



We are More Than our Executive Functions: on the Emotional and Situational Aspects of Criminal Responsibility and Punishment

Federica Coppola¹

Accepted: 16 July 2021
© The Author(s) 2021

Abstract

In *Responsible Brains* (MIT Press, 2018), Hirstein, Sifferd and Fagan apply the language of cognitive neuroscience to dominant understandings of criminal responsibility in criminal law theory. The Authors make a compelling case that, under such dominant understandings, criminal responsibility eventually ‘translates’ into a minimal working set of executive functions (MWS) that are primarily mediated by the frontal lobes of the brain. In so arguing, the Authors seem to unquestioningly accept the law’s view of the “responsible person” as a mixture of cognitive capacities and mechanisms—thereby leaving aside other fundamental aspects of individuals’ human agency. This commentary article offers a critique of the Authors’ rationalist and individualist approach. The critique can be summarized through the following claim: *We humans, as responsible beings, are more than our executive functions.* This claim articulates through four main points of discussion: (1) role of emotions in moral judgments and behavior; (2) executive functions and normative criteria for legal insanity; (3) impact of adverse situational factors on executive functions; (4) Authors’ account of punishment and, especially, rehabilitation.

✉ Federica Coppola
uni.federicacoppola@gmail.com

¹ Department of Criminal Law–Max Planck Institute for the Study of Crime, Security, and Law, Freiburg, Germany

1 Introduction

Responsible Brains proposes an account of human responsibility grounded in cognitive neuroscience. The ultimate goal of the book, as the Authors indicate¹, is to identify “where” the mental capacities necessary for criminal responsibility are located in the human brain. Building on seminal moral and legal theories of responsibility, such as Fisher and Ravizza’s account of reasons-responsiveness and Hart’s capacity-responsibility—and linking them with legal doctrine—this philosophical book makes a compelling case that dominant understandings of responsibility in law and morality translate² into the executive functions (EFs). Notably, the book highlights that the cognitive and volitional capacities that dominant moral/legal theory and legal doctrine consider necessary for treating someone as a responsible agent fundamentally correspond to a set of cognitive functions (including planning, attention, working memory, and inhibition) that are primarily mediated by the frontal lobes of the brain. Altogether, *Responsible Brains* makes the case that the cerebral locus of responsibility is the brain prefrontal cortex.

I am highly sympathetic to this project from a neurolaw perspective. Although I must agree with other contributors to this Symposium³ that the Authors’ theory ultimately adds little to the dominant understanding of responsibility in legal theory and doctrine, failing to acknowledge the Authors’ scholarly endeavor would be unfair. Many scholars have undertaken the difficult task of bridging neuroscience with the philosophy of responsibility and punishment. Nonetheless, very few have succeeded in putting together a whole neurolaw theory in a principled and coherent manner. The Authors have certainly succeeded in such enterprise, which is considerably welcome. The Authors’ main contention about responsibility—that it attaches only to those individuals who act on their intact minimal working set of executive functions (MWS)—is adhered to throughout. Additionally, some effort is made to investigate the practical application of their theory for legal doctrine and to demonstrate how it may affect the understanding and assessment of responsibility, and methods of punishment.

However, my sympathy for this project vacillates in view of the rationalist and individualist account of human (especially criminal) responsibility proposed by the Authors. Indeed, the Authors overall seem to apply *a*-critically the language of neuroscience to existing normative/philosophical theories of responsibility and punishment by unquestioningly accepting the law’s longstanding tradition of conceiving of the “responsible person” as a mixture of cognitive capacities and mechanisms, thereby leaving aside other fundamental aspects of individuals’ human agency. Notably, the Authors perpetuate and, in a sense, exacerbate the law’s cognitivist tradition

¹ *Responsible Brains*, p. viii.

² The Authors planted the seeds of this neurophilosophical argument in previous works. See, e.g., Katrina Sifferd, “Translating Scientific Evidence into the Language of the ‘Folk’: Executive Function as Capacity-Responsibility”, in N.A. Vincent (ed.), *Neuroscience and Legal Responsibility* (New York: Oxford University Press, 2013), pp. 183–204.

³ E.g., Douglas Husak, “The Objective(s) of Responsible Brains”; Dennis Patterson, “Inert”.

by making the bold claim that the nature of criminal responsibility can be reduced to the EFs. In so doing, the Authors' account risks of further depersonalizing the "legal self," as it reduces it to decontextualized mental (rectius, brain) states. The Authors' account consequently transmits an essentialist view of the people involved in the criminal justice system.

