

***MINORITY REPORT OR MAJORITY SAFETY? fMRI,
PREDICTING DANGEROUSNESS AND A PRE-CRIME FUTURE.***

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Abbreviations

ASBO	Anti-social Behaviour Order
CHPO	Child Harm Prevention Order
CJS	Criminal justice system
ECHR	European Court of Human Rights
ESO	Extended Supervision Order
fMRI	Funcional Magnetic Resonance Imaging
ICCPR	International Covenant on Civil and Political Rights
NZBORA	New Zealand Bill of Rights Act 1990
PD	Preventive Detention
PET	Positron Emission Tomography
PPG	Penile plethysmograph assessment
PPO	Public Protection Order
UK	United Kingdom
US	United States of America

Introduction

“Living backwards!’ Alice repeated in great astonishment. ‘I never heard of such a thing!’
‘— but there’s one great advantage in it, that one’s memory works both ways.’
‘I’m sure mine only works one way.’ Alice remarked. ‘I can’t remember things before they happen.’
‘It’s a poor sort of memory that only works backwards,’ the Queen remarked.
‘What sort of things do you remember best?’ Alice ventured to ask.
‘Oh, things that happened the week after next,’ the Queen replied in a careless tone. ‘For instance, now,’ she went on, sticking a large piece of plaster on her finger as she spoke, ‘there’s the King’s Messenger. He’s in prison now, being punished: and the trial doesn’t even begin till next Wednesday: and of course the crime comes last of all.’
‘Suppose he never commits the crime?’ said Alice.
‘That would be all the better wouldn’t it?’ the Queen said, as she bound the plaster round her finger with a bit of ribbon.
Alice felt there was no denying that. ‘Of course it would be all the better,’ she said: ‘but it wouldn’t be all the better his being punished.’
‘You’re wrong there, at any rate,’ said the Queen: ‘were you ever punished?’
‘Only for faults,’ said Alice.
‘And you were all the better for it, I know!’ the Queen said triumphantly.
‘Yes, but then I had done the things I was punished for,’ said Alice: ‘that makes all the difference.’
‘But if you hadn’t done them,’ the Queen said, ‘that would have been better still; better, and better, and better!’”

- Lewis Carroll, *Through the Looking-Glass*.¹

The criminal justice system has traditionally been reactive in nature. X commits a crime, he² is subsequently brought to trial, convicted, and sentenced. His punishment is warranted as retribution, because as an autonomous moral agent, he has failed to conform to society’s declared expectations. X has got his “just-deserts” – an eye-for-an-eye, Biblical type exchange for the harm he has caused to society (and his victim).

Alternatively, X may be acquitted by reason of insanity.³ He is judged to have been, at the time the alleged offence occurred, unaware of the nature and quality of his actions, such that he does not deserve moral – and therefore, on this approach, legal - blame for his actions.⁴

¹ Lewis Carroll and Hugh Haughton *Through the Looking Glass, and what Alice found there* (MacGibbon and Kee, London, 1972).

² This dissertation focuses predominantly on serious sex offenders. Because such offenders are commonly male, my examples will always refer to the hypothetical offender as “he”. However, contrary to popular perception, female paedophiles do exist and are estimated to commit around 5% of child sex abuses: Andre Desiront “La pedophilie au femenin” (1999) 40 *Chatelaine* 50.

³ Other volition-undermining factors, such as intoxication, may also be relevant to legal liability.

This so-called “desert-disease”⁵ jurisprudence has traditionally provided justification for the State to detain offenders, either by way of punishment (desert)⁶ or for treatment (disease).⁷ In either case, the cogs of the criminal justice system (CJS) begin to turn *after* the offence has been committed. A criminal trial cannot occur without a crime having first been allegedly committed.

Lewis Carroll’s Red Queen, then, has it all wrong. Her logic is twisted. How can the sentence come before the trial, and the trial before the crime? We naturally side with Alice: we share with her a notion of criminal justice that is deeply rooted in retribution. The King’s Messenger could not possibly be punished before he even commits the crime. While, like Alice, we can see the benefit in preventing harm before it occurs, there seems something simply *wrong* about punishing people to stop them committing the crime in the first place.

Even if in Wonderland punishment can precede the crime, this is just a typically Carrollian reversal of what seems logical – comic nonsense, nothing more.

But what if this pre-crime and pre-punishment paradigm, rather than being simply a perverted product of the Queen of Hearts’ absurd world, were to dominate our own concept of criminal justice? What if the paradigm that underlies our CJS were to shift? What if the ex-post-facto operation of our CJS were altered, so that criminals were tracked down and stopped before they committed any offence at all?

This is not just the stuff of science fiction, dystopian novels or films starring Tom Cruise.⁸ I will argue that a paradigm shift in the focus of the CJS from backwards-looking reactionary

⁴ The first version of the insanity defence as we know it was the M’Naghten rule, from *M’Naghten’s Case*, [1843] 8 Eng. Rep. 718 (H.L.) 722. That defence is now contained in s 23(2) Crimes Act 1961.

⁵ Herbert L. Packer *The Limits of the Criminal Sanction* (Stanford University Press, 1968).

⁶ Here, “desert” refers not to a sandy area of land but rather to the condition of being deserving of something: *Oxford English Dictionary* (online ed: <www.oed.com>).

⁷ Stephen J. Morse “Common Criminal Law Compatibilism” in Vincent, Nicole A. (ed) *Neuroscience and Legal Responsibility* (Oxford University Press, New York, 2013) 25 at 28.

⁸ This is a reference to “The Minority Report”, a 1956 short story by Phillip K. Dick in which the term “pre-crime” originated: Phillip K. Dick “The Minority Report” in *The Variable Man and other stories* (Ace Books, New York, 1957). The story was interpreted as a full-length movie, *Minority Report*, by Stephen Spielberg in 2002.

punishment to forwards-looking crime prevention constitutes not only the probable future of the CJS, but, increasingly, defines its reality too.

While the reactive paradigm is premised on desert-disease jurisprudence, this new proactive paradigm finds its justification for action based on risk assessment: all citizens pose a risk, which varies based on their inherent dangerousness. Increasingly, this risk-averse community – the “pre-crime society” – sees the criminal law as a first resort rather than an *ultimum remedium*.⁹ A temporal shift results. This crime society brings an imagined future to the present, making the criminal justice exercise future-oriented.¹⁰

Chapter I examines the emergence of a pre-crime paradigm. New sentencing tools focus on prevention rather than punishment, and quasi-criminal offences provide for precautionary criminalisation. Fuelling these developments are politicians’ ‘tough on crime’ stances, a risk-averse populace, and a desire to pre-empt offending by neutralising dangerous individuals. I argue that these pre-crime measures raise significant human rights issues but, to date, these issues have received inadequate attention.

Chapter II considers how pre-crime intervention of the law may be assisted by emerging predictive technologies. It focuses on using functional Magnetic Resonance Imaging (fMRI) brain scans to assess individuals’ deviant desires. Specifically, how might this technology be used to detect paedophilic thoughts, perhaps thereby making it possible to pre-empt child sex offending? Detecting paedophilic thoughts is only one use to which fMRI might be put in a legal context.¹¹ It may be, however, a particularly plausible one: there is something especially abhorrent about child sex offending which suggests that any and all available tools to prevent its commission would be enthusiastically employed by a pre-crime society. Paedophiles may be the pre-crime ‘thin edge of the wedge’.

⁹ Bert-Jaap Koops “Technology and the Crime Society: Rethinking Legal Protection” (2009) 1 *Law, Innovation and Technology* 93 at 94.

¹⁰ Richard V. Ericson and Kevin D. Haggerty *Policing the Risk Society* (1st ed., Clarendon Press, Oxford, 1997) at 87.

¹¹ Discussion is deliberately limited to fMRI’s predictive use, rather than the myriad other possibilities it presents for the criminal justice system. Furthermore, fMRI is only one of a range of emerging actuarial technologies with interesting applications for assessing risk and predicting criminal behaviour. The rights issues its use may raise are common to other technologies which will continue to develop in the near future.

Regardless of the repulsion that child sex offenders inspire in most people, using fMRI to predict their offending – particularly if they have not been convicted of a child sex offence at all - raises significant rights issues. I suggest that our concerns with the legal system’s use of predictive technologies, of which fMRI is one example, are in three areas:

1. **Utility:** what legal consequences can flow from data obtained from the technology in question?
2. **Accuracy:** what can the technology predict, and how reliably? And
3. **Legitimacy:** are we justified in using the technology for this purpose, and drawing the proposed legal conclusions? What competing concerns must be balanced?

Chapter II addresses the first two of these areas. Then, focussing on legitimacy, Chapter III uses hypothetical uses of fMRI in predicting dangerousness at different points along the criminal justice pathway: from post-sentence risk assessment to prophylactic screening. What promise and problems do these applications of fMRI present?

I argue that in New Zealand, existing rights protection will prove ineffective in the face of legislation that is driven by public risk aversion, a particular fear of child sex offenders, and overarching precautionary policy. New Zealand’s weak separation of powers and lack of entrenched constitution means that there is a risk of (perceived) majority safety being protected at the expense of individual civil liberties. A *Minority Report* future may not be just science fiction.

I Trading on dangerousness: the trend towards predicting offending and the emergence of the pre-crime society

“From a legal point of view, there is nothing inherently unattainable about a prediction of future criminal conduct.”¹²

“Legal measures for preventing and investigating crime respond to public expectations and perceptions of insecurity rather than intrinsic needs of crime-fighting and actual insecurity. Boundaries set by the legal system of checks and balances are crossed because there is a political need to show that the *vox populi*... is listened to.”¹³

“Ordinary, everyday New Zealanders want to know and ensure that their safety is actually paramount in this Parliament.”¹⁴

A Introduction

Evidence of the trend towards a new criminal paradigm – in which prevention is better than cure – can be found in:

- + Legislative measures in New Zealand that are premised on predicting and minimising future harm:
 - i.** Preventive Detention;
 - ii.** Extended Supervision Orders; and
 - iii.** Proposed Public Protection Orders;

- + Legislative development of quasi-criminal measures which evidence ‘precautionary criminalisation’:
 - i.** Anti-Social Behaviour Orders (United Kingdom); and

¹² *Schall v Martin*, 467 U.S. 253, 278 (1984).

¹³ Koops, above n 9, at 104.

¹⁴ Hon. Alfred Ngaro of the National Party, in commending the Public Safety (Public Protection Orders) Bill to the House in its first reading: (17th September 2013) 693 NZPD 82.

ii. The Terrorism Act 2006 (United Kingdom).

These illustrate a move towards a proactive approach, driven by a desire to minimise risk and pre-empt offending. The result is “a fuzzy combination of criminal, civil and administrative measures with distinctly neo-criminal law goals.”¹⁵

B *Pre-crime’s genesis and the idea of dangerousness*

Why is this pre-crime paradigm emerging now? Many commentators¹⁶ have suggested that the ‘war on terror’ hysteria sparked by 9/11 and other acts of terrorism have precipitated an explosion of risk-prevention measures.¹⁷ Predicting, pre-empting and avoiding harm altogether has become paramount, and pre-crime assessment is the logical criminal justice extension of this policy imperative.

Fear of terrorism has meant that the line between crime control and national security – once the separate responsibility of the courts and the legislature respectively - has become increasingly hard to define. The hybrid result bypasses the procedural safeguards of traditional criminal law, leaving courts at the mercy of determined legislatures grappling with the paradigm shift:¹⁸

A policy judgment has been made that the prevention of terrorism requires criminal responsibility to arise at an earlier stage than is usually the case for other kinds of criminal conduct... The courts must respect that legislative policy.

¹⁵ Koops, above n 9, at 117.

¹⁶ See for example Jessica Stern and Jonathan Wiener “Precaution Against Terrorism” (2006) 9 Journal of Risk Research 393; Jude McCulloch and Sharon Pickering “Pre-Crime and Counter-Terrorism” (2009) 49 British Journal of Criminology 628; Heidi Mork Lomell “Punishing the uncommitted crime: prevention, pre-emption, precaution and the transformation of criminal law.” in Barbara Hudson and Synnøve Ugelvik (eds) *Justice and Security in the 21st Century: Risks, Rights and the Rule of Law* (Taylor and Francis, 2012); Mara Boundy “The Government Can Read Your Mind: Can the Constitution Stop It?” (2012) 63 Hastings Law Journal 1627 at 1629; and Matthew Baptiste Holloway "One Image, One Thousand Incriminating Words: Images of Brain Activity and the Privilege against Self-Incrimination" (2008) 27 Temp. J. Sci. Tech & Envtl. L. 141 at 143.

¹⁷ McCulloch and Pickering, above n 16, at 639.

¹⁸ *Lodhi v Regina* [2006] NSWCCA 121, per Spigelman CJ at 66. (Emphasis added).

A key concern of the pre-crime society is assessing dangerousness, and acting to minimise it. ‘Dangerousness’ here denotes a particular kind of risk prediction: a dangerous individual poses a risk of causing *serious harm*, because of their inherent characteristics.¹⁹ Past conduct is only relevant insofar as it provides insights into likely future behaviour. Dangerousness can be a purely predictive assessment.

The shift in approach from a reactive to a proactive justice system, driven by policy concerns that favour collective safety over an individual’s right to due process, has obvious implications for human rights. However, the measures discussed below have received little scrutiny. As examples of steps towards pre-crime intervention of the CJS, I argue that they foreshadow the inefficacy of rights legislation against clear statutory policies which mandate intervention on the basis of future dangerousness, rather than past offending.

C *Sentencing measures in New Zealand*

(i) Preventive Detention

The law already takes a proactive approach to some kinds of offending, in some circumstances. Making predictions about offenders’ likelihood of reoffending in the future is nothing new. Risk prediction is engaged in at many stages along the criminal justice pathway: in deciding whether to grant bail, probation, at parole hearings, whether to impose preventive detention (PD) and involuntary commitment.

PD was New Zealand’s first sentencing measure to take a declaredly preventive approach to future offending.²⁰ Imposed at the time of sentencing and premised on likely future dangerousness, it is essentially an indeterminate life sentence: even when released on parole, an

¹⁹ Michael Petrunik “The Hare and the Tortoise: Dangerousness and Sex Offender Policy in the United States and Canada.” (2003) 45 *Canadian Journal of Criminology and Justice* 43 at 45.

