Introduction

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Philosophers have recently found fertile ground in the area of intersection between neuroscience and criminal law. They have, for example, entered lively debates concerning the extent to which findings in neuroscience might undermine attributions of criminal responsibility, and whether and how neuroscientific evidence, such as brain scan results, should be used in criminal trials.[1]

This philosophical attention has, for the most part, been limited to examining the ways in which neuroscience may bear on assignments of guilt and responsibility in criminal trials. Yet neuroscientific technologies are already playing other roles in the criminal

[1] See, for example, Henry T. Greely, 'Prediction, Litigation, Privacy, and Property: Some Possible Legal and Social Implications of Advances in Neuroscience', in B. Garland (ed.), *Neuroscience and the Law: Brain, Mind, and the Scales of Justice* (New York: Dana Press, 2004); Stephen J. Morse 'Brain Overclaim Syndrome and Criminal Responsibility: A Diagnostic Note', *Ohio State Journal of Criminal Law* 3 (2006), pp. 397-412; Dean Mobbs, Hakwan C. Lau, Owen D. Jones, Christopher D. Frith, 'Law, Responsibility, and the Brain', *PLoS Biology* 5 (2007), e103; Paul R. Wolpe, Kenneth R. Foster, Daniel D. Langleben, 'Emerging Neurotechnologies for Lie-Detection: Promises and Perils', American Journal of Bioethics 5 (2005), p. 40; Adina L. Roskies, Walter Sinnott-Armstrong 'Brain Images as Evidence in the Criminal Law', in M. Freeman (ed.), *Law and Neuroscience: Current Legal Issues Volume 13* (Oxford: Oxford University Press, 2011); Thomas Nadelhoffer, Walter Sinnott-Armstrong 'Neurolaw and Neuroprediction: Potential Promises and Perils', *Philosophy Compass* 7 (2012), pp. 631-42; Frej Klem Thomsen, 'Good Night and Good Luck: In Search of a Neuroscience Challenge to Criminal Justice', *Utilitas* (2017), pp. 1-31; Jesper Ryberg, 'When Should Neuroimaging Be Applied in the Criminal Court? On Ideal Comparison and the Shortcomings of Retributivism', *The Journal of Ethics* 18 (2014), pp. 81-99. Francis X. Shen, 'Neuroscience, Mental Privacy, and the Law', *Harvard Journal of Law and Public Policy* 36 (2013), pp. 653–713.

justice process. For example, criminal justice authorities sometimes mandate the administration of brain-active drugs as part of programmes to prevent recidivism; a number of European and North American criminal justice systems provide for the administration of drugs that attenuate sexual desire to prevent recidivism in sex offenders;[2] and methadone treatment has been used in similar ways in offenders with a history of opioid abuse.[3]

These interventions may well prove to be the vanguard of a much larger movement, for there is reason to believe that neuroscientific developments will yield further 'crime-preventing neurointerventions' or 'CPNs'—that is, interventions that exert a physical, chemical or biological effect on the brain in order to diminish the likelihood of some forms of criminal offending. For example, recent developments suggest that we may ultimately have at our disposal a range of drugs capable of suppressing violent aggression,[4] and it is not difficult to imagine possible applications of such drugs within criminal justice. Indeed, such applications are likely to be politically attractive, give their potential to partially replace the very costly practice of incarceration.

But *should* CPNs be used in criminal justice? More specifically, may the state ever permissibly impose CPNs as part of the criminal justice process, either unconditionally,

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[2] See Forsberg, Chapter 2, this volume, for a review.

[3] For example, in the United Kingdom, methadone treatments have been imposed by the courts as part of Drug Treatment and Testing Orders. See Susan Eley, Kathryn Gallop, Gill McIvor, Kerry Morgan, Rowdy Yates, *Drug Treatment and Testing Orders: Evaluation of the Scottish Pilots* (Scottish Executive Central Research Unit, 2002). Available at http://www.gov.scot/Resource/Doc/46997/0030591.pdf; Mike Hough, Anna Clancy, Tim McSweeney, Paul J. Turnbull, *The Impact of Drug Treatment and Testing Orders on Offending: Two-Year Reconviction Results* (London: Home Office. Research, Development and Statistics Directorate, 2003). Available at https://www.ncjrs.gov/App/Publications/abstract.aspx?ID=203278.

[4] See, for discussion, Chew et al., Chapter 1, this volume.

or as a condition of parole or early release? These questions are the focus of this collection.