My comment on *Responsible Brains* consists of a critical analysis of the Authors' rationalist and individualist approach to criminal responsibility (and punishment)⁴. *Sic et simpliciter*, my critique of *Responsible Brains* can be summarized through the following claim: *We humans, as responsible beings, are more than our executive functions*. In the next sections, I articulate my critique through four main points of discussion: (1) role of emotions in moral judgments and behavior; (2) EFs and normative criteria for legal insanity; (3) impact of adverse situational factors on EFs; (4) Authors' account of punishment and, especially, rehabilitation.

2 Emotions Also Contribute to our (Non)Responsibility

"Reducing" moral and legal agency to the cognitive functions such as planning, working memory, and inhibition offers a partial picture of the mental components of our capacity to morally (and prosocially) behave in social contexts. (Un)luckily, we are more complex creatures than that. The almost total exclusion of emotions from the Authors' discourse of responsibility exemplifies my assertion.

Reading the book, I noticed that the Authors tend to separate the domain of emotion from that of cognition. Although the Authors seem to recognize the strong interrelation between emotions and EFs, they subsequently exclude (perhaps too quickly) emotional capacities from the range of capacities necessary for moral agency. For instance, in their discussion about psychopathy, they claim that psychopaths' moral-emotional deficits are irrelevant for the purposes of responsibility if EFs are intact⁵.

The Authors' contention about emotions is made without engaging with the literature about the role of emotion/cognition in moral judgments and behaviors. Given the Authors' suggestion that "emotions in general are generated outside of the prefrontal cortex,"⁶ the EFs (as cognition) serve the role of managing and filtering the impact of emotions on thought and behavior. This view of emotions as unconscious or automatic states that are subject to the domain of cognition collides with the robust body of studies about the cognitive dimension of emotions. Foremost, the postulation that emotions are generated outside the prefrontal cortex is inaccurate.

⁴ My comment partly draws upon the arguments I developed in my book, *The Emotional Brain and the Guilty Mind: Novel Paradigms of Culpability and Punishment* (Oxford: Hart Publishing, 2021).

⁵ See *Responsible Brains*, pp. 197–198 ("Psychopathic offenders may exhibit profound deficits in morally relevant emotions such as guilt and empathy, but if these affective deficits are balanced by an MWS, these offenders may be able to conform their behavior to laws and moral norms, and consequently they ought not be excused from responsibility on grounds of legal insanity.") and p. 232 ("A psychopath with an intact suite of executive functions could still be capable of conforming his or her behavior to moral and legal norms, even if his or her emotional processing of such norms was pathologically disordered.")

⁶ *Id.*, p. 19.

Beginning in the 1960s, studies in cognitive and social psychology⁷ began to support the view that the generation and processing of emotions also and essentially involve cognition. Since the revelation of these findings, emotions have been viewed as cognitive states. That is, emotions do have a cognitive dimension and influence behavior via complementary automatic and cognitive processes⁸.

The cognitive dimension of emotions has found critical support in modern neuroscience⁹, wherein research has highlighted that emotion processes (from the generation to the experience and regulation of emotions) involve a broad constellation of brain regions, including cortical regions. A key insight is that these brain regions work together in both automatic and controlled emotion processes¹⁰. As an individual gains explicit awareness of their emotional states in a given situation, interaction among these brain regions increases.

The cognitive dimension of emotions has gained increasing attention in studies on moral judgments and behaviors. A growing consensus is that emotion and emotion-related faculties such as empathy are *inescapably* involved in moral judgments and motivate morally relevant behaviors¹¹. Notably, a prevailing argument is that the moral motivation to act prosocially does not solely stem from knowledge or reasoning about principles of justice but also relies on an appreciation of the interpersonal significance of a given mode of conduct. That is, moral/prosocial behavior similarly and critically depends on our capacity to appreciate the interpersonal significance of our conduct in a given context. Such appreciation is largely mediated by the interaction between certain social/moral emotions—notably specific self-conscious or self-reflective emotions—as well as emotion-related faculties, including empathy, and pre-existing conditions such as goals, beliefs, contexts, and experiences.¹² In

⁷ Stanley Schachter and Jerome Singer, “Cognitive, Social, and Physiological Determinants of Emotional State”, *Psychological Review* 69 (1962), pp. 379–399; Gerald Clore, “Why Emotions Are Felt”, in P. Ekman and R. Davidson (eds.), *The Nature of Emotion: Fundamental Questions* (New York: Oxford University Press, 1994), pp. 103–111; Richard Lazarus et al., “Emotion: A Cognitive-Phenomenological Analysis”, in R. Plutchik and H. Kellerman (eds.), *Theories of Emotion, Vol. I* (New York: Academic Press, 1980), pp. 188–217.

⁸ See Chelsea Helion and Kevin Ochsner, “The Role of Emotion Regulation in Moral Judgments”, *Neuroethics* 11 (2018), pp. 297–308, 300.