²⁰ With origins in the early 20th century, as a sentencing option PD was legislatively enshrined by the Criminal Justice Act 1954. The policy behind that Act was driven largely by contemporaneous developments in the United Kingdom: John Meek “The Revival of Preventive Detention in New Zealand 1986 – 93” (1995) 28 *Australian & New Zealand Journal of Criminology*: 225 at 228. See also Geoff Hall *Sentencing: 2007 Reforms in Context* (1st ed, LexisNexis, Wellington, 2007) at 435.

individual subject to PD may be recalled at any point.²¹ A sentence of PD may be imposed whenever an offender's detention is expedient for public protection.²² This community safety policy underlies many of the proactive crime prevention measures developed since PD's introduction.

When it was introduced, PD was available for repeat sex offenders, as well as other recidivist offenders with multiple convictions who had previously been incarcerated.²³ However, sentences were imposed infrequently.²⁴ By 1981, the Penal Policy Review Committee recommended that PD be abolished. Concerned that making accurate predictions about future offending was difficult, it concluded that lengthy finite sentences were preferable to PD.²⁵

Achieving predictive accuracy remains difficult.²⁶ Yet increasing public concern over crime rates and corresponding political interest around the issue led to the retention, and substantial broadening, of the PD regime.^{27,28}

²¹ Section 6(4)(d) Parole Act 2002.

²² Section 24(2) Criminal Justice Act 1954.

²³ Section 24(1) Criminal Justice Act 1954.

²⁴ Meek, above n 20, at 228.

²⁴ An average of 19 offenders received the sentence in each of the years between 1955 and 1959, declining to an average of only 10 per year in 1960 to 1964, and fewer than three between 1965 and 1967. Between 1955 to 1967, at total of 152 offenders, all male, were sentenced to preventive detention: Meek, above n 20, at 229.

²⁵ ME Casey, Chair (1981) Report of the Penal Policy Review Committee, Government Printer, Wellington, N.Z. at 59 – 60.

²⁶ Judicial acceptance of risk prediction evidence varies between courts and jurisdictions. For example, in *Belcher*, Keane J expressed enthusiasm for the range of statistical risk prediction instruments relied upon by the Chief Executive of Corrections, who had applied for an Extended Supervision Order with respect to the respondent (Belcher). Keane J's reliance on these actuarial measures was a key reason underlying his imposition of the order sought: *Chief Executive of the Department of Corrections v Belcher* HC Auckland CRI-2004-404-444, 22 April 2005 at [50]. By contrast, the Court of Appeal in *R v Peta* [2007] NZCA 28, [2007] 2 NZLR 627 recognised that the utility of statistical risk assessment tools such as SONAR [Sex Offender Needs Assessment Rating] depended on their being properly administered, accurately interpreted and explained in court: see *R v Peta* at [51].

²⁷ Specifically, in Labour's Criminal Justice Act 1985: Hall, above n 20, at 435.

²⁸ This public concern was not caused by a rise in criminal prosecutions though. Since 1980, absolute prosecution numbers have stayed relatively stable, despite substantial population growth over the same period. As such, actual crime rates have not risen and cannot explain this increase in public concern. See Statistics New Zealand, *Prosecuted People by ANZSOC*, data extracted 12th July 2013. <<http://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE7352>>

Between 1987 and 1993, some offenders were sentenced to PD without having first served a term of imprisonment at all. This was a major departure from the original “last resort” nature of PD as a sentencing tool. As such, “this previously little-used sentence became a central feature of the efforts of successive governments to respond to public fears about increasing levels of violent crime.”²⁹

Since the current PD provision was enacted,³⁰ PD sentences have been imposed frequently, including on first-time offenders.³¹ For example, recently James Parker - Kaitaia’s “paedophile school teacher”³² - was sentenced to PD with a minimum non-parole period of seven years, on 74 sex abuse charges.³³

Despite the passage of the New Zealand Bill of Rights Act 1990 (NZBORA), there has been only limited consideration of PD’s rights implications. In *R v Leitch*,³⁴ the defendant submitted that PD breached s 9 NZBORA – the right to be free from disproportionately severe treatment or punishment - because PD amounts to punishment for possible offending rather than for crimes already committed.³⁵

The Court of Appeal addressed these submissions only briefly. Its concern was the “appropriateness of the sentence in terms of domestic law”³⁶ and it was not for it to examine whether New Zealand was fulfilling its international obligations (for example, under the

²⁹ Meek, above n 20, at 227.

³⁰ Contained in s 87 Sentencing Act 2002.

³¹ Hall, above n 20, at 435.

³² Matthew Theunissen “Child abuser James Parker sentenced to preventive detention” *The New Zealand Herald* (online ed, Auckland, 15th August 2013) at 1.

³³ Interestingly, at sentencing Heath J said he would have imposed a longer non-parole period, but for the fact that Parker could only enter a treatment programme at the end of his punitive sentence. The Judge felt that treatment was clearly warranted: “The lower minimum period is based on my perception that the sooner you become eligible for parole the sooner you will begin treatment for your disorder. I doubt very much whether you would be released on that first opportunity, but it would give the Parole Board an opportunity to become involved at an earlier time to make its own assessment of risk and to ensure that you undergo the correct treatment programmes.”: *R v Parker* [2012] NZHC 2075. This raises important issues about the role of incarceration of sex offenders and whether a treatment regime would, in some cases, be preferable to a punitive sentence. Unfortunately consideration of such issues is beyond the scope of this dissertation.

³⁴ *R v Leitch* [1998] 1 NZLR 420 (CA), 431.

³⁵ Hall, above n 20, at 455.

³⁶ *R v Leitch* at 15.

International Covenant on Civil and Political Rights³⁷ (ICCPR), on which the NZBORA was based).³⁸ It also noted the role of ss 4 and 5 NZBORA, which constrain the Court's ability to act in the face of a NZBORA inconsistency.³⁹

In *R v D*,⁴⁰ the Court of Appeal, referencing the Sentencing Act 2002, said:⁴¹

[Parliament has approved] *Leitch*, concerning criteria for the imposition of the sentence, to a large degree and against a background of a consideration of New Zealand's obligations under the ICCPR. *It would thus clearly be inappropriate for this Court to depart from that decision.*

In *R v Dean*,⁴² the full Court of Appeal held that, when considering an offender's eligibility for PD, the Court must look at the factors contained in s 87(4) of the Sentencing Act 2002, and not to the NZBORA. It said:⁴³

If by application of those criteria the court considers the defendant does pose a significant and ongoing risk to the safety of the community, it would not be open to the court to deny that risk and to impose a lesser sentence because of some prior breach of the defendant's rights.

New Zealand's existing human rights legislation may therefore be something of an ineffectual bulwark against Parliament's clearly-stated PD regime. As an early example of a risk-driven measure which is part-punishment, part-prophylactic, it may foreshadow the futility of rights legislation in the face of clear Parliamentary intention.

³⁷ International Covenant on Civil and Political Rights 1966 (UN).

³⁸ *R v Leitch* at 15.

³⁹ These sections provide that no NZBORA provision shall override other enactments by reason only of those enactments' conflict with the NZBORA (s 4) and that the rights contained in the Act are subject to such reasonable legislative limits as can be demonstrably justified in a free and democratic society (s 5) – that is, they are not absolute.

⁴⁰ *R v D* [2003] 1 NZLR 41 (CA).

⁴¹ *R v D* at [30] (emphasis added). The PD regime in its Criminal Justice Act 1985 form was also considered by the UN Human Rights Committee. A majority of the Committee held that the regime did not constitute arbitrary punishment. However, it said that the inability of a detainee to challenge the justification for his continued detention was in breach of art 9(4) of the ICCPR: *Rameka v New Zealand* (2003) 7 HRNZ 663 at [7.2].

⁴² *R v Dean* (CA 172/03, 17 December 2004) [2005] BCL 227.

⁴³ *R v Dean* at [91].

(ii) Extended Supervision Orders

Increasingly, Parliament and the Courts seek ways to deal with dangerous offenders at sentencing, after sentence, and before any crime (or further crime) is committed. These measures respond to increasing public concern over serious violent and sexual crime, and the political currency that ‘tough on crime’ stances garner.⁴⁴

Despite the enactment of the NZBORA, little more than lip-service seems to have been given to the rights implications of PD and sentencing measures developed since, such as Extended Supervision Orders (ESOs)⁴⁵ and the recently-proposed Public Protection Orders (PPOs).⁴⁶ Consider, for example, the difference between s 7 NZBORA reports⁴⁷ made by the Attorney-General, Hon. Chris Finlayson, on ESO amendment legislation, and the proposed PPO legislation respectively.

ESOs allow restrictions to be imposed on an offender who becomes eligible for release following imprisonment for certain sex offences.⁴⁸ An offender is eligible if he has been continuously in prison since last sentenced to a qualifying offence, but is not subject to PD.⁴⁹ The regime applies retrospectively to offenders sentenced before its enactment, indicating Parliament’s willingness to backdate rights-limiting legislation.⁵⁰

⁴⁴ Vociferous political advocacy groups such as New Zealand’s Sensible Sentencing Trust, media coverage of crime, and prime-time shows like *Police 10-7* contribute to a public awareness of criminal danger. It is therefore unsurprising that populist ‘tough-on-crime’ stances abound politically: Andrew Geddis “In Praise of Judith Collins” <http://pundit.co.nz> (18 January 2013).

⁴⁵ First introduced by the Parole (Extended Supervision) Amendment Act 2004.

⁴⁶ The Public Safety (Public Protection Orders) Bill 2012 which had its first reading in the House on the 17th of September 2013 makes provision for these.

⁴⁷ Section 7 NZBORA requires the Attorney-General to report to Parliament on the New Zealand Bill of Rights Act-compliance of any Bill introduced into the House.

⁴⁸ The ESO regime is specifically concerned with child sex offenders. The reason for this, as explained by the Hon. Simon Power at the second reading of the Parole (Extended Supervision Orders) Amendment Bill 2009, is the unique nature of child sex offending. In his speech, Simon Power said that research indicates that a minority of child sex offenders pose a high risk of reoffending, but that the rate of reoffending of that minority does not decline over time. Therefore a particular legislative response to these offenders’ ongoing dangerousness is required: (2 April 2009) 653 NZPD 2577.

⁴⁹ Section 107C Parole Act 2002.

⁵⁰ Section 107C(2) Parole Act 2002.

An ESO may last up to 10 years following release.⁵¹ The available restrictions are significant:⁵² the offender must report regularly to a probation officer and limits may be imposed on who the offender can associate with.⁵³ Special conditions may include home detention enforced by way of electronic monitoring,⁵⁴ or 24-hour person-to-person monitoring by a Corrections official.⁵⁵ While generally under the Parole Act 2002 home detention may only be imposed with the offender's consent,⁵⁶ no consent need be obtained when an ESO is imposed.⁵⁷

In his s 7 report on a bill amending the ESO regime,⁵⁸ the Attorney-General concluded that the ESO regime was inconsistent with the NZBORA.⁵⁹ As ESOs are imposed after a punitive sentence has been served (and long after the sentencing process, unlike PD), the regime is inconsistent with s 26 NZBORA which prohibits retroactive penalties and double jeopardy.

On the Attorney-General's analysis, the NZBORA-consistency of a sentencing regime depends on whether that regime can be characterised as penal or civil. The former will be NZBORA-inconsistent by virtue of the s 26 prohibitions, while the latter will avoid inconsistency, since it will not constitute criminal punishment: if there is no double punishment, there is no double jeopardy. Here, the ESO regime was considered penal because it included the power of long term restriction of an offender's freedom of movement beyond punitive sentence.⁶⁰ An ESO in practice constitutes an additional sentence for the same offending.

⁵¹ Section 107N(5) Parole Act 2002.

⁵² At present, home detention on these terms may only last for the first 12 months after the ESO is imposed: s 107K(2) Parole Act 2002. Nevertheless, it would be possible for a new order on the same terms to be made at 12-month intervals.

⁵³ Section 107JA Parole Act 2002.

⁵⁴ Per s 107K Parole Act 2002, any of the conditions listed in s 15 of the same Act may be imposed as part of an ESO. This section is indicative and not exhaustive of the conditions available: s 15(3).

⁵⁵ Section 107K(2) Parole Act 2002.

⁵⁶ Section 35(c) Parole Act 2002.

⁵⁷ Section 107K(1A) Parole Act 2002.

⁵⁸ The Parole (Extended Supervision Orders) Amendment Bill 2009. The ESO regime was originally created by the Parole (Extended Supervision) Amendment Act 2004 Act. When it was first introduced to the House, then-Governor General Dame Silvia Cartwright wrote a s 7 report declaring the regime NZBORA-inconsistent.

⁵⁹ Christopher Finlayson Report of the Attorney-General under the New Zealand Bill of Rights Act 1990 on the Parole (Extended Supervision Orders) Amendment Bill 2009 (2nd April 2009) at 2.

⁶⁰ Finlayson at 3.

The ESO regime was also judged by the Attorney-General to be inconsistent with s 22 NZBORA. ESOs infringe this section, which prohibits arbitrary detention, because they allow detention of subjects based on a prediction of sufficient risk of future offending, not because of offences already shown beyond reasonable doubt to have been committed. The Attorney-General commented: “I think detention which is imposed solely on the basis of possible future offending, rather than proved past offending, is inherently problematic.”⁶¹

The ESO bill had been touted as simply technical, closing loopholes created by the Parole Amendment Act 2007.⁶² There was cross-party consensus that it would pass without debate. In a single day the Attorney-General published his report and the bill passed unamended through all three readings.⁶³

The Attorney-General’s report and Parliament’s response (or lack of) suggest:

1. The classification of a regime as either penal or civil will determine its NZBORA compliance;
2. The Attorney-General was uncomfortable with the forward-looking, proactive operation of the ESO regime; and
3. Parliament was willing to override a clear declaration of NZBORA-inconsistency to pass the bill.

⁶¹ Finalyson, above n 59, at 4.

⁶² Loopholes which had, incidentally, given rise to legal challenges by prisoners subject to ESOs at the time.

⁶³ Only the Green Party reacted to the Attorney-General’s report of NZBORA-inconsistency, questioning whether the Bill was truly technical in nature after all, and voting against the Bill’s passage: (2 April 2009) 653 NZPD 2377.

(iii) Public Protection Orders

The protective plot thickens. On the 18th of September 2013, the Public Safety (Public Protection Orders) Bill passed its first reading in the House.⁶⁴ This bill empowers the High Court to impose PPOs on high risk offenders⁶⁵ at the conclusion of their punitive sentences, thereby allowing their indefinite detention at a secure facility within prison precincts.⁶⁶ If passed into law, it would be New Zealand's first purely predictive sanction.

