmented by the growing powers of neuroimaging—has captured the imagination of those who make, enforce, interpret, and study the law. Judges, both state and federal, have convened conferences to discuss the legal ramifications of developments in cognitive neuroscience. Scholarly volumes have been devoted to the subject. The President's Council on Bioethics convened several sessions to discuss cognitive neuroscience and its potential impact on theories of moral and legal responsibility. The United States General Accounting Office drafted a report surveying the views of government officials representing the CIA, Department of Defense, Secret Service, and FBI on the potential uses of “brain fingerprinting,” a lie-detection technique that utilizes functional neuroimaging. More recently, civil libertarians have expressed suspicion and concern that the United States government is using various neuroimaging techniques in the war on terrorism. Members of the personal injury bar have urged the use of functional neuroimaging to “make mild and moderate brain and nervous injuries ‘visible’ to jurors.” Not surprisingly, members of the civil defense bar have published articles criticizing the reliability of such evidence and arguing that it should be inadmissible. Criminal defense attorneys have likewise expressed a strong interest in using neuroimaging evidence to help their clients.

The attraction of the legal community to cognitive neuroscience is by no means unreciprocated. Cognitive neuroscientists have expressed profound interest in how their discipline might impact the law. Michael Gazzaniga (who coined the term “cognitive neuroscience”) recently predicted that someday advances in neuroscience will “dominate the entire legal system.” Practitioners of cognitive neuroscience seem particularly drawn to criminal law; more specifically, they have evinced an interest in the death penalty. Indeed, from their work in the courtroom and their arguments in the public square, a well-formed cognitive neuroscience project to reform capital sentencing has emerged.

This article seeks to identify, articulate, take seriously, and provide a critique of this project in light of its own objectives. In the short term, cognitive neuroscientists

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seek to assist defendants in their mitigation claims by invoking cutting-edge brain-imaging research on the neurobiological roots of criminal violence. Neuroimaging experts appeal to such evidence to bolster defendants' claims that, although legally guilty, they do not deserve to die because the abnormal structure and/or function of their brains diminishes their culpability.


For the long term, cognitive neuroscientists aim to draw upon the tools of their discipline to embarrass, discredit, and ultimately overthrow retribution as a distributive justification for punishment. The architects of the cognitive neuroscience project regard retribution as the root cause of the brutality and inhumanity of the American criminal justice system, generally, and the institution of capital punishment, in particular. In its place, they argue for the adoption of a criminal law regime animated solely by the forward-looking (consequentialist) aim of avoiding social harms. This new framework, they hope, will usher in a new era of what some have referred to as "therapeutic justice" for capital defendants, which is meant to be both more humane and more compassionate.

This article provides a friendly critique of the cognitive neuroscience project. That is, the analysis proceeds from a position of sympathy and solidarity with the humanitarian impulses—and the general antipathy for the death penalty—that animate the cognitive neuroscientists working in this field. Thus, the wisdom and soundness of the cognitive neuroscience project will be appraised according to the metric of its own humanitarian ambitions: namely, success in helping convicted capital defendants persuade jurors and judges not to impose a sentence of death, thereby creating a more compassionate and humane legal regime for such defendants. Unfortunately, it seems unlikely that these ends would be achieved if the

short- and long-term aims of cognitive neuroscientists were ever actually realized. To the contrary, it seems likely that the criminal regime desired by cognitive neuroscientists would, tragically and ironically, prove far harsher and less humane for capital defendants than the current system.

Why? Simply put, the project, taken as a whole, is utterly at war with itself. The short-term aim relies on a particular theory of mitigation that is firmly grounded in retribution—a principle whose foundations are explicitly rejected by the architects of the cognitive neuroscience project. Conversely, the long-term aim is devoted to dismantling the doctrinal foundation (i.e., retribution) upon which the short-term aspiration depends. Thus, the success of the long-term goal would necessarily defeat the short-term goal. Worse still, the extant mechanisms that the long-term project would explicitly leave in place (that is, those features of the capital sentencing framework animated solely by the consequentialist goal of avoiding societal harms) constitute arguably the single gravest threat to a capital defendant's life. If the capital sentencing regime were remade according to the aspirations of the long-term plan, this threat would be dramatically amplified precisely because of the research of cognitive neuroscientists. Indeed, it is only by virtue of the doctrine of just deserts that neuroimaging evidence of the roots of criminal violence can be understood as reducing a capital defendant's culpability. This conclusion accords with the (perhaps counterintuitive) fact that just deserts has served as arguably the most valuable limiting principle in the American jurisprudence of capital sentencing, and perhaps the criminal law more broadly.

As Paul Robinson has observed, within the context of sentencing, desert and dangerousness inevitably conflict as distributive criteria: "To advance one, the system must sacrifice the other.