⁹ See, e.g., Elizabeth Johnston and Leah Olson, *The Feeling Brain: The Biology and Psychology of Emotions* (New York: Norton Professional Books, 2015); Lisa Barrett, *How Emotions are Made: The Secret Life of the Brain* (Boston: Houghton Mifflin Harcourt, 2017); Joseph LeDoux and Richard Brown, “A Higher-Ordered Theory of Emotional Consciousness”, *PNAS* 114 (2017), E2016–E2025; Jennifer Beer, “Neural Systems of Self-conscious Emotions and Their Underlying Appraisals”, in J. Tracy, R. Robins and J. Tagney (eds.), *The Self-conscious Emotions: Theory and Research* (New York: Guilford Press, 2007), pp. 53–67.

¹⁰ See Helion and Ochsner, *supra* note 8.

¹¹ E.g., June Price Tangney et al., “Moral Emotions and Moral Behavior”, *Annual Review of Psychology* 58 (2007), pp. 345–372; Jamil Zaki, “Empathy Is a Moral Force”, in K. Gray and J. Graham (eds.), *Atlas of Moral Psychology* (New York: The Guilford Press, 2018), pp. 49–58; James Blair & Katherine Fowler, “Moral Emotions and Moral Reasoning from the Perspective of Affective Cognitive Neuroscience: A Selective Review”, *European Journal of Developmental Science* 2 (2008), pp. 303–323, p. 314.

¹² See, e.g., Jamil Zaki, “Empathy Is a Moral Force”, in K. Gray and J. Graham (eds.), *Atlas of Moral Psychology* (New York: The Guilford Press, 2018), pp. 49–58, p. 52 (citations omitted) (“Principles are difficult to abide on an empty stomach or under other states that tax people’s psychological energy...[T]o

summary, our adherence (or lack of adherence) to moral standards depends not only on our planning, attentional, or inhibition abilities but also on—and significantly driven by—our capacity to “feel” the interpersonal significance of our actions.

Similarly to other scholars¹³, I have argued¹⁴ that emotions, notably certain emotional capacities such as capacity for empathic responding, should be afforded normative weight within criminal responsibility. Our status as moral and legal agents cannot be limited to our capacity for prudential risk-taking and planned reasoning. In the Authors’ language, we cannot be judged based solely on our MWS or on the fact that we should have engaged our EFs but did not. We are individuals who can appreciate what hurting other people means and can be generally moved by these considerations. I believe that part of what makes us responsible agents is that we have the capacity to be moved by such moral reasons. Our responsibility also includes an ineradicable affective component.

Such affective component of responsibility does not seem to be enlisted in the group of functions that allegedly “make us responsible.” I wish the Authors further discussed the reasons for their rejection of emotional capacities from their account of responsibility, in view of the growing body of behavioral and neuroscientific literature suggesting the central role of such capacities in moral behavior.

3 Pathological Executive Dysfunction and Normative Criteria for Legal Insanity

The “locationist” approach to (neuro)responsibility espoused by the Authors is even more glaring in their discussion of legal insanity. According to the Authors,

“a defendant’s mental illness excuses the defendant from responsibility, when it does, precisely because it has prevented the defendant from having a fair opportunity to avoid wrongdoing by undermining either the cognitive or volitional elements of normative competence”¹⁵.

Therefore, the Authors continue,

“for a mental illness to excuse a defendant in the way required by the insanity defense, it must be of the sort and severity that substantially degrades one’s

Footnote 12 (continued)

the extent that people can tune [emotions and empathy] to match their principles, they gain access to a... emotional engine for powering prosocial behavior. Emotion-based moral behavior might confer benefits that other moral behaviors do not... In sum, emotions in general—and empathy in particular—add weight both to the efficiency of prosocial actions and to their benefits.”)

¹³ E.g., Peter Arenella, “Convicting the Morally Blameless: Reassessing the Relationship between Legal and Moral Accountability”, *UCLA Law Review* 39 (1992), pp. 1511–1622, p. 1525; Michael Pritchard, “Responsibility, Understanding, and Psychopathology”, *The Monist* 58 (1974), pp. 630–645; Anthony Duff, “Psychopathy and Moral Understanding”, *American Philosophical Quarterly* 14 (1977), pp. 189–200; Stephen J. Morse, “Deprivation and Desert”, in W. C. Heffernan and J. Kleinig (eds.), *From Social Justice to Criminal Justice: Poverty and the Administration of Criminal Law* (New York: Oxford University Press, 2000), pp. 114–160, p. 115.

¹⁴ *Supra* note 4.

¹⁵ *Responsible Brains*, p. 186.

executive function. On the other hand, executive dysfunction is not inherently exculpatory either—it must be dysfunction of the sort that results from mental illness”¹⁶.