The bill represents fulfilment of the National Party's promised 'law and order' policy, made before the 2011 general election, to create new civil detention measures for New Zealand's most high-risk offenders.⁶⁷ The policy's development coincided with the release from prison of Stuart Murray Wilson – the infamous “Beast of Blenheim”⁶⁸ - a further example of public concern directly fuelling legislative developments in this area.

Before the bill was introduced, it was predicted that the Attorney-General would declare the proposed regime to be NZBORA-inconsistent.⁶⁹ PPOs go further than controlling released prisoners' movements like ESOs: under a PPO, inmates can be detained on prison grounds, with limited civil liberties, for a potentially indeterminate period of time.

⁶⁴ The Bill had been introduced to the house exactly a year beforehand, by Hon. Judith Collins, on the 18th of September 2012. It passed its first reading by 106 votes to 14, with the Green Party and Mana voting against the bill's progression: (18 September) 693 NZPD 31.

⁶⁵ While ESOs may be imposed on sex offenders only, if made law, PPOs will provide for the detention of individuals that pose a “very high risk of imminent serious sexual or violent offending”: Christopher Finlayson, Report of the Attorney-General under the New Zealand Bill of Rights Act 1990 on the Public Safety (Public Protection Orders) Bill 2012. (14th October 2012) at 1.

⁶⁶ Q & A – Public Safety (Public Protection Orders) Bill, released by the Office of the Hon. Judith Collins, September 2012.

⁶⁷ Andrew Geddis, “No doubt the precogs have already seen this (redux)” (11 April 2012) Pundit <<http://pundit.co.nz/content/no-doubt-the-precogs-have-already-seen-this-redux>>. Child Harm Prevention Orders discussed in Chapter II are another example of this National government's policy.

⁶⁸ In fact, Hon. David Clendon of the Green Party noted the at the time of the bill's introduction to the House in September 2012 that “there was a great deal of attention being paid to the form of release of [Wilson]... There was an extraordinarily irresponsible display of media reporting, there was an extraordinary level of sensationalism about that single case, and I do think that in a sense paved the way, potentially, for legislation like this, which in the Green view *does significantly overstep the mark*.”: (17th September 2013) 693 NZPD 80. (Emphasis added).

⁶⁹ Andrew Geddis certainly thought so, based on the Attorney-General's own previous statements with regard to the ESO amendments and given the more extensive limits on freedom entailed by PPOs. See Geddis, above n 67.

However, in a seemingly inexplicable change of opinion, the Attorney-General declared that the PPO regime was in fact NZBORA-compliant.⁷⁰ His justification for doing so was that the PPO regime is civil in nature rather than penal. That conclusion rested on the bill's procedural safeguards (for example, that PPOs will be regularly reviewed and their ongoing imposition justified), its "broad interpretive principles"⁷¹, and the fact that the bill itself proclaims that it is not punitive.⁷²

This reasoning fails to address the practical rights implications of PPOs, which provide for ongoing (perhaps indefinite) detention, on prison grounds, of offenders whose term of imprisonment has otherwise ended. It is an incarcerative regime. This detention is not premised on concrete serious offending as a PD sentence is – it rests instead on predictions of future dangerousness. In terms of the principles behind imposing a PPO, previous offending is only one factor to be considered.⁷³

While an ESO may only be granted on application to the court which originally sentenced the offender in question,⁷⁴ and is therefore a vestige of the original punishment imposed, the PPO regime's purpose section explicitly breaks ties with previous offending.⁷⁵ The bill says that PPOs are not punitive, and therefore, the NZBORA protections which attach to criminal trials are circumvented. This seems like nothing more than semantics, because significant rights implications – offenders' freedom to live in the community at the end of their punitive sentences, the right to be considered innocent (including of future possible crimes) until proven

⁷⁰ Finlayson, above n 65, at [27].

⁷¹ Finlayson, above n 65, at [6].

⁷² See for example, clause 4(2), the Bill's objective section, which provides that "it is not an objective of this Act to punish persons against whom orders are made under this Act". Even more bizarre than his apparent change of heart was the Attorney-General's presentation of the s 7 advice. It indicated that the report was his own *personal* view of the Bill's NZBORA-compliance, rather than an official one. He referred only to himself, rather than to any named advisers (as is normally the case in such reports), perhaps signalling that he went against official advice in declaring the PPO regime to be NZBORA-consistent. See Andrew Geddis "Invictus" (October 11 2012) Pundit <<http://pundit.co.nz/print/2624>>

⁷³ Clause 5 Public Safety (Public Protection Orders) Bill 2012.

⁷⁴ Section 107D Parole Act 2002

⁷⁵ Procedurally, though, an individual is only eligible for a PPO (at least under the current regime) if they are presently in custody for committing a serious sexual or violent offence. That is, a PPO cannot presently be imposed on a first-time offender, or someone who has not been convicted of any offence at all: Public Safety (Public Protection Orders) Bill, clause 7.

guilty, and more – follow regardless.⁷⁶ Labelling forward-looking pre-crime interventions as civil rather than criminal camouflages them, enabling encroachment on fundamental civil liberties while sidestepping criminal procedure protections.

The qualifying threshold for PPO eligibility is, thankfully, high: the offender must be shown to be at a very high risk of serious violent or sexual offending, based on two health assessors' reports.⁷⁷ This is the key procedural safeguard on which the Attorney-General based his assessment of the regime as civil rather than penal.⁷⁸

What does this threshold actually mean in practice? In its Regulatory Impact Statement, even the Department of Corrections recognised that risk assessment of these offenders is a shaky foundation on which to premise a serious deprivation of offenders' rights. It said that “[i]t is not possible to accurately report recidivism data for such a small and unique subset of offenders”.⁷⁹ So while the threshold for eligibility may seem high, the techniques used to assess this eligibility are unreliable. It seems difficult to justify the deprivation of rights associated with a PPO on the basis of such inaccurate risk assessment.

This apparent willingness to disregard individual rights in favour of perceived collective safety indicates a wider trend. The Attorney-General is a political figure. It makes sense that he would pander to an increasingly risk-averse society that feels comfortable using assessments of dangerousness to justify action.

⁷⁶ Hon. David Clendon agrees. At the bill's first reading, he said: “The proposition is that this legislation is not punitive, that it will not impugn human rights, and that it will not contravene our New Zealand Bill of Rights Act. Despite, dare I say it, the rather convoluted semantics of the Attorney-General's report, inevitably, this will be found in breach if it goes ahead in its current form.” (17th September) 693 NZPD 84.

⁷⁷ Clause 5 Public Safety (Public Protection Orders) Bill

⁷⁸ Several of the Members of Parliament who commended the bill to the House during its first reading also emphasised that this risk assessment requirement was an important safeguard which could justify the Public Protection Orders' rights-limiting operation. See for example the speeches of Hon. Kris Faafoi and Hon. Dennis O'Rourke.

⁷⁹ Department of Corrections Regulatory Impact Statement: Management of high risk sexual and violent offenders at end of sentence (March 2013) at 1.

The PPO Bill constitutes the latest step towards a predictive rather than reactive model of criminality. Currently,⁸⁰ only offenders who have already served punitive sentences are eligible for PPOs.⁸¹ However, the next logical step down the pre-crime pathway, foreshadowed by the PPO Bill's principles section, is for an order to be made on the basis of risk assessment alone, before any offence occurs at all. Another tool currently in the legislative pipeline, Child Harm Prevention Orders (discussed below) does exactly that.

(iv) Conclusion

ESOs and PPOs constitute difficult hybrid measures, part-punishment and part-prevention, that do not square with the traditional criminal paradigm. Parliament is clearly willing to curtail offenders' rights and freedoms in pursuit of the ultimate policy imperative of perceived public safety. No matter how the schemes that achieve this end are labelled, the result is the same. In fact, Parliament's explicit emphasis on PPOs' civil nature rather than trying to cloak the regime in a 'criminal' blanket shows a shift in attitude: serious offenders need a special, separate regime. They cannot be punished for crimes they have not yet committed, but in the mean time they are too dangerous to be given the benefit of the doubt and let loose.

This attitude warrants much more scrutiny than it has received to date. It shows an increasing willingness to impose restrictions on individuals based on their assessed dangerousness. Such a shift cannot be skipped over lightly: there are obvious human rights implications – especially as the paradigm shifts towards taking pre-emptive action before any offending takes place at all. For example, if the PPO scheme is not criminal in nature, then no triggering offence is *logically* required to engage it. In the future, a triggering offence as a procedural requirement could be dispensed with altogether.⁸² Taken to an extreme, that would leave us with a new weapon in the

⁸⁰ Of course, the proposed PPO regime may change significantly as a result of the select committee process. Indeed, many Members' speeches in support of the bill at its first reading expressed the need for a particularly close look at the legislation and its operation, with cross-party and community consultation, at the select committee stage. See (17th September) 693 NZPD 77 and (18 September) 693 NZPD 31.

⁸¹ Clause 7 Public Safety (Public Protection Orders) Bill 2012.

⁸² Indeed, Hon. Sue Moroney, in speaking to the Public Safety (Public Protection Order) Bill at its first reading observed: "I would much rather be standing here speaking on a bill that actually stops these [serious sexual and violent offences] from taking place in the first place."

public protection arsenal: the ability to detain, for long periods of time, individuals that the State believes are at a high risk of committing serious offences, regardless of their having ever engaged in criminal behaviour.

As opposition MP Hon. Andrew Little said in the context of the Public Safety (Public Protection Order) Bill's first reading:⁸³

What we do not want to do is pass law after law and bill after bill that do not just encroach upon important freedoms but start establishing, as a matter of principle, that it is OK to do this without a proper consideration of those rights of citizenship... That is the principle of criminal justice.

D ***Precautionary criminalisation***

The clearest examples of the pre-crime paradigm are civil measures which amount to “precautionary criminalisation”:⁸⁴ sanctions for behaviour which is not yet criminal, but which poses a risk of harm to others, thereby warranting (on a risk-averse approach) legal intervention. Such measures sit comfortably with pre-crime policy goals of minimising risk to the community, even at the expense of individual rights.

(i) Anti-Social Behaviour Orders

The United Kingdom's Anti-Social Behaviour Orders (ASBOs) show a legislative willingness to take preventive, risk assessment-based action. ASBOs are civil orders made against individuals who exhibit anti-social behaviour. They are intended to intervene before quasi-criminal behaviour becomes full-blown offending.

⁸³ (17th September, 2013) 693 NZPD 79.

⁸⁴ Peter Squires and Dawn Stephens “Pre-Crime and Precautionary Criminalisation” (2010) 81 Criminal Justice Matters 28 at 28.

The definition of anti-social behaviour has been described as “elastic”,⁸⁵ encompassing anything likely to cause harassment, alarm or distress to third parties.⁸⁶ Examples of controlled behaviour may include: begging, spitting, loitering, rude behaviour and littering. Annoying, yes; criminal, no.⁸⁷ Available sanctions include restrictions on when and where subjects can go, and with whom they may associate.

ASBOs can be imposed by a magistrate without the accused even being present, like a civil injunction.⁸⁸ However, the downstream consequences of ASBOs are not merely civil: breach of an ASBO is a criminal offence.⁸⁹ In practice, it seems that ASBOs often constitute the beginning of a vicious cycle of involvement with the CJS, which draws subjects through increasingly serious punitive layers. A sub-class of would-be offenders, tarred with the brush of suspicion (but without actually having committed a criminal offence) is created. Labelling someone ‘dangerous’ may turn out to be a self-fulfilling prophecy.⁹⁰

The ASBO has drawn heavy criticism for its “quick and dirty enforcement”,⁹¹ which bypasses fundamental procedural safeguards of the criminal law. ASBOs “blur a number of the familiar boundaries within criminal justice whilst neutralising some of the important rights and ‘due process’ safeguards of traditional criminal law.”⁹²

Ashworth has described ASBOs as “an ingenious scheme for imposing harsh punishments yet bypassing the appropriate protections at the crucial stage of the proceedings.”⁹³

⁸⁵ Peter Squires and Dawn Stephens “Pre-Crime and Precautionary Criminalisation” (2010) 81 *Criminal Justice Matters* 28.

⁸⁶ Crime and Disorder Act 1998 (United Kingdom) s 1(1)

⁸⁷ Although, the UK recently outlawed spitting in public, under s 87 Environmental Protection Act 1990 (UK) and gave councils the ability to fine people under a by-law for doing so: Tim Ross “Eric Pickles gives communities power to outlaw spitting” *The Daily Telegraph* (online ed, London, 19 July 2013).

⁸⁸ Squires and Stephens, above n 85, at 28.

⁸⁹ Crime and Disorder Act 1998 (United Kingdom) s.1(10): “If without reasonable excuse a person does anything which he is prohibited from doing by an anti-social behaviour order, he is guilty of an offence and liable (a) on summary conviction, to imprisonment for a term not exceeding six months or to a fine not exceeding the statutory maximum, or to both; or (b) on conviction on indictment, to imprisonment for a term not exceeding five years or to a fine, or to both.”

⁹⁰ Meek, above n 20, at 248.

⁹¹ Peter Squires “New Labour and the Politics of Antisocial Behaviour” (2006) 26 *Critical Social Policy* 144 at 160.

⁹² Squires at 160.

⁹³ Andrew Ashworth *Principles of Criminal Law* (2006, Oxford University Press, Oxford) at 55.

The ASBO legislation arose in a similar climate of public opinion as New Zealand's PPO Bill.⁹⁴ During the 2004 UK elections, 'anti-social behaviour' was the British people's number-one reported concern.⁹⁵

Commentators have described ASBOs as a product of the post-9/11 society's aversion to risk of all kinds.⁹⁶ ASBOs are an example of the precautionary principle's influence on the criminal law. This principle, which arose in the context of international environmental policy, holds that decision-makers have an obligation to act pre-emptively even when a threat has not been conclusively shown. Applied in the criminal context, decision-makers are empowered to think in terms of threats and dangers, in and of themselves only quasi-criminal, and respond in a pre-emptory way with potentially criminal sanctions.⁹⁷

ASBOs are another piece in the pre-crime puzzle, exemplifying political willingness to react to public opinion and showing that a "civil" label is sufficient to mask the regime's quasi-criminal operation, avoiding human rights concerns. They set a pre-crime precedent:⁹⁸

Perhaps the most enduring legacy of the ASBO is that it has established a wide range of hybrid, and semi-criminal, enforcement powers. Here, loosely defined 'offences', streamlined due process, pre-emptory evidential scrutiny, pre-emptive criminalisation and inclusive net-widening describe the outlines of *a new approach to crime control and security management*.