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The irreconcilable differences reflect the fact that prevention and desert seek to achieve different goals. Incapacitation concerns itself with the future—avoiding future crimes. Desert concerns itself with the past—allocating punishment for past offenses.” The thrust-and-parry of this conflict is played out in dramatic fashion in the capital context. On the one hand, capital defendants introduce mitigating evidence to diminish their moral culpability, thus seeking a final refuge in the concept of retribution. On the other, the prosecution tenders evidence of future dangerousness, trying to stoke the consequentialist fears of the jury about violent acts that the defendant might commit if he is not permanently incapacitated by execution. In capital sentencing, pure consequentialism is the gravest threat to the defendant’s life, while appeals to retributive justice are his last, best hope.

The long-term aspiration of cognitive neuroscience decisively resolves this conflict between desert and crime control in favor of the latter by removing any consideration of diminished culpability. In so doing, the long-term scheme eliminates the last safe haven for a capital defendant whose sanity, capacity for the requisite *mens rea*, competence, and guilt are no longer at issue. Thus, in a final ironic twist, once retribution is replaced with a regime single-mindedly concerned with the prediction of crime and the incapacitation of criminals, the only possible use in capital sentencing of the neuroimaging research on the roots of criminal violence is to demonstrate the aggravating factor of future dangerousness.

Imagine for a moment how a jury concerned solely with avoiding future harms would regard an fMRI or PET image that purported to show the biological causes of a non-excusing disposition to criminal violence. Likely, neuroimaging would radically amplify, in the minds of jurors, the aggravating

effect of a diagnosis of APD (antisocial personality disorder) or psychopathy. In a sentencing system that focused the jury’s deliberation solely on the question of identifying and preventing crime, the work of the cognitive neuroscience project’s architects would be transformed from a vehicle for seeking mercy into a tool that counsels the imposition of death.

It is only through the lens of just deserts that such evidence could possibly be regarded as mitigating. This conclusion is bolstered by capital defense experts who have observed that “[e]vidence of neurological impairment . . . can be devastatingly damaging to the case for life. In presenting such evidence to a jury, counsel must be careful to avoid creating the impression that the defendant is ‘damaged goods’ and beyond repair.” In the regime contemplated by the long-term aspiration—where claims of diminished culpability are untenable—this is the only permissible inference that jurors can draw. Arguing for compassion or leniency in such a system would be as nonsensical as seeking mercy for a dangerously defective car on its way to the junkyard to be crushed into scrap metal. Reconciliation and forgiveness are not useful concepts as applied to soulless cars; they are only intelligible as applied to sinners.

The grave implications of the long-term aspiration for capital sentencing come into even sharper relief when one considers the role that retributive justice has played in modern death penalty jurisprudence. Contrary to the intuitions of the project’s architects, retribution has served as a crucial limiting principle on capital sentencing. The Supreme Court, itself, has referred to a “narrowing jurisprudence” of just deserts, which limits the ultimate punishment to “a narrow category of the most serious crimes” and defendants “whose extreme culpability makes them ‘the most deserving of execution.’” In the name of retributive justice, the Court has barred the execution of mentally retarded defendants, children who were under the age of 18 when the offense was committed, rapists, and defendants convicted of felony murder who did not actually kill or attempt to kill the victim. In each instance, the Court ruled that such defendants were not eligible for the death penalty because such punishment would be categorically disproportionate to their personal culpability. These same results could not have been reached if deterrence were the sole animating principle guiding the Court: General deterrence—i.e., whether the death penalty for a specific offense or a specific class of offenders will reduce crime overall—may be a contested issue. However, specific deterrence is always advanced by the execution of the convicted person, since execution guarantees that the same convicted person will not cause future harm.

In fact, the widely shared intuition that seems to be motivating the long-term aspiration—namely, that retributive justice

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is the primary source of the brutality and harshness of the modern American criminal justice system—may generally be misguided. Many features of the criminal justice system that are frequently criticized as draconian and inhumane are, in fact, motivated by a purely consequentialist crime-control rationale. Such measures include laws that authorize life sentences for recidivists (i.e., “three strikes” laws); laws that reduce the age at which offenders can be tried as adults; laws that punish gang membership; laws that require the registration of sex offenders; laws that dramatically increase sentences by virtue of past history; and, most paradigmatically, laws that provide for the involuntary civil commitment of sexual offenders who show difficulty controlling their behavior. These laws are the progeny of the principle animating the long-term aspiration and some are worrisome examples of its possible implications.

Paul Robinson has offered a provocative genealogy for such laws that provides further grounds for caution. He makes a powerful argument that abandoning retributive justice in favor of consequentialist values of rehabilitation laid the groundwork for the draconian measures described above. According to Robinson's account, once “the limited ability of social and medical science to rehabilitate offenders became clear,” reformers tried to salvage what was left of the consequentialist project by turning to incapacitation as the principle means of avoiding future crimes. He concludes that “the harshness of [the] current system may be attributed in largest part to the move

to rehabilitation, incapacitation, and deterrence, which disconnected criminal punishment from the constraint of just deserts.”