Hence, following the Authors’ reasoning, legal insanity exists when the following criteria are met: (a) an individual suffers a mental illness; (b) such mental illness produces executive dysfunction; (c) executive dysfunction affects the cognitive or volitional components of the normative competence of the individual. Thus, “[p]ersons who lack an MWS due to mental illness ought to be found guilty by reason of insanity and be excused from responsibility under the law”¹⁷.

In my opinion, the Authors seem to miss a crucial passage here: that is, a mental illness is exculpatory as long as it meets the criteria prescribed in a relevant insanity standard, not because it produces a given mental dysfunction. Legal insanity is a legal concept, as the Authors correctly note. Although a mental condition must certainly exist, a second requirement is obligatory, namely that the condition be of such form or degree that it meets certain criteria *that are established in the relevant insanity standard*. In sum, a mental condition per se does not provide grounds for excuse by legal insanity; rather, the insanity determination depends on whether, at the time of the crime, the mental condition compromised the person’s cognitive or (where provided) control capacities *as defined in the relevant insanity standard*. In other words, assessments of legal insanity ultimately need to answer a normative question, not a clinical one.

Although the Authors claim that lacking an executive MWS due to mental illness should be exculpatory on the grounds of insanity, they fall short of clarifying how such condition meets the normative criteria for legal insanity established in individual insanity tests. I am not entirely sure that lacking an executive MWS is capable of fully satisfying existing normative criteria. For instance, let us consider the knowledge test contained in the M’Naghten rule¹⁸. This test includes two mutually exclusive branches. The first involves a factual knowledge test (or *cognitive capacity* test). This test probes the agent’s awareness (or understanding) of the factual dimension of his or her act; thus, it evaluates whether the agent has a normal capacity for understanding the principal characteristics and consequences of his or her behavior¹⁹. The second branch of the test evaluates whether the agent knows that his or her act is *wrong*. The original wording of the M’Naghten rule suggests that this branch consists of a *moral capacity* test and determines whether the person was able to distinguish between good and evil, regardless of whether he or she knew what he or she was doing. States have adopted different variants of the M’Naghten rule over the years. Some have utilized an insanity test that solely focuses on moral

¹⁶ *ibid.*

¹⁷ *id.*, p. 197.

¹⁸ Similar considerations apply to the “appreciation prong” contained in the ALI test. See American Law Institute, Model Penal Code § 4.01 (1962). See also American Law Institute, Model Penal Code and Commentaries. Part I. General Provisions, pp. 164–166; American Law Institute, Model Penal Code Official Draft and Explanatory Notes, Part I. General Provisions (1985), p. 62.

¹⁹ Jerome Hall, “Responsibility and Law. In Defense of the McNaghten Rules”, American Bar Association Journal 42 (1956), pp. 917–989.

incapacity, whereas others have applied one that examines only cognitive capacity²⁰. In addition, other states have reoriented the test to concentrate on the defendant's understanding that his or her act was "illegal" rather than "morally wrong." Thereby, in these states, the ranks of the insane exclude those who know an act is illegal but still believe it to be morally right.

In addition to the various variants of the Rule, controversy has ensued about how the "knowledge" requirement of the test should be understood. Some authors have proposed that it is limited to the actor's awareness of the factual and normative nature of her wrongdoing as if it would be manifested by a verbal acknowledgment or purely intellectual assent to a normative proposition²¹. Meanwhile, other authors have maintained that the verb "to know" should be more broadly interpreted as an appreciation of certain objective physical and normative features of behavior with reference to both the law and commonly accepted social standards of morality²². In actual practice, courts tend not to define the verb "to know;" hence, its interpretation is largely dependent on the discretionary common sense of juries²³.

These considerations about the different interpretations of the knowledge requirement link with my previous discussion about emotions. Notably, the meaning of "moral knowledge" can be further expanded to include a capacity to be responsive to the interpersonal relevance of the conduct under the circumstances. The moral capacity test for legal insanity may also require an emotional capacity to appreciate and adaptively respond to the emotional relevance of situations—an option that the Authors seem to categorically exclude in their discussion about psychopathy. Admittedly, cases (due to psychopathology) can emerge in which the capacity for adaptive emotional responding is substantially compromised to the point that an individual cannot "feel" the wrongness of his or her behavior. Such incapacity is not merely a typical feature of the controversial category of psychopathy, but it can be symptomatic of other (and perhaps less disputed) conditions such as (untreated) schizophrenia or frontotemporal dementia²⁴. In many of such cases, people maintain a general capacity to tell the factual and moral significance of their behavior in a given situation; however, they are incapable of adaptively responding to the relevant emotional aspects of the situations and of their conduct as a consequence.