(ii) The Terrorism Act 2006 (United Kingdom)

Anti-terrorism legislation and mechanisms which have developed in earnest since 9/11 epitomise the new pre-crime paradigm. Like ASBOs, they provide for intervention, with criminal

⁹⁴ McCulloch and Pickering, above n 16, at 630

⁹⁵ Squires, above n 91, at 144.

⁹⁶ See for example Squires, above n 91; Lucia Zedner "Pre-crime and post-criminology?" (2007) 11 *Theoretical Criminology* 2, 261 at 261; and Boundy, above n 16, at 1629.

⁹⁷ For a comprehensive examination of the Precautionary Principle and its influence, see Cass R. Sunstein *Laws of Fear: Beyond the Precautionary Principle* (1st ed, Cambridge University Press, Cambridge, United Kingdom, 2005).

⁹⁸ Squires and Stephen, above n 85, at 29.

sanctions, before behaviour becomes truly criminal: “Under counter-terrorism legal frameworks, serious sanctions can be applied in advance of or without charge or trial, and can be imposed or continued despite a non-guilty verdict.”⁹⁹

A dominant sense that there is a need to ‘be seen to have done all that is necessary’ and emphasising that ‘it is better to be safe than sorry’ incentivises legislatures to try and avoid harm by pre-empting terrorist threats before they materialise.¹⁰⁰ Such a rationale helped justify, for example, the 2002 US invasion of Iraq. The influence of pre-emptive policy is beginning to extend beyond politics to the criminal law, as the boundary between criminal justice and national security blurs.¹⁰¹

What is the legislative result of this cocktail of policy imperatives? The Terrorism Act 2006 (UK) provides a good example. Section 5 of the Act, which was drafted in the wake of the 7/7 London Underground bombings, makes it an offence to engage in *any conduct* – even something innocuous, such as purchasing a map – if done with the intent of committing a terrorist act or to assist another to do so.

As such, an actus reus that is far from criminal – for example, seeking information from a chemical supply company¹⁰² – becomes criminal, so long as the requisite mens rea is shown.¹⁰³ A defendant’s liability here turns on what might be an otherwise unobjectionable act, coupled with perceived guilty intent to commit future crimes. The maximum sentence under this section is life imprisonment.¹⁰⁴ Conduct that has never before been criminal may, suddenly, be enough to attract the most serious criminal sanction available under UK law. While this sort of thinking might currently be confined to anti-terrorism measures, how long before its risk-predicting tendrils infiltrate the way we treat all individuals perceived to be dangerous?

⁹⁹ McCulloch and Pickering, above n 16, at 630.

¹⁰⁰ McCulloch and Pickering, above n 16, at 631 citing speeches made by Tony Blair and John Howard.

¹⁰¹ McCulloch and Pickering at 631.

¹⁰² This Act formed the basis of a charge for doing a certain act in preparation for a terrorist act under s 101.6 Criminal Code Act 1995 (Australia) in *Lodhi v Regina* [2007] NSWCCA 360. The charge carried a maximum prescribed sentence of life imprisonment.

¹⁰³ In some cases, such as a charge under s 101.6 Criminal Code Act 1995 (Australia), which carries a maximum sentence of life imprisonment, all that need be proved is that the act was done in preparation for a terrorist act (and the prosecution need not prove the nature of this proposed act): *Lodhi v Regina*. That is, *there is no mens rea requirement at all*.

¹⁰⁴ Section 5(3) Terrorism Act 2006 (UK).

E Conclusion

The examples set out in this chapter have in common an overriding goal of public safety (that magical political silver bullet) delivered at the expense of individual liberty. How might emerging predictive technologies assist these politically expedient pre-crime measures?

II: Technology and predicting dangerousness: partners in pre-crime.

“Thought crime was not a thing that could be concealed forever. You might dodge successfully for a while, even for years, but sooner or later they were bound to get you.”¹⁰⁵

“If there is any aspect of our lives that most of us wish to keep private, it is our sexual fantasies and desires... Individuals often find themselves acutely embarrassed, puzzled – even disturbed – by the sorts of things they find sexually exciting... It would therefore seem to go without saying that the *government* has no business intruding into citizens’ sexual fantasies and desires. Yet matters seem different where the desires and fantasies in question belong to a person accused or convicted of sexually abusing a child... It might be thought that if the government is justified in intruding into anyone’s fantasies, it is the child sex offender’s.”¹⁰⁶

“In Western societies, there is no victim more sacred than a child victim and no offender more profane than one who spoils the innocence of children.”¹⁰⁷

A Introduction

In a pre-crime society, eligibility for a preventive sanction depends on risk-assessment technology and interpretation of its results, not evidence proven beyond reasonable doubt. The accuracy of such technology, and whether its predictions should be assigned legal weight are critical issues.¹⁰⁸

B Technology and the pre-crime society: tools for the revolution

¹⁰⁵ George Orwell *Nineteen Eighty-Four* (New York, Harcourt Brace, 1949) at 10.

¹⁰⁶ Jason R. Odesloo “Of Penology and Perversity: the use of penile plethysmography on convicted child sex offenders” (2004 – 2005) 14 *Temp. Pol. & Civ. L. Rev.* 1 at 1-2.

¹⁰⁷ Petrunik, above n 19, at 44. (Emphasis added).

¹⁰⁸ For a discussion of the due process implications of risk assessment with respect to civil commitment statutes, see Kris Gledhill “Preventive Sentences and Orders: The Challenges of Due Process” (2011) 1 *J.C.C.L.* 78.

From crime scene forensics to home detention electronic ankle bracelets, it is clear that technology, science and the CJS make good partners in crime. Since law enforcement officials in the late-19th century noted the curious fact that no two human fingerprints are the same, and therefore that fingerprinting could be used to detect repeat offenders, the CJS has also long relied on physiological characteristics of suspects as evidence against them.¹⁰⁹ Using fMRI brain scans - as a kind of neural fingerprint - is the latest step in a biological approach to crime detection.

Predictive use of technology in this context though, is a special case. Rather than providing evidence after the fact, like matching a suspect's DNA to a sample gathered at a crime scene, actuarial technologies make predictions - based on risk assessment - of an individual's likely future behaviour. While in both cases it is important that the technology be reliable and provide the information it is understood to, the stakes are somehow much higher when we rely on the technology to tell us *what will happen*, rather than confirm what has happened already. Not only might predictive technologies be used to pre-empt recidivism (risk assessment tools used by the courts and parole boards naturally do this already, albeit with reported inaccuracy),¹¹⁰ but they may also be applied to individuals who have never offended at all. This is no small conceptual leap.

Predictive use of technology, including fMRI, raises at least three kinds of concerns:

- + **Utility:** what legal consequences might the data obtained from the technology have?
- + **Accuracy:** what can the technology predict, and how reliably? And
- + **Legitimacy:** are we justified in using the technology for this purpose, and drawing the proposed legal conclusions?

¹⁰⁹ Brian Farrell "Can't get you out of my head: the human rights implications of using brain scans as criminal evidence." (2009) 4 *Interdisciplinary Journal of Human Rights Law* 1 at 90.

¹¹⁰ The oft-cited Monahan, for example, suggests that accuracy of clinical predictions of future violent behaviour sits around 50%: J Monahan "The prediction of violent behaviour: toward a second generation of theory and policy" (1984) 141 *American Journal of Psychiatry* at 10.

Consider as an example the premise of Phillip K. Dick's *Minority Report*, from which this dissertation takes its title. In the story,¹¹¹ three mutants called 'pre-cogs' have the ability to predict murders before they happen. On the basis of the pre-cogs' predictions, would-be murderers are detained and punished before they can kill. However, the three pre-cogs do not always agree with each other: sometimes one will give a 'minority report', an alternative interpretation of the future.¹¹²

Leaving aside the minority report twist, let us assume that the pre-cogs always agree when a murder is going to take place, and who will commit it. Furthermore, they are always correct. Our first concern – that the predictive technology is reliable – can be set aside. We can predict with 100% accuracy when a crime will be committed, and by whom. The predictive technology is sufficiently accurate and useful in terms of the first two concerns listed above. But is that enough to justify pre-emptive action by the CJS and assuage any concerns about legitimacy? Would we feel wholly comfortable with detaining and punishing individuals before they commit murder, based on the pre-cogs' prediction alone?

If not, what about pre-cogs who predicted terrorist attacks rather than single-victim murders? There is considerable political will to take drastic, procedurally-questionable measures to punish and detain individuals who engage in quasi-criminal activities in the (perceived) pursuit of terrorism. It seems fair to say that any leader of a 'war on terror'-driven Western government would latch on to the pre-cogs' insights with without hesitation.

This scenario might seem like pure science fiction. But the questions that it raises are pertinent to the emerging pre-crime society and the role that predictive technologies will play in it. Pre-cogs remain fictional. But we may soon have predictive technologies with aspects of their utility.

¹¹¹ And blockbuster movie of the same name.

¹¹² Dick, above n 8.

C *Pedophilic thoughts: the 'thin edge of the wedge'*

As Colin Gavaghan has said:¹¹³

Both public and political concern with child sex abuse is, perhaps, quantitatively different from other sorts of crime, a reaction mirrored in the unique distaste directed at its perpetrators... Paedophilia presents the most plausible candidate for the criminalisation of deviant appetites.

Child sex offenders are perhaps our society's most reviled criminals.¹¹⁴ Reported statistics of paedophilic offending in Germany and the United States are similar and alarming: 1 in 12 adult women and 1 in 35 adult men report having been the victim of severe sex abuse in their childhoods.^{115;116}

Petrunik has described the "tremendous fear of sex offenders that is gripping contemporary Anglo-American societies."¹¹⁷ The pre-crime trend observed in Chapter I finds fertile ground to develop in such a climate of public concern. Despite the concerning statistics, the public's reaction is nevertheless likely to be disproportionate.¹¹⁸ As Sunstein has observed in the context

¹¹³ Colin Gavaghan, "Neuroscience, Deviant Appetites and the Criminal Law." in *Neuroscience and Legal Responsibility*, Nicole A. Vincent (ed) (2013, Oxford University Press, Oxford) pp 205 – 226 at 210.

¹¹⁴ One telling example is the reaction of Dr Phil - the king of American self-help television, who is well-versed in the full spectrum of human behaviour - to a convicted child sex offender: "after showing a film of his meeting with an imprisoned paedophile, Dr Phil, with a look of disgust, told his audience that he had to wash his hands four or five times after he shook the paedophile's hand: see Petrunik, above n 19, at 62.

¹¹⁵ Jorge Ponseti and others, "Assessment of Paedophilia using Hemodynamic Brain Response to Sexual Stimuli" (American Medical Association, United States, 2012) at 187. Much of the research around using fMRI to analyse paedophiles' brains has been conducted in Germany.

¹¹⁶ Peter J. Fagan and others "Paedophilia" (2002) 288 JAMA : the Journal of the American Medical Association 2458.

¹¹⁷ Michael G. Petrunik, "Managing Unacceptable Risk: Sex Offenders, Community Response and Social Policy in the United States and Canada." (2002) 48 *Int J Offender Ther Comp Criminol* 483 at 484. For what could be considered an example of moral panic over child sex offending wrought large, consider the case of Peter Ellis, a creche teacher from Christchurch who was convicted of 16 child sex offences in 1993. In some commentators' opinion, it was public hysteria, and not hard evidence, which led to Ellis' convictions. In 1994, the Court of Appeal quashed three of Ellis' convictions but upheld his sentence. See Lynley Hood *A City Possessed: The Christchurch Civic Creche Case* (Dunedin: Longacre Press, 2001).

¹¹⁸ Petrunik, above n 19, at 44. For a New Zealand point of view, see James Vess "Sex offender risk assessment: Consideration of human rights in community protection legislation" (2008) 13 *Legal and Criminological Psychology* 245.

of the precautionary principle, “human beings, cultures, and nations often single out one or a few social risks as ‘salient’, and ignore others”.¹¹⁹ Child sex offending is one such risk.

Politically, there is much to be gained from tough-on-child-sex-offender stances.¹²⁰ Campaigning communities have demanded new and harsher legislation to deal with convicted sex offenders, resulting in statutes named emotively after child victims.¹²¹ The combination of an increasingly risk-averse society and a perceived improvement in actuarial techniques¹²² has resulted in a “culture of control”,¹²³ in which community members’ voices obscure consideration of offenders’ rights.¹²⁴

(i) Child Harm Prevention Orders

New Zealand looks set to jump on the precautionary criminalisation bandwagon by creating Child Harm Prevention Orders (CHPOS).¹²⁵

CHPOs can have a quasi-pre-crime application. The Vulnerable Children Bill 2013 allows the executive¹²⁶ to apply for an CHPO based on prior convictions for qualifying offences (such as

¹¹⁹ Sunstein, above n 97, at 5.

¹²⁰ In the North American context, Petrunik gives as an example President Bill Clinton who, “realizing that the control of child sex offenders was an issue with almost universal public support, was instrumental in passage of the *Jacob Wetterling Act*” which required all states to set up sex offender registers, or face a 10% cut in their criminal justice budgets: Petrunik, above n 19, at 50.

¹²¹ Such as the Jacob Wetterling Law, Zachary’s Law, Megan’s Law and Christopher’s Law: Petrunik, above n 117, at 485.

¹²² For an expression of judicial faith in statistically-driven actuarial prediction (as opposed to clinical assessment) in the New Zealand context, see *Belcher v Chief Executive of the Department of Corrections* [2007] 1 NZLR 507 and the opinion of Keane J, the trial judge in the High Court, cited therein.

¹²³ David Garland, *The Culture of Control: Crime and social order in contemporary society*. (2001, Oxford University Press, Oxford)

¹²⁴ Consider, for example, Washington State’s Community Protection Act of 1990, which provides for the registration, community notification and ongoing commitment of known child sex offenders following sentence. Courts and communities alike in North America have embraced a ‘naming and shaming’ attitude: in Texas, a judge ordered 14 sex offenders to put signs in front of their houses reading “Danger! Registered Sex Offender Lives Here!”: Texas sex offenders told to post warnings. (2001, May 20). *The Ottawa Sun*, p. 21. Cited in Petrunik, above n 117, at 493.