Robinson points to the possibility that “if incapacitation of the dangerous were the only distributive principle, there would be little reason to wait until an offense were committed to impose criminal liability and sanctions; it would be more effective to screen the general population and ‘convict’ those found dangerous and in need of incapacitation.” The short-term project—using cognitive neuroscience to identify the roots of criminal violence—may someday create novel and powerful opportunities to interfere with individual liberty.

Questions of whether a given individual poses a continuing threat to society are central to the criminal justice system. In addition to capital sentencing, fact-finders are charged with making such determinations in the context of non-capital sentencing, civil commitment hearings, parole and probation hearings, pretrial detention, and involuntary civil commitment of sexual offenders. Regardless of neuroimaging's capacity or incapacity to predict such criminal behavior reliably, there is already a powerful demand for the use of such techniques in crime control. Moreover, far less reliable methods for predicting future social harms have already been accepted by the Supreme Court in the capital sentencing context. This problem would be dramatically aggravated by adopting a criminal framework that places an even higher premium on the prediction and prevention of violence than the present one does.

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<sup>1</sup> *Confirmation Hearing on the Nomination of John G. Roberts, Jr., to be Chief Justice of the United States: Hearing Before the S. Comm. on the Judiciary*, 109th Cong. 18 (2005).

<sup>2</sup> Cognitive neuroscience can be described as the science of how the brain enables the mind. See, e.g., MICHAEL S. GAZZANIGA, *THE MIND'S PAST* xii (1998).

<sup>3</sup> U.S. GEN. ACCT. OFFICE, INVESTIGATIVE TECHNIQUES: FEDERAL AGENCY VIEWS ON THE POTENTIAL APPLICATION OF “BRAIN FINGERPRINTING” (2001).

<sup>4</sup> See e.g., Press Release, Am. Civ. Liberties Union, ACLU Seeks Info. About Gov't Use of Brain Scanners in Interrogations (June 28, 2006).

<sup>5</sup> Donald J. Nolan & Tressa A. Pankovits, High-Tech Proof in Brain Injury Cases, *TRIAL*, June 1, 2005, at 27.

<sup>6</sup> E.g. J. Bruce Alvenson & Sandra S. Smagac, *Brain Mapping: Should This Controversial Evidence Be Excluded?*, 48 *FED'N INS. CORP. COUNS. Q.* 131 (1998).

<sup>7</sup> MICHAEL S. GAZZANIGA, *THE ETHICAL BRAIN* 88 (2005).

<sup>8</sup> See Robert M. Sapolsky, *The Frontal Cortex and the Criminal Justice System*, *PHIL. TRANSACTIONS ROYAL SOC'Y B: BIOLOGICAL SCI.* at 1788.

<sup>9</sup> In this article, “retribution,” “retributive justice,” and “just deserts” are used interchangeably to denote the concept that punishment should be distributed on the basis of the personal blameworthiness of the offender, in light of relevant mitigating and aggravating factors.

<sup>10</sup> H.L.A. Hart distinguished the “General Justifying Aim” of punishment from its “distributive” principles. The former constitutes the ultimate legitimating goal of punishment, whereas the latter is a limiting or qualifying

principle that informs the scope of liability (i.e., who may be punished) and the amount of punishment that may be meted out. See HART, *PUNISHMENT AND RESPONSIBILITY* 8-13 (1968).

<sup>11</sup> E.g., Jana L. Bufkin & Vickie R. Luttrell, *Neuroimaging Studies of Aggressive and Violent Behavior: Current Findings and Implications for Criminology and Criminal Justice*, 6 *TRAUMA, VIOLENCE, & ABUSE* (2005).

<sup>12</sup> Paul H. Robinson, *Punishing Dangerousness: Cloaking Preventive Detention as Criminal Justice*, 114 *HARV. L. REV.* 1429, 1441 (2001).

<sup>13</sup> Michael N. Burt, *Forensics as Mitigation*, <http://www.goextranet/Seminars/Dallas/BurtForensics.htm> (last visited July 28, 2007).

<sup>14</sup> *Atkins v. Virginia*, 536 U.S. 304, 319 (2002).

<sup>15</sup> *Roper v. Simmons*, 543 U.S. 551, 568 (2005).

<sup>16</sup> *Atkins*, 536 U.S. at 321.

<sup>17</sup> *Roper*, 543 U.S. at 571.

<sup>18</sup> *Coker v. Georgia*, 433 U.S. 584, 592 (1977).

<sup>19</sup> *Enmund v. Florida*, 458 U.S. 782, 801 (1982).

<sup>20</sup> See Robinson, *supra* note 12, at 1429–31 & nn.2–7.

<sup>21</sup> See *id.* at 1449.

<sup>22</sup> Paul H. Robinson, *The A.L.J.'s Proposed Principle of “Limiting Retributivism”: Does it Mean in Practice Anything Other than Pure Desert?* 7 *Buff. Crim. L. Rev.* 3, 14 (2003).

<sup>23</sup> Robinson, *supra* note 12, at 1439–40.