This discussion is meant to emphasize the variety of understandings that feature the (moral) knowledge requirement of the M'Naghten test. However, I am unclear about how such a (potentially) elastic normative concept simply corresponds to

²⁰ See *Clark v Arizona* 548 U.S. 735 (2007); *Kahler v Kansas* 589 U.S. (2020).

²¹ Rudolph Gerber, "Is the Insanity Test Insane?", *American Journal of Jurisprudence* 20 (1975), pp. 111–140, p. 120.

²² E.g., Herbert Fingarette, *The Meaning of Criminal Insanity* (Berkeley: University of California Press, 1972).

²³ See, e.g., Norman Finkel, *Commonsense Justice: Jurors' Notions of Law* (Cambridge: Harvard University Press, 1995).

²⁴ See, e.g., Zsuzsanna Kristof et al., "Mentalization and Empathy as Predictors of Violence in Schizophrenic Patients: Comparison with Nonviolent Schizophrenic Patients, Violent Controls and Nonviolent Controls", *Psychiatric Research* 268 (2018), pp. 198–205; Mario Mendez et al., "An Investigation of Moral Judgement in Frontotemporal Dementia", *Cognitive and Behavioral Neurology* 18 (2005), pp. 193–197.

possessing intact EFs. Notably, I am unsure of whether executive dysfunction can provide a full picture of an incapacity to judge what is right and what is wrong. In sum, the Authors have not convinced me that having a pathological executive dysfunction is necessarily sufficient to ground a finding of legal insanity. I do not question that having an executive dysfunction originating in a pathological mental condition may underlie abnormal behavior, and I agree that such dysfunctions should be afforded probatory weight in insanity assessments. Nonetheless, I am not sure that solely having this condition is sufficient to meet the existing normative criteria of legal insanity.

4 Executive Functions and Situational Factors

A more regrettable omission that I noticed throughout the book concerns the discussion of the relationship between situational factors and responsibility. According to the Authors, “if an actor has an MWS, and thus the capacity for reasoning, planning, and inhibition, the actor had an opportunity to avoid the criminal harm (or to pursue it)”²⁵. In line with the voluntarist tradition in criminal law²⁶, the Authors’ account seems to entirely allocate responsibility to individuals’ executive capacities, thereby ignoring questions of social context²⁷. Thus, their account tends to overemphasize the influence of intrapersonal factors (notably, an individual’s mental capacity) and leave aside the impact of situational/social circumstances (e.g., a person’s history, background, and living conditions) when accounting for responsibility.

Admittedly, the Authors make a brief reference to several social factors that contribute to the development of EFs²⁸. They further acknowledge that the three conditions of responsibility they suggest (executive capacity, performance of action, and failure to engage EFs) are necessary yet insufficient conditions of responsibility because “there are other factors, including situational and cultural ones, which may

²⁵ Responsible Brains, p. 205.

²⁶ See, e.g., Stephen J. Morse, “Severe Environmental Deprivation (AKA RSB): A Tragedy, Not a Defense”, 2 *Alabama Civil Rights & Civil Liberties Law Review* 2(1) (2011), pp. 147–173.

²⁷ Cf. Nicola Lacey, “Socializing the Subject of Criminal Law? Criminal Responsibility and the Purposes of Criminalization”, *Marquette Law Review* 99(3) (2016), pp. 541–557 (suggesting that the dominant account of criminal responsibility is founded on a naïve and pre-social view of the human being that artificially divorces his or her reasoning, judgment, and control abilities from his or her social environment. Lacey utilizes Hart’s capacity-responsibility model as a normative benchmark to suggest that the features of a subject’s situation, environment, history, or circumstances—such as traumatic experiences, the quality of parenting and education, and so on—are objectively apt to exert several significant effects on the subject’s cognitive and control capacities, which supposedly afford him or her the opportunity to behave in conformity with the law. According to Lacey, voluntarism does not fail to recognise social factors because of their claimed irrelevance to responsibility as “it would be simply irrational” to consider them irrelevant. Thus, the reason is not found within this philosophical model of culpability itself. Rather, the reason is that the model hinges on and expresses a vision of the functions of criminal law primarily in terms of desert and blame.).

²⁸ Responsible Brains, p. 58 (acknowledging that “[p]owerful social forces are also at work normalizing our executive processes and their amalgamated profiles, especially as we grow up.”).

partly determine responsibility”²⁹. In spite of such acknowledgment, the Authors fail to elaborate on how situational factors such as adverse social environments would figure in their account of responsibility. In my view, this aspect is a missed opportunity of this book.