¹²⁵ The Vulnerable Children Bill 2013, which had its first reading on the 17th of September, would, if enacted, bring these orders into law by creating the Child Harm Prevention Orders Act. It also creates the Vulnerable Children Act, as well as amending the Children, Young Persons and their Families Act 1989 and the KiwiSaver Act 2006: Vulnerable Children Bill (explanatory note) at 1.

child sex offending)¹²⁷ or on a likelihood that the respondent has committed a qualifying offence, even if they have not been charged or convicted of one.¹²⁸ The criteria are partly forward-looking: the court must be satisfied that the respondent poses a high risk of committing a qualifying offence in the future, and that such an offence will cause serious harm to a child.¹²⁹

Being subject to a CHPO is no small matter. A CHPO may last for 10 years,¹³⁰ and its conditions can curtail the freedom of movement, association and employment of the recipient.¹³¹

The CHPO regime is declaredly civil: the recipient of an order is referred to as the “respondent” rather than the defendant; the court hears CHPO applications in its civil jurisdiction;¹³² CHPOs’ purpose is explicitly *not* to punish the recipient for their conduct;¹³³ no prior conviction for a qualifying offence is required;¹³⁴ and the civil standard of proof applies.¹³⁵ Nevertheless, a respondent who fails to comply with their CHPO faces criminal liability and up to two years’ imprisonment.¹³⁶

Despite its civil label, the CHPO regime smacks of criminal sanction: a breach of a CHPO entails criminal consequences; the court can require a respondent to undergo psychological assessment; the police can detain an individual for that end; and significant restrictions may be imposed on a respondent’s freedom via CHPO conditions.

¹²⁶ Only the Commissioner of Police or the Chief Executive of the Ministry of Social Development may apply for a Child Harm Prevention Order against a person: clause 48 Vulnerable Children Bill.

¹²⁷ Schedule 3 of the Bill contains a list of qualifying offences. These include sex and violent offences.

¹²⁸ Clause 55 Vulnerable Children Bill 2013.

¹²⁹ Clause 55 Vulnerable Children Bill 2013.

¹³⁰ Clause 58(4) Vulnerable Children Bill 2013.

¹³¹ Clause 58 of the Bill provides a non-exhaustive list of the conditions which a CHPO may impose on a respondent.

¹³² Explanatory note at 7.

¹³³ Clause 44(2) Vulnerable Children Bill 2013.

¹³⁴ Clause 55(1)(b) Vulnerable Children Bill 2013.

¹³⁵ For example, clause 55(1) Vulnerable Children Bill 2013 provides that the court may make CHPO with respect to a respondent if it finds, *on the balance of probabilities*, that the respondent has committed a qualifying offence.

¹³⁶ Clause 60 Vulnerable Children Bill 2013.

CHPOs' forward-looking focus on enhancing children's safety¹³⁷ and minimising risk posed by dangerous individuals is familiar; and like other examples already set out, public concern over child safety and a corresponding political response drove the development of the Bill.¹³⁸ CHPOs are forward looking, quasi-criminal, and precautionary: a sure step down the pre-crime pathway.

Using civil orders to limit individual freedom based on a likelihood of past offending – not proven beyond reasonable doubt – makes for a criminal-sanction-in-civil-clothing scenario, allowing the executive to circumvent criminal due process. Applying a 'civil' label to their operation means that CHPOs do not – at least technically – engage the rights to criminal procedure set out in ss 23 – 26 NZBORA.¹³⁹ This nomenclature simultaneously makes it easier for enforcers to justify CHPOs' imposition (since it requires a lower standard of proof) and reduces the procedural protection available to recipients. Individuals could be subject to restrictions on their freedom and employment, tarred with a 'dangerous' tag, while left with little recourse to procedural backstops.

Given these concerns, it will be interesting to see how the CHPO regime changes through the select committee process and how the Attorney-General assesses the bill's NZBORA compliance.

¹³⁷ The stated purpose of Child Harm Prevention Orders is “to enhance the safety of children by imposing restrictions on persons who pose a high risk of causing serious harm to them.” : Clause 44(1) Vulnerable Children Bill 2013.

¹³⁸ Public concern over domestic child abuse – rallied by high-profile cases such as the death of the Kahui twins in 2006 – is a driving force behind the bill's proposed measures. A legislative response to New Zealand's apparent culture of abuse is clearly warranted. Concerningly though, CHPOS seem to conflate child abuse – that is, violence against, or neglect of, minors in one's care – and child sex abuse by, for example, paedophilic offenders. “Abuse”, which could mean sex abuse or violent abuse or both, and “neglect” are often used interchangeably in the discussion documents surrounding the bill. While undoubtedly both violent abuse (typically in the home, and related to neglect) and sexual abuse towards children are abhorrent, these are two distinct kinds of offending with different underlying psycho-social causes. It seems inappropriate to lump them in together as part of a general save-the-children political response. However, the bill clearly does this, as list of qualifying offences after which (or suspicion of which) a CHPO may be imposed includes both sex and violent offences, regardless of the fact that they may arise in very different circumstances and therefore require a different preventive response.

¹³⁹ Those sections afford rights to persons arrested, detained or charged with a criminal offence, and during criminal trial.

Finally, and intriguingly, the CHPO section of the Vulnerable Children Bill 2013 will not be enacted until “a risk assessment tool is developed for the orders to operate effectively.”¹⁴⁰ This may indicate insufficient trust in existing risk assessment techniques around predicting dangerousness with respect to children (including child sex offending),¹⁴¹ or that a new tool is currently in development. An emerging actuarial technology – for example, fMRI assessment – could foreseeably be harnessed by a legislature that is disposed to get the CHPO-ball rolling.

(ii) The thin edge of the wedge

While not all child sex offenders are paedophiles, paedophilic desires will often drive child sex offending. Clearly then, there is substantial public interest in trying to establish paedophilia’s underlying causes and how to best predict diagnosed paedophiles’ recidivism. Pushed by the precautionary principle and a need to be seen to act, policy-makers are keen to predict paedophilic tendencies before they manifest as child sex offending. CHPOs are the legislative fruit of such policy, and may provide the perfect vehicle for pre-criminalisation of deviant, paedophilic desires. Potential child sex offenders might, then, be the ‘thin edge of the wedge’: the beginning of a slippery slope that leads to vindication of the Red Queen’s proactive approach to crime.

D fMRI and predicting child sex offending

Paedophilia is a variety of paraphilia, a condition characterized by abnormal sexual desires.¹⁴² Applying the DSM-5 diagnostic criteria of paraphilia to paedophilia in particular, an individual

¹⁴⁰ See the explanatory note to the Vulnerable Children Bill 2013 at 12. Part 2 of the bill, which contains the Child Harm Prevention Order regime, will be enacted by Order in Council after the enactment of the Vulnerable Children Bill 2013: cl. 2(2)(b) Vulnerable Children Bill 2013.

¹⁴¹ The Regulatory Impact Statement prepared by the Ministry of Justice with respect to the Child Harm Prevention Orders regime, for example, states that “[r]isk prediction is inherently uncertain, so that [CHPOs] will inevitably be imposed on people who would not have subsequently acted on that risk in the absence of an order.”: Ministry of Justice Regulatory Impact Statement: Child Harm Prevention Orders (April 2013) at 2.

¹⁴² American Psychiatric Association *Diagnostic and statistical manual of mental disorders: DSM-5* (2013, American Psychiatric Publishing, Washington, D.C) under “Paraphilic Disorders”.

must experience recurring,¹⁴³ intense, sexually-arousing fantasies, sexual urges or behaviours involving children under 13 years old (criterion A - the qualitative nature of the paraphilia) which limits their social functioning or causes them distress (criterion B - the negative consequences of the paraphilia).^{144,145} While an individual who exhibits criterion A behaviour can be said to be paedophilic, the term “diagnosis” is reserved for those suffering negative consequences of their paedophilia.¹⁴⁶

It is unclear whether, on a pre-crime approach to assessing deviant desires in order to pre-empt offending, this diagnostic distinction between paraphilia (criterion A) and paraphilic disorder (both criterion A and B) would translate into a legal distinction too. Even if simply having deviant desires does not per se amount to a disorder on the DSM-5 criteria (because the desires are not associated with negative consequences), this might nevertheless be considered dangerous enough in a pre-crime society to warrant legal intervention. This would be Orwellian ‘thought crime’ writ large.¹⁴⁷

It is clear that the brain plays a key role in all aspects of human behaviour, including dictating an individual’s sexual preferences. Understanding the neurological basis of desire may therefore help us predict when someone will experience *wayward* desire – paedophilic thoughts, for example, which may manifest as child sex offending. If the legal system is increasingly willing to act before offending occurs, and potential child sex offenders constitute the ‘thin edge of the wedge’ when it comes to criminalising deviant appetites, then fMRI as a predictive technology providing insight into individuals’ sexual proclivities may become a powerful tool in the pre-crime arsenal.

¹⁴³ Over a period of at least six months: *DSM-5* under “Paraphilic Disorders”.

¹⁴⁴ H. Martin Malin and Fabian M.Saleh "Paraphilias: Clinical and Forensic Considerations" (2007) 24 *Psychiatric Times* 32 at 1.

¹⁴⁵ *DSM-5* distinguishes between paedophilic disorder (satisfaction of both criterion A and B), and paedophilia simple (satisfaction of criterion A only): “[a] *paraphilic disorder* is a paraphilia that is currently causing distress or impairment to the individual or a paraphilia whose satisfaction has entailed personal harm, or risk of harm, to others. A paraphilia is a necessary but not a sufficient condition for having a paraphilic disorder, and a paraphilia by itself does not necessarily justify or require clinical intervention. See *DSM-5*, above n 144, under “Paraphilic Disorders”.

¹⁴⁶ *DSM-5*, above n 142, “Paraphilic Disorders”.

¹⁴⁷ Orwell, above n 105.

What can brain scans tell us about criminal responsibility? Recent advances in neurotechnology have led to many claims being made about the brain correlates of behaviour, including crime.¹⁴⁸ This increased understanding about the potential biological explanations for criminal behaviour raises many interesting ‘neurolegal’ possibilities. The claims being made for fMRI as evidence in a legal context have been many and varied.¹⁴⁹

During fMRI assessment, the subject is slotted into a very large, doughnut-shaped magnet. A powerful magnetic field monitors changes in neural activity by measuring levels of oxygenated blood (which has magnetic properties) in different areas of the brain, on the basis that increased blood flow to an area denotes its use during a particular task.¹⁵⁰ As such, fMRI measures the metabolic result of brain activity, not the brain activity itself.¹⁵¹

fMRI can be thought of as a series of brain snapshots taken over time.¹⁵² By comparing snapshots, changes in bloodflow to different areas of the brain can be observed. Monitoring undertaken while subjects are presented with provocative images or decision-making tasks makes it possible to deduce which areas of the brain are used during perception, thought and action.

¹⁴⁸ Leaving aside other neuroscientific tools, fMRI alone has been used to examine everything from altruism and empathy to psychopathy, lying and deception, meditation and religious experience. For a meta-analysis of fMRI’s uses until 2004, see Judy Iles, Eric Racine and Matthew P. Kirschen “A picture is worth 1000 words, but which 1000?” in Judy Iles (ed) *Neuroethics: defining the issues in theory, practice, and policy* (Oxford University Press, Oxford, 2006) at 152. For specific and more recent examples, see also Adrian Raine *The anatomy of violence: the biological roots of crime* (2013, Pantheon Books, New York) which considers the use of fMRI brain scans and other biological diagnostic tools in distinguishing between criminals and non-criminals; Greene et al. who investigated the fMRI-observable role of emotional management in decision-making in “An fMRI investigation of emotional engagement in moral judgment” (2001) 293 *Science* 293, 5537, 2105-2108; and consider that brain-based explanations are already being exploited by companies such as No Lie MRI and Cephos who provide fMRI lie-detection assessments. Their assessments have been by clients as evidence in court. No Lie MRI’s website claims, for example that “No Lie MRI, Inc. provides unbiased methods for the detection of deception and other information stored in the brain. The technology used by No Lie MRI represents the first and only direct measure of truth verification and lie detection in human history!”: <http://www.noliemri.com/>.

¹⁴⁹ See Sally Satel and Scott O. Lilienfeld *Brainwashed: The Seductive Appeal of Mindless Neuroscience* (1st ed, Basic Books, New York, 2013).

¹⁵⁰ “fMRI” in Marc Binder, Nobutaka Hirokawa and Uwe Windhorst *Encyclopedia of Neuroscience* (2009, Springer, online ed.) at 1591.

¹⁵¹ Iles et al, above n 148 at 156. Because fMRI measures bloodflow, there is potential for fMRI results to differ between individuals who experience variability in blood flow. When comparing fMRI results between subjects, this potential variability should be considered.

¹⁵² James Cantor “MRI research on paedophilia: What ATSA members should know” (2008) University of Toronto <http://individual.utoronto.ca/james_cantor/blog2.html>

Since the late 1990s, fMRI has been used to observe that a healthy subject's brain demonstrates a different fMRI-observable reaction to a sexualised image than a non-sexualised image, suggesting a neurocorrelate of arousal.¹⁵³ Recently, studies have suggested that fMRI can also be used to compare the activation pattern of healthy subjects, experiencing 'normal' desires, with paedophilic subjects who display a markedly different response given the stimuli presented - images of men and women, both children and adults.¹⁵⁴ fMRI is increasingly being used to assess different neurological phenomena associated with deviant paedophilic urges and behaviours.

One study suggests that fMRI can reveal neurological differences between paedophilic and healthy subjects in terms of brain activation patterns, as detected when individuals were presented with erotic images of adults.¹⁵⁵ Another found that fMRI showed a greater amygdala volume¹⁵⁶ in 8 out of 15 paedophilic perpetrators, perhaps suggesting a clinically-observable and biological link to paedophilic offending.¹⁵⁷ A third found that subjects with paedophilia had an increased amygdala activation profile in response to images of children than did control subjects.¹⁵⁸

Assuming that in the future it will be possible to use fMRI to assess an individual's neurobiology as compared to 'normal' and 'deviant' controls, what utility would that assessment have from a legal point of view?

¹⁵³ Harold Mouras and others "Brain processing of visual sexual stimuli in healthy men: a functional magnetic resonance imaging study" (2002) 20:2 *Neuroimage* 855 at 855.

¹⁵⁴ When undergoing an fMRI assessment, the subject lies on bed which slides into the MRI scanner. A helmet-like headpiece keeps the subject's head still to ensure a clear image. In the context of assessing sexual arousal, subjects are shown images through a videoprojector which they view via a mirror fixed on the headpiece. If questions and answers are included as part of the experiment, the subject may have access to a keyboard attached at waist-height, and they can respond to experimenters' questions asked via microphone. See Mouras et al, above n 153 at 857.