The collection begins with an introduction to the scientific background of CPNs (Chew et al., Ch 1) and an examination of the ways in which they might be legally regulated (Forsberg, Ch 2). Matravers (Ch 3) then provides a survey of the ethical terrain, offering an analysis of how we ought to think about the ethical issues that bear on CPN use. He argues that context, such as the meaning of criminal justice practice in a jurisdiction, plays an important role.

The subsequent chapters turn to assessing the arguments for and against CPN use. There is certainly something to be said in favour of CPNs. It is widely thought that preventing recidivism is one of the aims of criminal justice,[5] yet existing means of pursuing this aim are often poorly effective, highly restrictive of basic freedoms, and significantly harmful. Incarceration, for example, tends to be disruptive of personal relationships and careers, detrimental to physical and mental health, highly restrictive of freedom of movement and association, and rarely more than modestly effective at preventing recidivism.[6] Neurointerventions hold out the promise of preventing recidivism in ways that are both more effective, and more humane.

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[5] A number of theorists who advocate consequentialist views on punishment have claimed that punishment should contribute to the rehabilitation of the offender. However, this claim is also supported by certain non-consequentialist views. For example, see Jean Hampton, 'The Moral Education Theory of Punishment', *Philosophy and Public Affairs* 13 (1984), pp. 208-38; Herbert Morris, 'A Paternalistic Theory of Punishment', *American Philosophical Quarterly* 18 (1981), pp. 263-71; Jeffrey Howard, 'Punishment as Moral Fortification', *Law and Philosophy* 36 (2017), pp. 45-75.

[6] See for instance, Matthew R. Durose, Alexia D. Cooper, Howard N. Snyder, 'Recidivism of Prisoners Released in 30 States in 2005: Patterns from 2005 to 2010', *Bureau of Justice Statistics Special Report* (2014). Available at https://www.bjs.gov/content/pub/pdf/rprts05p0510.pdf.

On the other hand, the use of CPNs in criminal justice raises several ethical concerns. CPNs could be highly intrusive and may threaten fundamental human values, such as bodily integrity and freedom of thought. In addition, humanity has a track record of misguided, harmful and unwarrantedly coercive use of neurotechnological 'solutions' to criminality—witness, for example, the use of electrical brain implants and crude forms of psychosurgery to control aggression in the mid twentieth century.[7]

In the embryonic ethical discussion of CPNs in the late twentieth century, the dominant criticism held that, like all medical interventions, CPNs should normally only be provided with the free consent of the recipient, but when they are imposed as part of the criminal justice process, even if only as a condition of parole or earlier release, there is no possibility of obtaining such consent.[8] This view is defended by William Green:

> *Voluntary consent depends upon a person's ability to make a choice freely. The convicted rapist is faced with two options—a lengthy prison sentence or even death on the one hand and Depo-Provera [a form of chemical castration] or surgical castration on the other—and cannot be said to have the capacity to act freely in making a*

[7] See, for example, Richard J. Bonnie, 'Political Abuse of Psychiatry in the Soviet Union and in China: Complexities and Controversies', *The Journal of the American Academy of Pyschiatry and the Law* 30 (2002), pp. 136-44; Robert van Voren, 'Political Abuse of Psychiatry—An Historical Overview', *Schizophrenia Bulletin* 36 (2010), pp. 33-5; Henry T. Greely, 'Neuroscience and Criminal Justice: Not Responsibility but Treatment', *Kansas Law Review* 56 (2008), pp. 1103-38; John Horgan, 'The Forgotten Era of Brain Chips', *Scientific American* 293 (2005), pp. 66-73.

[8] See, for example, Kari A. Vanderzyl, 'Castration as an Alternative to Incarceration: An Impotent Approach to the Punishment of Sex Offenders', *Northern Illinois University Law Review* 15 (1994), pp. 107–40; William Green, 'Depo-Provera, Castration, and the Probation of Rape Offenders: Statutory and Constitutional Issues', *University of Dayton Law Review* 12 (1986), pp. 1–26.