Studies from social neuroscience and social psychology teach us the ineradicable relationship between situational factors and social behavior. In particular, a vast amount of literature has indicated that unhealthy social factors (e.g., extreme environmental deprivation)³⁰ as well as chronic experiences of traumatic life events (e.g., physical abuse and chronic exposure to violence)³¹ may induce significant and longstanding alterations in the brain pathways that govern judgment; impulse control; empathetic responding; regulation of emotions; interpretation of stimuli, experiences, and social cues; and perception of threat³²—all of which are critically involved in social functioning. In fact, these alterations have been associated with a heightened risk of maladaptive action tendencies and behaviors, including hostility, rule-breaking, aggression, and violence.

As mentioned, the current law of responsibility does not afford weight to adverse social factors³³. The rationale is that such factors are neither capable of compromising an individual’s normative capacity nor representative of a situational pressure such that an individual cannot avoid wrongdoing³⁴. In view of the considerable amount of research suggesting a clear link between adverse socio-environmental influences and alterations of EFs, I wonder if the Authors would afford normative excusing weight to such influences under their executive theory. Once again, the Authors hold that as long as an individual’s EFs are substantially intact, he or she has a fair opportunity to do otherwise and avoid wrongdoing. Let us consider a person who lives in vastly deprived social conditions, say extreme poverty. Let us assume that such conditions have negatively impacted the person’s EFs. Let us further assume that the person commits a petty offense (e.g., he or she steals some money to afford a bus ticket). In such a situation, did the person have a fair

²⁹ Id., p. 56.

³⁰ E.g., Gary Evans et al., “Stressing Out the Poor: Chronic Physiological Stress and the Income Achievement Gap”, *Pathways* (Winter 2011), pp. 16–21; Pilyoung Kim et al., “Effects of Childhood Poverty and Chronic Stress on Emotion Regulatory Brain Function in Adulthood”, *Proceedings of the National Academy of Sciences* 110(46) (2013), pp. 18,442–18,447.

³¹ E.g., Sophie Ayer et al., “Exposure to Violence Predicting Cortisol Response During Adolescence and Early Adulthood: Understanding Moderating Factors”, *Journal of Youth Adolescence* 43(7) (2014), pp. 1066–1079.

³² E.g., J. Douglas Bremner, “Traumatic Stress: Effects on the Brain”, *Dialogues in Clinical Neuroscience* 8(4) (2006), pp. 445–461.

³³ Trauma *may* be afforded some weight at sentencing. However, there is admittedly no consistent approach to the manner in which trauma is treated, especially in non-capital cases. For analyses of the relevance of trauma to sentencing, see Miriam Gohara, “In Defense of the Injured: How Trauma-Informed Criminal Defense Can Reform Sentencing”, *American Journal of Criminal Law* 45(1) (2018), pp. 1–45; Mirko Bagaric et al., “Trauma and Sentencing: The Case for Mitigating Penalty for Childhood Physical and Sexual Abuse”, *Stanford Law & Policy Review* 30(1) (2019), pp. 1–59.

³⁴ For a clear illustration of the dominant voluntarist position about social factors and criminal responsibility, see Anders Kaye, “The Secret Politics of Compatibilist Criminal Law”, *Kansas Law Review* 55(2) (2007), pp. 365–427.

opportunity to do otherwise under the Authors' theory? If he or she did not, what would the Authors' account as the normative excusing conditions in such a case (the person's executive incapacity, or his or her adverse living conditions)?

My considerations about the lack of discussion of the impact of situational factors extend to duress—an excuse that the Authors do not consider. I am unclear about how the Authors would account for duress under their executive theory. In duress, the agent is generally mentally competent. That is, duress does not compromise the person's *status* as a responsible agent because it does not challenge his or her cognitive or volitional capacities (using the Authors' language, the person's EFs are intact). In such cases, the individual remains a rational subject who acts upon a rational assessment of the circumstances. Presumably, he or she fully engages with his or her EFs. However, duress does challenge whether the person is responsible for his or her wrongdoing as he or she is a non-culpable victim of a wrongfully imposed hard choice. If capacity is the core of responsibility, and if having sound mental capacity (in terms of intact EFs) is the *sine qua non* of criminal responsibility, what is left of the normative excusing condition of duress as a situational excuse? Would the Authors argue that duress excuses only when an individual had a pre-existing executive dysfunction? Otherwise, would their argument be that duress excuses as long as the threat provokes a temporary executive dysfunction in the individual? Or would they argue that duress excuses because the threatening situation prevents the individual from engaging with his or her EFs and avoid wrongdoing?

5 Punishment and Rehabilitation

My final observations concern the Authors' argument about punishment. The Authors contend that their executive theory supports Norval Morris's limiting retributivism. Hence, they move a "unique and powerful critique"³⁵ to the methods of punishment in American justice and suggest several means of making penalties less harsh and more rehabilitation-oriented.