¹⁵⁵ Martin Walter and others "Paedophilia is Linked to Reduced Activation in Hypothalamus and Lateral Prefrontal Cortex during Visual Erotic Stimulation" (2007) 62 *Biological psychiatry* 698 at 700.

¹⁵⁶ Specifically, an enlargement of the anterior temporal horn of the right lateral ventricle that adjoins the amygdala.

¹⁵⁷ Kolja Schiltz and others "Brain Pathology in Paedophilic Offenders" (2007) 64 *Archives of General Psychiatry* 737.

¹⁵⁸ Alexander Sartorius and others "Abnormal amygdala activation profile in paedophilia" (2009) *Eur Arch Psychiatry Clin Neurosci* 258:271-277 at 271.

(i) **Utility**

It is difficult to square scientific findings with legal outcomes. An “evidentiary incommensurability gap”¹⁵⁹ exists between reasoning from scientific observations made generally about a population to legal conclusions about individual culpability. Put more colourfully, “matching neurological data to legal criteria can be much like performing a chemical analysis of a cheesecake to find out whether it was baked with love.”¹⁶⁰

In this context, just because an individual has a brain activation pattern or an enlarged amygdala consistent with those observed in paedophilic subjects, it does not mean that they will certainly go on to commit a sex offence or even experience deviant urges. In particular, it is important not to conflate a psychiatrically-diagnosed paedophile with the pejorative socio-legal term of ‘child molester’. While conflation is particularly likely in this context,¹⁶¹ “[s]ex offenders are not necessarily persons with paraphilia and persons with paraphilia are not all sex offenders.”¹⁶² That is, it is important to maintain the distinction between an individual who experiences wayward desires (a paraphilia) and an individual who is distressed by those desires, or whose functioning is limited by them (a paraphilic disorder).¹⁶³ There may well be individuals who experience proclivities which are deemed deviant by society, but are able to successfully stop themselves from acting on these wants or desires.

First, then, even an fMRI assessment that caught all individuals who experience paedophilic desires would not prevent all child sex offending. Some child sex offenders may be opportunistic, for example, rather than driven by an intense sexual desire for children.¹⁶⁴

¹⁵⁹ David L. Faigman “Evidentiary Incommensurability: a preliminary exploration of the problem of reasoning from general scientific data to individualized legal decision-making.” (2010) 75 *Brook. L. Rev.* 1115 at 1118.

¹⁶⁰ Can Neurological Evidence Help Courts Assess Criminal Responsibility?: Lessons from Law and Neuroscience.” Eyal Aharoni, Chadd Funk, Walter Sinott-Armstrong, Michael Gazzaniga. *Ann. N.Y. Acad. Sci.* 1124: 146

¹⁶¹ Gavaghan, above n 113, at 210.

¹⁶² Malin and Saleh, above n 144, at 10.

¹⁶³ As discussed above, the DSM-5 makes a distinction based on whether negative consequences result from an individual’s paraphilic interest (the interest itself is not deemed to warrant clinical attention).

¹⁶⁴ Fagan et al, above n 116, at 2459.

Secondly, not all individuals detected as being disposed to experiencing deviant urges would necessarily meet the DSM-5 diagnostic criteria for paedophilic disorder: some might successfully repress their urges such that criterion B is not met. The law may not be justified in intervening in such cases – at least so long as the idea that an individual cannot be punished merely for harbouring deviant thoughts stands up to the pre-crime paradigm shift.

It is clear that:¹⁶⁵

However accurately it is possible to gauge the presence or absence of paedophilic urges, serious limitations will exist with regard to what we can safely infer from this about the presence or absence of guilt. More accurate measurements will not invariably yield more accurate answers to the important questions of criminal law.

It is a substantial leap to go from scientific indications of deviant thought-patterns to assigning criminal liability to an individual based on their biological responses alone. And yet, such evidence of dangerousness is exactly what CHPOs may one day be premised on.

fMRI evidence may never be admissible as evidence of guilt or innocence at trial, but it may provide contextual or corroborative evidence which helps build a picture about an individual's propensity to commit a certain kind of offence:¹⁶⁶

Chemists perhaps cannot determine if a cake was baked with love, but they can determine if it was baked with cyanide, which in turn provides circumstantial evidence against the love hypothesis... Although neuroscience cannot locate responsibility in the brain, perhaps it can identify maladies that provide at least circumstantial evidence against guilt or liability.

At present, prediction of paedophilic dangerousness using fMRI is in its infancy. It is an important caveat to this dissertation that sound conclusions about future dangerousness cannot be drawn from fMRI evidence alone. Nevertheless, the potential criminal justice implications of this kind of information warrant discussion because they are concerns which will be relevant to

¹⁶⁵ Gavaghan, above n 113, at 213.

¹⁶⁶ Aharoni et al, above n 166, at 157.

any emerging predictive neurotechnology. In considering hypothetical uses of fMRI below, it will be necessary to make some assumptions about fMRI's predictive utility.

(ii) Accuracy

Clearly, fMRI assessment of individuals must be accurate at predicting future dangerousness before it can be assigned any legal consequence. However, the level of accuracy demanded is not necessarily high. Monahan, for example, suggests that clinical predictions of future violent behaviour relied upon throughout the CJS are correct in only around 50% of cases – that is, no more accurate than flipping a coin.¹⁶⁷

Similarly, penile plethysmography (PPG), a popular tool for assessing an individual's sexual preferences (including paedophilic ones, where held), has been described as “scientifically questionable”,¹⁶⁸ yet is widely used after sentencing to assess treatment progress or an individual's eligibility for community release.¹⁶⁹

PPG measures changes in the size of the penis as it vacillates between being flaccid and erect. During PPG assessment, subjects are presented with material that is audibly and visibly sexually stimulating. Investigators measure either the change in air volume of a tube placed around the subject's penis (volumetric method) or the change in penis circumference as measured by an electrically-monitored mercury ring (circumferential method), thereby allowing them to compare the subject's arousal in response to the different material presented with a baseline level.¹⁷⁰ The process is degrading for the subject, who is left physically and mentally exposed.¹⁷¹

¹⁶⁷ Monahan, above n 110, at 10. See also Vess, above n 118, at 251: “The primary threat to underlying human rights of freedom and well-being may be to overstate the predictive accuracy in the risk assessments provided by mental health professionals.” However, there is evidence that courts in New Zealand may be increasingly alive to this threat: see *R v Peta* [2007] NZCA 28, [2007] NZLR 627 at [51].

¹⁶⁸ Organization for Refuge, Asylum & Migration *Testing Sexual Orientation: A Scientific and Legal Analysis of Plethysmography in Asylum & Refugee Status Proceedings* (2010, San Francisco, California) at 1.

¹⁶⁹ Controversially, PPG is also used by the Czech government to assess homosexual asylum seekers who seek refuge from persecution in their own countries. This use of PPG has been condemned as scientifically erroneous and a breach of the European Convention on Human Rights: see ORAM report, above n 168.

¹⁷⁰ ORAM report, above n 168, at 3.

¹⁷¹ ORAM report, above n 168, at 1.

Neither US nor Canadian courts accept PPG evidence of sexual deviancy at criminal trial.¹⁷² In the US, the *Frye* test for expert evidence's admissibility currently precludes the use of PPG results for their lack of scientific validity.¹⁷³ There is evidence that:¹⁷⁴

At least in the context of sexual child abuse, not all individuals exhibiting 'deviant' sexual tendencies respond to 'deviant' sexual stimuli. Conversely, nearly all 'normal' men exhibit arousal on a penile plethysmograph to 'deviant' sexually suggestive stimuli, even when the images in the examination depict children in sexually suggestive poses or even rape. Yet the vast majority of men do not commit sex offences.

Nevertheless, the US Court of Appeals has said that "a test's unfitness as evidence says nothing about its fitness for therapy, monitoring or investigation."¹⁷⁵ Separately, the Court of Appeals has held that evidence which fails the Federal *Daubert* standard¹⁷⁶ for admissibility of expert evidence at trial can nevertheless be considered at sentencing (and, presumably, as part of post-sentence risk assessment).¹⁷⁷

So, while PPG may not be admissible evidence of deviant urges at trial, it is generally accepted as "good enough" in a post-sentence setting.¹⁷⁸

¹⁷² ORAM report, above n 168, at 5.

¹⁷³ For example, in *United States v. Powers*, 59 F. 3d 1460, 1471 (4th cir. 1995) the court said at 1471 that there was "extensive unanswered evidence weighing against the scientific validity of the penile plethysmograph test." Under both the *Frye* and *Daubert* tests for admissibility of expert evidence, this approach could be reconsidered if new evidence as to PPG's scientific reliability became available. See Odeshoo, above n 106, at 17.

¹⁷⁴ ORAM report, above n 168, at 9.

¹⁷⁵ *United States v. Music*, 49 Fed.Appx. 393 (4th Cir. 2002) at 4. In this decision, the court declined the defendant's appeal against PPG monitoring as a sentencing condition.

¹⁷⁶ *Daubert v. Merrell Dow Pharmaceuticals* 509 U.S. 579 (1993). While the *Frye* test rests solely on acceptance of the evidence by the scientific community in general, the *Daubert* standard incorporates several other factors and may, in the future, open the door to admission of PPG evidence (and, perhaps fMRI evidence too): Odeshoo, above n 106, at 17.

¹⁷⁷ *Flores v Johnson*, 210 F.3d 456 (5th Cir. 2000). See Thomas Nadelhoffer et al "Neuroprediction, violence and the law: setting the stage" (2012) 5 *Neuroethics* 67 at 88.

¹⁷⁸ See Francis X. Shen "Neuroscience, mental privacy, and the law" (2013) 36 *Harvard Journal of Law & Public Policy* 679 at 712 and Gavaghan, above n 113, at 212.

Shifting the analysis to admissibility of fMRI in New Zealand, the same at-trial/post-trial dichotomy for admissibility of expert evidence would likely apply. To be admissible in a court proceeding,¹⁷⁹ expert evidence based on fMRI assessment would need to meet the heightened relevance test for expert opinion evidence given in s 25 Evidence Act 2006. Evidence must be both substantially helpful to the fact-finder (the utility requirement) and assist them to understand other evidence or ascertain a fact of consequence (the purpose requirement).¹⁸⁰

The Court of Appeal's decision in *R v Evans*¹⁸¹ indicates that fMRI evidence is unlikely to be admissible under s 25. Evans was charged with indecent assault on two young boys. He sought to lead psychiatric evidence that he lacked homosexual or paedophilic proclivities, and therefore could not have committed the alleged offences.¹⁸² The Court accepted the Crown's challenge to the expert evidence's admissibility. It said that the psychiatric opinion failed to meet the s 25 requirements because showing that the defendant lacked an attraction to young boys was not substantially helpful in assisting the jury to assess whether he committed the offences. In other words, the assumption that a homosexual or paedophilic orientation is necessary for a defendant to have committed a child sex offence is fundamentally flawed, and evidence indicating such orientation – including, perhaps, fMRI evidence - may be inadmissible as expert opinion.¹⁸³

However, the s 25 threshold (as well as other Evidence Act controls on admissibility)¹⁸⁴ does not seem to apply to evidence when it is introduced in settings outside court proceedings, such as a parole hearing.¹⁸⁵ So, evidence which is inadmissible at trial for lack of utility may nevertheless

¹⁷⁹ "Proceeding" is defined exhaustively in s 2 Evidence Act 2006 and encompasses only court proceedings or interlocutory applications related to them. While "court" is not defined in the Act, it is unlikely to include a parole board hearing because the Parole Act 2002 deals specifically, and distinctly, with these: see s 117 Parole Act 2002.

¹⁸⁰ This formulation of s 25's elements is set out in *R v Evans* [2010] NZCA 340 at [16].

¹⁸¹ *R v Evans* [2010] NZCA 340.

¹⁸² The defendant sought to lead evidence from a psychiatrist as to Evans' psychological profile. fMRI was not referenced. Rather, the psychiatrist relied on a self-report questionnaire about Evans' attitudes towards sexual offences, a personality assessment inventory and a sexual violence risk assessment instrument: see *R v Evans* at [7]. However, the decision indicates how the courts might treat fMRI evidence as one aspect of psychological profiling.

¹⁸³ *R v Evans* [2010] NZCA 340 at [18].

¹⁸⁴ Notably, ss 7 and 8 Evidence Act 2006. In particular, as will be discussed in Chapter III, fMRI evidence's probative value may be outweighed by its prejudicial effect, rendering it inadmissible under s 8 Evidence Act 2006.

¹⁸⁵ See n 179 above. Section 117 Parole Act 2002 provides that a Parole Board "may receive and take into consideration whatever information it thinks fit, whether or not the information would be admissible as

be brought in a post-sentence setting – or, in the context of a CHPO, at a civil hearing: potentially before any criminal charge results at all.¹⁸⁶

In a pre-crime society which relies on risk assessment as both its cue for action and as a protective procedural backstop, the accuracy and utility of risk prediction assessment are paramount. Nevertheless, the drive to minimise all perceived risks might result in a tendency to give the technology the benefit of the doubt, rather than the individual.¹⁸⁷ If, for example, fMRI is considered a new and better (albeit far from flawless) alternative to PPG, its use may be justified despite concerns about its utility and accuracy – especially outside a criminal trial, where fewer evidential controls apply.¹⁸⁸

The way that we think about our response to dangerousness may also determine the standard of accuracy we demand from predictive technologies. For example, under the ESO legislation discussed in Chapter I, once a conviction is secured, risk of future harm need only be shown to be ‘likely’ for an ESO to be justified. The Court of Appeal has said:¹⁸⁹

The word ‘likely’ does not, in itself, provide much guidance on the level of probability required... In the context of the ESO legislation, it must be read in light of s 107I(1) which provides that the purpose of an ESO is to protect the community from those who pose a real and ongoing risk of committing sexual offences against children or young persons.

This confirms that an overriding policy goal of public protection may weigh in favour of a cautious approach to risk management. Furthermore, civilly-labelled responses to assessed dangerousness (like CHPOs and PPOs) require proof of future danger to be shown only on the balance of probabilities, rather than beyond reasonable doubt. Traditionally, freedom-limiting

evidence in a court of law.” As such, fMRI evidence of an individual’s desires could well be admissible in showing they should be subject to an ESO for community protection, even if it were considered inadmissible in a trial setting.

¹⁸⁶ Or indeed, even if an individual is acquitted of a criminal charge, a CHPO could nevertheless be imposed on them. See Ministry of Justice Regulatory Impact Statement: Child Harm Prevention Orders (April 2013) at 16.