> *choice. Freedom of choice is impossible because the convict's loss of liberty constitutes a deprivation of such a magnitude that he cannot choose freely and voluntarily, but he is forced to give consent to an alternative he would not otherwise have chosen. In such circumstances men are willing to ''barter their bodies."...As a consequence, the convicted rapist cannot give voluntary consent to an offer of probation which contains a surgical castration or Depo-Provera.*[9]

Similarly, Kari Vanderzyl writes:

> *[T]he doctrine of informed consent requires a knowledgeable and voluntary decision to undergo treatment, yet offering a convicted offender castration as an alternative to a lengthy prison sentence constitutes an inherently coercive practice rendering truly voluntary consent impossible. Thus, castration should be rejected as a condition of probation.*[10]

This position invites two questions. First, is the consent of an offender who chooses to undergo a CPN in exchange for early release always invalid? The thought that it is could be grounded on the claim, invoked by Vanderzyl, that linking agreement to receive a CPN with early release is coercive. But defenders of CPNs can contest this claim on several grounds. For example, it might be held that there is no coercion here if and because the state is not threatening to violate the offender's rights or make him worse off than he would otherwise be. Alternatively, it might be argued that the intentional

[9] Green 'Depo-Provera, Castration, and the Probation of Rape Offenders', pp. 16-7.
[10] Vanderzyl, 'Castration as an Alternative to Incarceration', p. 140.

conditions of coercion are not satisfied unless the state is dangling the threat of further detention *with the intention of* inducing agreement to undergo the CPN. Pugh (Ch 4) considers how a defender of the coercion claim might respond to these arguments.

Second, is valid consent really required for CPNs to be permissibly administered? Almost all interventions imposed by our criminal justice systems are imposed without the free consent of the offender, despite being interventions of the kind that would ordinarily require such consent. It would normally be seriously wrong to incarcerate a person without her consent, but many believe that when that person has committed a crime, it is sometimes permissible to do so—or at least it would be if incarceration practices were more humane. Perhaps, as McMahan (Ch 5) argues, it can also make one liable to the nonconsensual imposition of CPNs.

This raises further questions. Is there anything that sets CPNs apart from incarceration, morally speaking? And if so, is the moral difference significant enough that, even though it is sometimes permissible (if indeed it is) to nonconsensually incarcerate offenders, it is never permissible to nonconsensually administer CPNs?

One suggestion would be that, though medical interventions might be at least as effective as incarceration at realising one goal of criminal justice—the prevention of recidivism—they would violate the retributivist's requirement that offenders are punished no more or less harshly than they deserve. Reducing prison terms and imposing CPNs would, it might be claimed, lead to underpunishment, in retributivist terms. However, in this volume, Ryberg (Ch 9) argues that this objection to CPN use fails, among other reasons because, if a nonconsensual CPN involves some

inconvenience or suffering then there is, in his view, nothing to prevent it from counting as an element of a retributive punishment. On the other hand, Birks (Ch 19) considers whether CPNs could be used to satisfy the putative communicative requirement of justified punishment. He argues that mandatory CPNs cannot communicate deserved censure to offenders, and the offer of CPNs as a replacement for incarceration or in exchange for a shorter sentence can communicate deserved censure only in cases where the CPN has harmful effects.

Another suggestion would be that nonconsensual CPNs are more problematic than incarceration because they infringe rights against bodily or mental interference that are not infringed by incarceration. In this vein, Bublitz (Ch 16) argues that mandatory CPNs infringe a collection of rights which aptly be labelled rights to 'mental self-determination'.

Douglas has questioned whether an appeal to bodily interference could be sufficient to establish the impermissibility of nonconsensual CPNs[11] and in this collection (Ch 11) offers a similar challenge to the appeal to mental interference, arguing that the mental interference involved in nonconsensual CPNs may be morally equivalent to that involved in some seemingly unobjectionable nudge-like environmental interventions. In response Shaw (Ch 17) argues that the *combined* violation of rights against bodily and mental interference may explain the impermissibility of nonconsensual CPNs. She argues that such combined violations express a high degree of disrespect for the offender.

[11] Thomas Douglas, 'Criminal Rehabilitation Through Medical Intervention: Moral Liability and the Right to Bodily Integrity', *The Journal of Ethics* 18 (2014), pp. 101–22.

There may, however, be theoretical grounds for questioning the existence of the rights against bodily and mental interference that these authors discuss. These rights are most naturally thought of as elements or corollaries of a right to self-ownership, but Lippert-Rasmussen (Ch 7) suggests that the existence of such a right would, when conjoined with the so-called 'extended mind' thesis, implausibly imply that our self-ownership rights extend beyond our bodies. His arguments suggest that we should reconsider common sense views about self-ownership.