The Authors hold that severe penalties should be reformed precisely because such penalties have the effect of undermining individuals' EFs. The argument is that because the EFs are the locus of moral and legal agency, a punishment that undermines EFs undermines such agency. Moreover, harsh penalties have criminogenic effects precisely because they undermine EFs. Thus, "methods of criminal punishment used under a limiting retributive model ought to aim to enhance, or at least not diminish, an offender's means to moral and legal agency wherever possible"³⁶. Specifically addressing people in prison, the Authors suggest that "prisoners ought to be given ample opportunity to *develop their executive functioning* via programs that allow them to *learn and practice new skills, such as complex decision making*"³⁷.

³⁵ Responsible Brains, p. 201.

³⁶ *id.*, p. 222.

³⁷ *ibid.* My emphasis.

Foremost, the Authors' generalized assertion that people in prison must receive opportunities to develop their executive functioning is problematic—at least in the way that this assertion is phrased. In fact, such assertion transmits the misleading idea that those who come in contact with the prison system have a deficiency in their cognitive capacities; consequently, they need opportunities and interventions to “fill” their cognitive gaps and learn skills previously unknown to them. Many of the people who come into contact with the prison system do not suffer any minus in their mental capacities. That is, they neither need to “develop” EFs nor learn intricate tasks such as complex decision-making. The factors that lead many of such people to engage in criminal behavior are situational.

Most of the people in prison have families and children. Most of them come from disadvantaged backgrounds. Many of them do not have a job, whereas others do not have chances to pursue an education. What these people miss and need are opportunities to live their lives profitably and successfully. The real issue here is not these people's EFs. The real issue here is that most people who are incarcerated lack (and should receive) social opportunities. Punishment is by definition intended to inflict losses. Social losses due to punishment—including loss of employment, family and community separation, and scarce access to education—have the effect of producing or aggravating social disadvantage, thereby creating a vicious cycle that is challenging to interrupt. Thus, people's recidivism is not necessarily because punishment—as it is currently administrated—fails to address their EFs, but rather because it fails to address their social needs. As a result, life after prison can be such a struggle that formerly incarcerated people relapse because their choices to do better are *objectively* limited by situational constraints. Thus, an argument for making the prison system less harsh because this system does not address people's EFs problematically suggests that the issue with crime solely or primarily lies in individuals and their mental capacities. Such an argument creates misleading views of incarcerated people as mentally troubled, while it overlooks the enormous social toll that too often lies behind crime and that punishment aggravates.

That being said, I have doubts about the consistency of the Authors' argument about punishment. The Authors indeed fail to provide a normative link between their argument—that punishment should enhance individuals' EFs “wherever possible”³⁸—and the idea of punishment that they espouse in their account. Classic desert theory is fundamentally uninterested in the consequences of punishment, including the effects that such punishment may have for a given person. Once a person has received just punishment—in the form of some proportional losses or deprivations—retribution is not interested in the effects of such punishment on the relevant individual. In slightly different terms, the fact that a punishment does not enhance an individual's executive capacities is not part of the deontological discourses of retribution. Accordingly, a system that pursues retribution as its primary penological goal is fundamentally uninterested in whether sentences should be structured in a way that can or should promote individual growth and change.

³⁸ *id.*, p. 222.

Some retributivist scholars have adopted a different view. For instance, Richard Lippke wrote in 2003³⁹ that retributive punishment must aim to ensure that perpetrators are “capable of understanding the wrongs they have committed and the fairness of the penal sanctions imposed on them by the state in response to those wrongs”⁴⁰. Hence, retribution does not require that punishment erodes the capacities that constitute moral personhood, such as “physical and psychological health, and interaction with others”⁴¹. From a retributive perspective, these capacities and dispositions need to be regularly exercised to respect the ability of people facing punishment “to comprehend and respond constructively to the reasons for which they are being punished”⁴². Is it this understanding of desert and retribution that the Authors have in mind? If so, I wonder what is unique in the Authors’ executive theory compared to Lippke’s view.

Deterrence and rehabilitation appear to be the best candidates to support the Authors’ argument. For instance, I fully agree with the Authors’ standpoint that the criminogenic environments of prisons might well undermine individuals’ EFs and, consequently, aggravate the individual risk factors of criminal behavior. I also agree that rehabilitation programs must be guaranteed in (and out of) prison facilities. Overall, enriched and humane prison environments are certainly warranted (more fundamental than protecting the EFs, in my view, is the fact that such environments are respectful of the universal right to human dignity).