¹⁸⁷ According to Petrunik, the community protection mindset seeks to minimise false negatives at all costs, particularly when fuelled by cases that “arouse widespread public rage and fear” - even if at the expense of more false positives resulting than is desirable: Petrunik, above n 19, at 48.

¹⁸⁸ Odeshoo, above n 106, at 13.

¹⁸⁹ *Belcher v Chief Executive of the Department of Corrections* [2007] 1 NZLR 507 (CA) at [11]

intervention of the courts has been justified only where the higher standard of proof can be met. Evidence Act admissibility controls do not apply to evidence brought outside of court proceedings, or during ESO applications (even though they take place in the sentencing court).¹⁹⁰ Finally, regardless of the evidentiary standard demanded of emerging actuarial technologies, their perceived utility as bright and shiny tools of cutting-edge science might blind the pre-crime society to a healthy sense of caution about what these technologies can actually tell us, and how accurately.¹⁹¹

Even though questions remain about fMRI's predictive utility and accuracy, the law may accept "good enough"¹⁹² science – particularly if law-makers adopt the cautious and risk-averse approach that the current pre-crime trend suggests. Such an approach could easily distract from hard questions about whether the predictive technology is as accurate as it ought to be.

(iii) Legitimacy

Even if our concerns about the utility and accuracy of fMRI in this context are assuaged, might we nevertheless have some niggling doubts about its predictive use? It may well depend on the context. Chapter III discusses four hypothetical uses of fMRI for assessing desire, at different steps along the criminal justice pathway.

¹⁹⁰ Section 107H(2) Parole Act 2002 provides that in hearings related to ESOs, "the court may receive and take into account any evidence or information it thinks fit for the purpose of determining the application or appeal, whether or not it would be admissible in a court of law."

¹⁹¹ The danger of the so-called "CSI effect" – the influence of crime-solving television shows which has led to jurors placing undue faith in forensic investigation techniques - is probably equally applicable to emerging neurotechnologies. (For a description of the CSI effect, see "The 'CSI effect'; Forensic science." *The Economist* (online ed, United States of America, 22nd April 2010) at 1.

¹⁹² Shen, above n 178, at 712.

III: Hypothetical applications of fMRI for assessing deviant desires: promise and problems

“If George Orwell had written *Nineteen Eighty-four* during our times, would he have put an MRI scanner in the Ministry of Truth?”¹⁹³

“The coming siege against cognitive liberties may require new ways to protect incriminating and even innocent thoughts.”¹⁹⁴

“The idea that our bodies can be reduced to a *means* by the state – that the human body itself can be a crime control technology – offends human rights at its very roots in human dignity.”¹⁹⁵

A Introduction

The potential criminal justice applications of fMRI are many. Most plausibly, fMRI could simply be added to the range of tools already available to CJS actors – the police, judges, parole boards - who engage in risk prediction about future offending. At the other extreme would be a sort of prophylactic use of fMRI assessment: a dystopic pre-crime future in which all citizens are treated as potential paedophiles (and therefore at risk of committing child sex offences), unless fMRI indicates otherwise. The most interesting hypothetical scenarios fall somewhere in between these extremes, and represent potential near-future applications of fMRI to assessing deviant desires.

¹⁹³ Jamie Ward *The Student's Guide to Cognitive Neuroscience* (2nd ed, Psychology Press, New York, 2010) at 49.

¹⁹⁴ Nita A. Farahany, “Incriminating Thoughts”. *Stanford L. Rev.* vol. 64: 351 at 366.

¹⁹⁵ B. Bowling, A. Marks and C. C. Murphy “Crime control technologies: towards an analytical framework and research agenda” in *Regulating Technologies: Legal Future, Regulatory Frames and Technological Fixes*. R. Brownsword and K. Yeung (eds) (Oxford, Hart Publishing, 2008) 51 at 51.

First, to get an idea of what it is like to undergo fMRI assessment – and what the uses of fMRI discussed below would entail for the hypothetical individuals in question - consider this journalistic account by Jeffrey Rosen:¹⁹⁶

After removing all metal objects... I put on earphones and a helmet that was shaped like a birdcage to hold my head in place. The lab assistant turned off the lights and left the room; I lay down on the gurney and, clutching a panic button, was inserted into the magnet. All was dark except for a screen flashing hypothetical crime scenarios.

... After I spent 45 minutes trying not to move an eyebrow while assigning punishments to dozens of sordid imaginary criminals, [the experimenter told me] to think of familiar faces and places in sequence, without telling him whether I was starting with faces or places. I thought of my living room, my wife, my parents' apartment and my twin sons, *trying all the while to avoid improper thoughts for fear they would be discovered*. Then the experiments were over, and I stumbled out of the magnet.

As this anecdote illustrates, even consensual use of fMRI (from which no criminal consequences could flow) raises issues of claustrophobia and a fear of having one's innermost thoughts revealed.¹⁹⁷ These issues must be balanced against fMRI's utility in predicting offending.

To fully explore the legitimacy issues raised by fMRI, we need to make some assumptions about its use. First, let us assume that there is a high correlation between an individual's brain pattern as detected by fMRI assessment, and their likelihood of experiencing paedophilic desires.

¹⁹⁶ Rosen, a professor at George Washington University Law School, underwent an fMRI assessment at Vanderbilt University for the purposes of writing an article about neuroscience in the courtroom: Jeffrey Rosen "The brain on the stand" *New York Times Mag* (New York, 11 March 2007) at 2. (Emphasis added).

¹⁹⁷ Despite some associated discomfort – particularly in terms of freedom of movement and the loudness of the scanner as it works - the process of taking an fMRI scan has no known physical risks: Iles et al, above n 148, at 152. However, serious injuries and even deaths have occurred during MRI exams – primarily because, since MRI machines consist of an extremely large magnet, they tend to attract ferromagnetic metal objects in their vicinity, sometimes with missile-like effect. "The pictures and stories are the stuff of slapstick: wheelchairs, gurneys and even floor polishers jammed deep inside M.R.I. scanners whose powerful magnets grabbed them from the hands of careless hospital workers." And, bizarrely "[i]n Freiburg, Germany, a fireman fighting a blaze elsewhere in the hospital was sucked into the scanner's bore by his air tank. Folded in half, with his knees pressed into his chest, he nearly choked to death." See Donald McNeil, Jr "MRI's strong magnets cited in accidents" *NY Times* (online ed, New York, 19 August 2005) at 1.

Secondly, let us assume that there is a high correlation between those who experience paedophilic desires, and those who commit child sex offences. Finally, let us assume that the fMRI's accuracy is such that a parole board would accept it as sufficiently reliable evidence. Given these (admittedly substantial) assumptions, the utility and accuracy concerns of fMRI as a predictor of child sex offending would be quelled. What concerns remain?

B fMRI after conviction for a child sex offence

Leaving aside its possible use at criminal trial, fMRI evidence could be used by sentencing courts and parole boards to make judgments about future dangerousness once a child sex offence charge has been proved beyond reasonable doubt.

(i) Scenario

If, for example, Individual A is convicted of sexual connection with a child under 12 under s 132 Crimes Act 1961 and thereby becomes eligible for a sentence of PD,¹⁹⁸ the current assessment of future dangerousness which must be provided by two health assessors¹⁹⁹ could include, or be replaced by, fMRI evidence. If the assumptions made above hold, fMRI would certainly be a more accurate predictor of future dangerousness than the reportedly inaccurate predictions currently made from behavioural assessment alone. The relative advantages of neuroprediction compared to clinical and actuarial risk assessment are still being explored by commentators. Given that convicted criminals' future civil liberties can turn on risk assessment made after conviction, it is clearly important that decision-makers such as parole boards have access to the best scientific tools available.²⁰⁰ If that is fMRI, then so be it.

(ii) Advantages of fMRI

¹⁹⁸ Section 87 Sentencing Act 2002, which provides for preventive detention as a sentencing option, includes s 132 Crimes Act 1961 as a qualifying sexual offence which can trigger the sentence (in s 87(5)(a)).

¹⁹⁹ Here, 'health assessor' means a psychologist or psychiatrist providing a clinical assessment): s 4 Sentencing Act 2002.

²⁰⁰ Nadelhoffer et al, above n 177, at 78.

If A is sentenced in New Zealand and admitted to the Kia Marama programme²⁰¹ he would be submitted to a PPG assessment following treatment.²⁰² Being subject to fMRI instead of PPG would avoid for A the dubious fate of having a metal ring placed around his penis while semi-naked in front of a team of lab coat-toting assessors, and being shown potentially disturbing images while monitored for an arousal response.²⁰³ While Rosen's account above demonstrates the discomfort associated with fMRI, the process seems not nearly as physically exposing or humiliating as a PPG assessment.^{204,205}

fMRI may also be more accurate in assessing desires.²⁰⁶ While subjects can learn to trick PPG assessments – for example, by putting the penile ring on their finger instead,²⁰⁷ or learning to control their arousal response - fMRI takes us closer to thoughts themselves, making the test harder to deceive. Insofar as risk assessment continues to be engaged in by the CJS (which seems likely, given the probable pre-crime paradigm shift), fMRI may be heralded as a preferred new method of assessing offenders' desires.

²⁰¹ Established in 1989, Kia Marama is New Zealand's first treatment programme to specifically target convicted child sex offenders. It is a residential programme at Rolleston Prison. For details of its treatment plan and efficacy, see Leon Bakker et al *And there was light: evaluating the Kia Marama treatment programme for New Zealand sex offenders against children* (Department of Corrections, Psychological Services, 1998)

²⁰² PPG assessment is used as part of a two week comprehensive assessment of new programme members which is undertaken at the beginning of treatment: Dion Gee "Child sex offender treatment: the effect of voluntary exclusion" (MSc (Psychology) thesis, University of Canterbury, 1998) at 57.

²⁰³ Commentators have raised concerns about the use of child pornography in the context of PPG assessments – a concern that is equally relevant to fMRI assessment of deviant desires. Jason Odesloo, for example, has said "Sexualising children is bad; using images calculated to excite sexual desire for children is exploitative. When the government engages in such tactics, it runs the risk of participating in the very evil it purports to eradicate." And, concerning, "researchers have actually recommended local police departments, and even *paedophiles themselves* as good sources for obtaining child pornography for use as stimulus materials [for PPG assessment].": Odesloo, above n 106, at 33 - 35. However, at least in the research context, the images shown to experimental participants are suggestive, but not sexually explicit. For example, Alexander Sartorius and others used pictures of boys in swimsuits to assess brain activation patterns in paedophilic and control subjects: Sartorius et al, above n 158, at 274.

²⁰⁴ In *Toomey*, for example, the European Court of Human Rights agreed that a PPG assessment was humiliating for the applicant: *Toomey v The United Kingdom* (37231/97) European Court of Human Rights (Third Section) 14 September 1999.

²⁰⁵ Furthermore, when compared to Positron Emission Tomography (PET), another technology which preceded fMRI in assessing brain function, including the neural correlates of arousal,²⁰⁵ fMRI is less invasive and produces clearer brain images: See Mouras et al, above n 153 at 856.

²⁰⁶ Recent research comparing fMRI and PPG suggests this. See for example Ponseti et al, above n 115. Furthermore, PPG has been criticised on accuracy grounds: see Odesloo, above n 106, at 10-12; and ORAM report, above n 168.

²⁰⁷ This PPG-fooling technique was used by convicted child sex offenders at Coalinga State Hospital: see *Louis Theroux - A Place for Paedophiles* (documentary produced by the BBC, released 21 April 2009).

(iii) Cognitive liberty

Despite its relative advantages, fMRI – just like PPG - raises issues surrounding an individual's right to cognitive liberty. This is a relatively new concern raised by advances in neurotechnology and its application outside the research laboratory.²⁰⁸ Put shortly, what right does the State have to probe the most intimate thoughts of man? Is there something particularly special about our thoughts, which means they should be beyond the reach of the government?

Orwellian suggestions of 'thought crime' immediately spring to mind. Dissident thought has, at least until now, evaded the creeping tendrils of even the harshest political dictatorships. Nevertheless, in an age of widespread CCTV and metadata collection, it seems that few areas of human life remain beyond state surveillance.²⁰⁹ If neurotechnology can allow scientists or law-enforcement officials to peer inside subjects' thoughts, the bastion of Anglo-American jurisprudence that holds individuals liable only for what they do, and not for what they think, could all too easily fall in favour of enhanced collective safety.²¹⁰

All uses of fMRI raise cognitive liberty issues. This is because fMRI provides some insight into how each individual's brain works compared to other people who have been scanned. Even using fMRI as a means of lie detection, as a sort of neo-polygraph, seems qualitatively different to its pulse-measuring antecedent. There seems to be something particularly invasive about a

²⁰⁸ The term "cognitive liberty" was coined in 2000 by Richard Boire and Wrye Sententia "in an effort to jumpstart the process of translating the dusty legal notion of 'freedom of thought' into a modern right robust enough of [sic] protect brain privacy, autonomy, and choice.": Richard Boire "Searching the Brain: the Fourth Amendment implications of brain-based deception detection devices" (2005) 5 *The American Journal of Bioethics* 62 at 62. In 2000, Boire and Sententia founded the Center for Cognitive Liberty and Ethics. Members, who include privacy advocates, lawyers and neuroscientists are "dedicated to protecting and advancing freedom of thought in the modern world of accelerating neurotechnologies." (Quoted in Rosen, above n 196, at 11. See also the fairly bizarre group Christians Against Mental Slavery "whose members wanted it to be regarded as a crime against humanity worldwide for anyone to monitor or to influence human thought technologically without continuing, informed consent": <http://www.slavery.org.uk/>).

²⁰⁹ For example, an individual recently complained to the New Zealand Privacy Commissioner after he was photographed by security cameras operating in the men's bathroom of a pub. This was held to be unreasonable intrusive in the circumstances: Case Note 244873 [2013] NZ PrivCm.

²¹⁰ Rosen, above n 196, at 11.

brain-based analysis. Even though an fMRI scan cannot monitor actual thoughts or feelings, it still intrudes into the most private aspect of what it means to be human.