Perhaps, though, there are other rights that would be infringed by the imposition of CPNs. For example, it might be thought that imposing CPNs on offenders would infringe their rights to be treated as moral equals. Chris Bennett (Ch 14) pursues this line in developing and employing Ian Carter's account of opacity respect. He argues that nonconsensual CPNs involve the disrespectful assessment and use of information on the offender. Meanwhile Liberto (Ch 10) considers whether a particular kind of CPN—the chemical castration of sex offenders—might violate sexual rights, finding that it need not do so.

The more general question here is whether the use of CPNs in criminal justice invariably infringes *at least one* right held by the individual offender. Vallentyne (Ch 6) takes up this question and argues that, even when CPNs are nonconsensual, there are circumstances in which they would infringe no right. He ends by specifying two conditions under which this is true.

Bullock (Ch. 8) also takes up the challenge of identifying conditions for the permissible imposition of CPNs, but she approaches this issue from the perspective of a particular conception of the goals of such interventions. The purpose of imposing CPNs on offenders is typically assumed to be to 'prevent recidivism'. But it is doubtful that this could be the *final* goal of imposing CPNs, or indeed, of any intervention that criminal justice systems might impose. More likely, it is a proximate goal that furthers the ultimate goal of protecting others from harm or preventing moral wrongdoing (where this is conceived of wrong in itself). An alternative possibility, however is that CPNs could be imposed for the purpose of facilitating the character development of the offender; they could, that is, be imposed as an instance of *moral paternalism*. This is the possibility examined by Bullock, who identifies several constraints on the permissible use of CPNs for this purpose.

One aspect of CPNs that has until now received no sustained philosophical attention is humanity's atrocious track record in this area. Though many authors note that CPNs have frequently been misused, the possibility that this might have ethical implications for how they should be used today has not been thoroughly interrogated. McTernan (Ch 15) argues that the history of treating socially undesirable behaviour with medical interventions provides a defeasible reason against the use of contemporary and future CPNs.

Existing discussion of CPNs has also been largely silent on the psychological details of how CPNs achieve their desired effects, yet these details might be crucial to their moral permissibility. McMillan (Ch 12) illustrates some of these nuances through a discussion

of Anthony Burgess' *A Clockwork Orange*, which is often mentioned but seldom explored in debate regarding CPNs.

Finally, while most of the discussion of CPNs has focused on their possible use in adult criminal offenders, there are other populations in which we might imagine these interventions being used, or advocated for use. The contributions by Stemplowska and Clayton and Moles consider two such uses. Stemplowska argues that victims of wrongdoing are likely to have immunity from coercive CPNs, even if, in the absence of such interventions, they will fail to comply with their duties towards the wrongdoers (Ch 18). Clayton and Moles examine the possible use of CPNs in children, arguing that this would sometimes be permissible and indeed that moral constraints on CPN use in this population are less restrictive than those applying to their use in adults (Ch 13).

Our primary goal in editing this collection has been to substantively advance the ethical debate on CPNs, but we hope that this book will also serve as a stimulus for further discussion on the topics that it addresses, and on related questions that remain uncharted. Three questions seem, to us, to be particularly worthy of further attention.

First, what is the nature, scope, strength and robustness of our moral rights against mental interference? Several chapters in this volume advert to such a right, but with one notable exception[12] it has received little philosophical attention, particularly in comparison with thoroughly analysed rights against *bodily* interference.

[12] Jan Christoph Bublitz and Reinhard Merkel, 'Crimes Against Minds: On Mental Manipulations, Harms and a Human Right to Mental Self-Determination', *Criminal Law and Philosophy* 8 (2014), pp. 51–77.

Second, what bearing do the ethical issues raised by forensic risk assessment have on the ethics of CPN use? In most applications, CPNs would only be considered for use in offenders who pose particularly serious risks to the public, or risks that are particularly likely to be amenable to mitigation via CPNs. But the algorithmic risk assessment tools that would probably be used to assess such risks raise a number of ethical questions of their own—questions, for example, about their reliance on statistical generalizations about demographic groups, and their potential to compound criminal justice systems' biases against ethnic minorities.

Third, how is the ethics of CPN use affected by the moral noncompliance of many existing criminal justice systems? When philosophers have discussed the practice of offering prisoners the choice between further imprisonment and a CPN, they have tended to assume that further imprisonment would itself be ethically permissible and assessed the offer of a CPN against that baseline. But several penal theorists argue that prevailing incarceration practices are in fact unjustifiably harsh. If they are right, how would this affect the arguments for and against CPN use? This issue is only just beginning to be addressed.[13]

[13] For a rare example of a paper that addresses it, see Ryberg, chapter 9, this volume.