My uncertainty concerns the Authors’ idea of rehabilitation, which they never clarify. The Authors evidently espouse a state-centered and utilitarian view of rehabilitation as an aim of punishment that is functional to special deterrence. From this perspective, rehabilitation must be pursued as long as it is feasible, that is, as long as an individual has chances to be successfully reformed⁴³. Thus, the question of whether rehabilitation is feasible is at root an empirical one, conditioned on its efficacy at promoting public safety. Hence, I wonder whether the idea of rehabilitation the Authors support only includes social programs such as the ones they briefly list or whether it potentially extends to specific treatment interventions. For instance, neurotechniques such as transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS) have been found to be apt to improve executive functioning⁴⁴. Olivia Choy et al. published a study⁴⁵ suggesting that stimulating the dorsolateral prefrontal cortex using tDCS reduces intentions to engage in aggressive

³⁹ Richard Lippke, “Retribution and Incarceration”, *Public Affairs Quarterly* 17(1) (2003), pp. 29–49.

⁴⁰ *id.* 43.

⁴¹ *id.* 33.

⁴² *ibid.*

⁴³ See also American Law Institute, *Model Penal Code: Sentencing* § 1.02 (2017).

⁴⁴ Felipe Fregni et al., “Anodal Transcranial Direct Current Stimulation of Prefrontal Cortex Enhances Working Memory”, *Experimental Brain Research* 166 (2005), pp. 23–30; David Moser et al., “Improved Executive Functioning Following Repetitive Transcranial Magnetic Stimulation”, *Neurology* 58(8) (2002), pp. 1288–1290.

⁴⁵ Olivia Choy, Adrian Raine, and Roy Hamilton, “Stimulation of the Prefrontal Cortex Reduces Intentions to Commit Aggression: A Randomized, Double-Blind, Placebo-Controlled, Stratified, Parallel-Group Trial”, *Journal of Neuroscience* 38(29) (2018), pp. 6505–6512.

acts, with a view of informing interventions to deal with individuals with aggressive tendencies. This type of intervention can hypothetically be used for improving executive functioning in people who are incarcerated and, consequently, increasing the chances to reduce recidivism. I wonder about the Authors' interpretation of this type of neurointervention in view of their understanding of rehabilitation and its relationship with special deterrence.

Last but certainly not least, the weakness of the Authors' normative argument about punishment is also manifest in their brief discussion about solitary confinement⁴⁶. Although I completely share the Authors' feelings about such an inhumane and disfiguring practice, I do not see a robust normative "hook" for their argument, other than a short reference to desert and choice. The claim that solitary confinement should be restricted because it risks compromising executive functioning adds nothing unique to the extensive behavioral evidence that has clearly indicated that solitary confinement has devastating and potentially permanent consequences for an individual's mental and physical well-being, with severe repercussion on his or her social life. Unfortunately, and in spite of these studies, solitary confinement is highly present in correctional practice, and the Supreme Court has never recognized its constitutional questionability under the Eighth Amendment⁴⁷. Empirical evidence is (regrettably) insufficient to ground an argument that isolation should be significantly restricted. The Authors' suggestion to reform solitary confinement is critical, however, and I hoped the Authors would further elaborate it at the normative level.

Altogether, I am unsure that the humanitarian aim that the Authors seek to support via their executive theory is grounded in solid normative foundations. At times, I had the impression that the Authors' attempt to link their own theory with existing limiting retributivism ideology and calls for justice reform is forced and moderately articulated. My presumption (and I may be wrong of course) is that the Authors have attempted to fit a rehabilitation-based argument in a fundamentally retributive framework. Furthermore, this attempt has not always been successful. I simply wish that Hirstein, Sifferd, and Fagan had spent a little more time critically examining their chosen normative theories and principles than unquestioningly putting them at the service of neuroscience. Quoting the Authors' concluding words, "*that is progress*"⁴⁸.

⁴⁶ Responsible Brains, pp. 221 and 224.

⁴⁷ See, e.g., Jules Lobel, "Prolonged Solitary Confinement and the Constitution", *University of Pennsylvania Journal of Constitutional Law* 11 (2008), pp. 115–138. But see *Davis v Alaya* 576 U.S. (2015) (Justice Kennedy, concurring); *Apodaka v Raemish* and *Lowe v Raemish* 586 U.S. (2018) (Justice Sotomayor, dissenting) (both raising constitutional concerns about excessively prolonged solitary confinement).

⁴⁸ Responsible Brains, p. 236. My emphasis.

6 Conclusion

I have greatly appreciated the consistency of this book. Its Authors have certainly succeeded in illuminating philosophical scholarship and the public about how law and neuroscience can successfully communicate with each other through a sound and plausible language. More broadly, I believe that this book ultimately leads us to critically wonder about the very nature of the idea of the person that lies at the core of criminal responsibility and punishment. The proposal of translating human responsibility into the executive functions is, in a sense, provocative. We can keep choosing to think of responsible agents as a hub of cognitions, or we can start to think of responsibility through a different and more comprehensive lens, one that embraces further individual and social aspects of persons and their actions. These aspects, for better or for worse, make us human.

Funding Open Access funding enabled and organized by Projekt DEAL.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.