Many commentators have expressed the importance of cognitive liberty. Hank Greely, a bioethicist, suggests that the brain represents “a last inviolate area of self”²¹¹ which brain scans may compromise. Justice Allen Broussard, sitting on the Supreme Court of California, has said: “[i]f there is a quintessential zone of human privacy it is the mind.”²¹²

Nevertheless, a satisfactory explanation of why cognitive liberty is particularly sacrosanct has proved elusive. As arguments justifying invasions into all sorts of privacy abound, it will become important to clearly articulate why cognitive liberty deserves particular importance. Opposing arguments, grounded in collective safety, will be convincing. For example, the tension between national security interests and individuals’ right to communicative privacy has recently come to the fore: both globally, in the case of US government contractor Edward Snowden, who drew attention to the extent of the country’s National Security Agency surveillance; and locally, in the case of recently passed amendments to the Government Communications Security Bureau Act 2003. The oft-cited argument that “if you have nothing to hide, you have nothing to worry about” proffered in both cases is hard to refute. A convincing counterargument in favour of privacy for privacy’s sake is demanded, lest personal privacy become an historical relic in the face of increasing state surveillance and pre-crime controls.²¹³

C fMRI after conviction for another offence

If risk-averse community pressure (and a corresponding political reaction) pulls a pre-crime future ever closer, fMRI may also be used to make purely predictive assessments about

²¹¹ Henry Greely “The social effects of advances in neuroscience: legal problems, legal perspectives” in Judy Iles (ed) *Neuroethics: defining the issues in theory, practice and policy* (2005) at 253.

²¹² *Long Beach City Employees Assn. v. City of Long Beach* (1986) 41 Cal. 3d 937, 944 per Justice Allen Broussard.

²¹³ *Time* magazine, for example, claimed recently that “privacy is mostly an illusion” and that “[t]he admirable goals of public safety and national security have been exploited time and again by intrusive regimes around the world seeking to spy on their critics and smother dissent... As tools for prying grow in number and strength, this is no time to stop being suspicious.”: David von Drehle “The Surveillance Society” *Time* (New York, 19 August 2013) at 36 and 39.

individuals' risk of child sex offending – that is, before they are convicted of a child sex offence at all. Indeed, proposed CHPOs make this pre-emptive approach likely, and an obvious opportunity for fMRI's predictive use.

(i) Scenario

fMRI assessment could occur after an individual – Individual B - is convicted and detained for an offence that is not a child sex offence, or, indeed, a sex offence at all. This is particularly so because under the Search and Surveillance Act 2012, fewer procedural protections are given to individuals already in custody.²¹⁴

Consider the case of Michael Toomey, who was convicted in England in 1983 of assault occasioning actual bodily harm and wounding with intent. Both charges related to unprovoked attacks, perpetrated against two different women. In 1995, Toomey was released on licence. However, he was recalled after he was:²¹⁵

[O]bserved by hostel staff taking an undue interest in a woman residing opposite the hostel [in which he lived]. The probation service had also found a bread knife, a pair of binoculars, a pair of handcuffs, women's clothing, women's clothing catalogues and fetishist catalogue in [his] room.

Despite not having been convicted of a sex offence, Toomey was transferred to HM Albany prison,²¹⁶ and put in a Sex Offender Treatment Programme. As part of this, he underwent two PPG assessments. Toomey agreed to these, reportedly because he had heard from other inmates that a failure to do so would delay his release.

²¹⁴ Under s 11 of the Search and Surveillance Act 2012, no warrant is required for a search of a person in Police or Corrections custody. If, as seems likely, an fMRI scan were considered a search under the Act, such assessment could therefore be conducted without a warrant on individuals already in prison. However, Young, Trendle and Mahoney suggest that the purpose of this power is to protect the detainee's property and not to look for evidential material: Warren Young, Neville Trendle and Richard Mahoney *Search and Surveillance Act & Analysis* (1st ed, Thomson Reuters, Wellington, 2013) at 61.

²¹⁵ *Toomey v The United Kingdom* (37231/97) European Court of Human Rights (Third Section) 14 September 1999.

²¹⁶ This correctional facility is used exclusively to house sex offenders: <<http://www.justice.gov.uk/contacts/prison-finder/isle-of-wight>>

Subsequently, Toomey applied to the European Court of Human Rights (EHCR) on the basis that the PPG assessment amounted to degrading treatment contrary to Article 3 of the European Convention on Human Rights, which states: “No one shall be subjected to torture or to inhuman or degrading treatment or punishment.”²¹⁷

Toomey submitted that he was treated as a sex offender at risk of reoffending despite not having committed a sex offence at all. Once in the throes of the penal system, he had little ability to protest this course of treatment.²¹⁸ He said that the PPG assessment had particularly distressed him. As distinct from Rosen’s experience with fMRI, Toomey was shown sexually explicit material. He found one video in particular, depicting a rape scene, traumatic because it brought back memories of a violation he himself had suffered as a teenager. Similar to during an fMRI assessment – in true *A Clockwork Orange* style - the video monitor was positioned directly in front of his face, at eye level, and his head was kept in place by a headrest, such that he could not simply avert his eyes from the images.

A majority of the ECHR held that while Toomey was humiliated by the PPG assessment, it did not amount to Article 3-breaching degrading treatment.

Toomey indicates, concerningly, that even if an individual is not convicted of a sex offence he may nevertheless be treated as a would-be sex offender. While perhaps not legally forced to undergo PPG, or fMRI, assessment, an offender may be required to do so in practice, to avoid other sanctions. A failure to refuse assessment may well carry its own weight.

(ii) An essentially pre-crime assessment

Compared to the previous scenario, in which a convicted child sex offender undergoes fMRI as part of their sentence (for example, when they become eligible for parole) the justification for fMRI assessment here is less clear. Offender A, who has already been proved beyond reasonable

²¹⁷ European Convention on Human Rights Art. 3

²¹⁸ As Odeshoo has pointed out, “[t]he Government often brings substantial pressure to bear on prisoners and parolees to undergo [PPG]. This interplay of sexual stimulation and state power requires careful examination.”: Odeshoo, above n 106, at 38.

doubt to have committed a child sex offence, received the benefit of fundamental criminal justice procedural safeguards at trial. There is consensus that he can fairly be labelled as at risk of committing a child sex offence in the future, and therefore submitting him to fMRI is a logical next step if risk assessment is to be engaged in.

By contrast, while Offender B is already embroiled in the CJS, it is a step down the pre-crime pathway to submit him to fMRI on suspicion alone, thereby treating him as a potential child sex offender and infringing his cognitive liberty. Nevertheless, there seems to be a feeling that individuals in State custody should forego some of the procedural safeguards and rights, including to cognitive liberty, accorded to other citizens.²¹⁹

In a sense, compelling Offender B to undergo a fMRI assessment (or drawing adverse conclusions from his refusal to submit to one) is no different to compelling all puberty-age males in New Zealand to do the same thing. That proposition raises a veritable minefield of rights issues for the law to navigate.

D fMRI before charge

The increasing willingness to choose collective safety over individual rights (for example, the right not to be treated as a would-be child sex offender)²²⁰ could result in a future where pre-emptive fMRI assessment of the general population becomes a reality. That seems like a distant dystopia.

However, it is certainly conceivable that fMRI could be used to follow up community or health professional reports of paedophilic tendencies reportedly displayed by individuals who have not been convicted of a child sex offence. Interventionary mechanisms such as the proposed CHPOs provide for just such pre-emptive risk assessment.

²¹⁹ Nadelhoffer et al, above n 177, at 90.

²²⁰ For example, a Child Harm Prevention Order applied to an individual who had not previously been convicted of an offence relating to children would effectively label him a suspected, or would-be, offender against children. Tarring an individual with this sort of label obviously requires clearly-reasoned justification.

(i) Scenario

Let us consider Individual C. C spends a lot of time loitering around a local playground after school hours, while children are playing there, despite not having children of his own. A child reports that C tried to get him alone and tried to unbutton his pants.²²¹ The child's parent reports C's suspect conduct at the local police station. Officers there pass on her concerns to the Commissioner of Police, who ultimately applies to the District Court for a CHPO. The Judge orders that C undergo psychiatric assessment, including an fMRI scan.²²²

C refuses the fMRI: perhaps he's claustrophobic, or does not wish to be analysed by lab-coated scientists while being shown provocative images of children. Perhaps, on some level he is afraid that his brain might betray him. Nevertheless, the assessment is forced upon him. The results are concerning: he has a brain activation pattern highly correlated to paedophilic thoughts and also to a high risk of child sex offending. What then?

If satisfied on the balance of probabilities that C has committed a qualifying offence,²²³ the judge may impose a CHPO on C. Perhaps, thanks to the court's intervention, innumerable child victims have been saved from C's almost-certain offending. The terms of the CHPO can limit his contact with children, ensuring he cannot be employed to work closely with them. His community can be made aware of the danger he poses to their children. Perhaps, as a potential child sex offender, his dangerousness can be nipped in the bud. From a risk averse, pre-crime point of view, the outcome is ideal: potential harm has been minimised before it could materialise at all. However, this scenario raises many concerns.

²²¹ Let's assume, for the purposes of argument, that this could amount to attempted sexual violation under s 129 Crimes Act 1961 (a qualifying offence for a CHPO, under cl. 1(b) Schedule 3 Vulnerable Children Bill 2013).

²²² Clause 71 Vulnerable Children Bill 2013 provides that a court may order a person to appear before a health assessor (a psychologist or psychiatrist: cl. 47) for the purpose of preparing the report as to the respondent's likely future dangerousness that is required (by cl. 52 and 53) before a CHPO can be imposed. While fMRI does not currently form part of standard psychiatric assessment, if it were adopted as part of the CHPO risk-prediction technology, this hypothetical scenario could well become reality.

²²³ As discussed in Chapter II, in its current form, clause 55 of the Vulnerable Children Bill 2013 also requires the judge to find that that the respondent poses a high risk of committing one or more qualifying offences in the future, and that those offences, if committed, will cause serious harm to a child or children.

(ii) NZBORA protection

A caveat to the discussion of NZBORA protections which may attach to Individual C in this situation is the operation of the Act itself. The rights contained in the NZBORA are not absolute. They are subject to such reasonable legislative limits as can be demonstrably justified in a free and democratic society.²²⁴ If a statute directly conflicts with the NZBORA, that other statute has supremacy.²²⁵ As such, the Courts are not free to strike down NZBORA-inconsistent legislation, and Parliament can therefore infringe on NZBORA rights via the legislation it passes,²²⁶ although where legislation purports to limit NZBORA rights, Courts are empowered to prefer a NZBORA-consistent interpretation of that legislation where possible.²²⁷

Currently, no statute empowers the police (or anyone else) to submit any citizens to fMRI brain scans, whether held in custody or not.

If fMRI were considered the risk assessment magic-bullet that is required before the CHPO is enacted, Parliament could well provide statutory power for fMRI's use – including on unwilling suspects. The Courts could review such a specific statutory power. If they found that the power was not a s 5 NZBORA justifiable limit on Individual C's rights, the Court could make a declaration of that opinion.

Below I set out which NZBORA rights would be engaged were Individual C compelled to undergo fMRI. Given the extensive rights infringement involved, a statute providing for compelled fMRI would surely not meet the s 5 test. However, in the absence of a judicial strike-down power, the statute would continue in force.

²²⁴ Section 5 NZBORA.

²²⁵ Section 4 NZBORA. Consider, for example, the court's deference, in *R v Leitch* (above n 33) and *R v D* (discussed in Chapter I, see n 40), to Parliament's clearly-intended NZBORA infringements.

²²⁶ While political consequences may follow from a decision to do so, legislatively there is no bar to passing NZBORA-inconsistent legislation. See the discussion of the Extended Supervision Order amendments in Chapter I for an example of such legislation, passed in defiance of the Attorney-General's s 7 NZBORA declaration of inconsistency.

²²⁷ Section 6 NZBORA.

The usual remedy for an infringement on NZBORA rights during the obtainment of evidence for a criminal charge is exclusion of the evidence at trial, for example under s 30 Evidence Act. This section applies to criminal proceedings only: it is not clear what controls on admissibility would apply in a civil context such as a CHPO hearing. While not widely awarded, monetary compensation may also be payable for NZBORA infringement.²²⁸

(iii) Section 11 NZBORA: right to refuse medical treatment.

First, if C could not be compelled to undergo the fMRI scan, what importance might be attached to his refusal?²²⁹ C has a NZBORA-enshrined right, in s 11, to refuse medical treatment. Attaching significance to C's refusal to undergo fMRI would undermine that protection. And yet, in the hypothetical scenario, it would not make sense for C to simply be able to refuse the scan and be released without further consequences.

Would a compelled fMRI brain scan amount to medical treatment under s 11? In *Cairns v James*,²³⁰ in which a father requested that a blood sample be taken from his child to determine paternity, Temm J said that taking a blood sample might be considered medical treatment in the widest sense. The image recorded from an fMRI assessment may be comparable to a blood sample.

In *M v Attorney-General*²³¹ Potter J adopted an unrestrictive definition of medical treatment, holding that anything which invades one's person may amount to such treatment, therefore requiring informed consent in terms of s 11 NZBORA.²³²

²²⁸ In *Simpson v Attorney-General (Baigent's case)* [1994] 3 NZLR 667 (CA), the Court of Appeal held that the Crown may be directly liable to an individual plaintiff for failing to protect their NZBORA rights. See Grant Huscroft, "Civil Remedies for Breaches of the Bill of Rights" in Rishworth et al., *The New Zealand Bill of Rights* (Oxford University Press, Melbourne, Australia, 2003) at 815

²²⁹ The applicant in *Toomey*, for example, reported that he felt he would be disadvantaged in progressing through his treatment programme towards relief if he did not consent to the PPG assessment required of him. A similar situation could easily arise with Individual D feeling compelled to undergo the fMRI in order to try and prove his innocence, lest he be presumed guilty because of his refusal to consent.

²³⁰ *Cairns v James* [1992] NZFLR 353, 356

²³¹ *M v Attorney-General* [2006] NZFLR 181; (2005) 25 FRNZ 137 (HC)

²³² *M v Attorney-General* [2006] NZFLR 181; (2005) 25 FRNZ 137 (HC) at [107].

Andrew and Petra Butler argue that a key factor for consideration here is the *intention* of the procedure. For example, blood taken for evidentiary purposes rather than for an individual's medical treatment would fit more comfortably as a 'seizure' under s 21 NZBORA.²³³ However, unlike a blood sample or buccal swap, during an fMRI scan, nothing is 'seized' as such. In *Hamed v R*,²³⁴ the leading New Zealand Supreme Court case on search and seizure, Blanchard J held that "[a] search is an examination of a person or property and a seizure is *a taking of what is discovered*."²³⁵ During an fMRI scan, nothing is "taken" in the sense of being physically removed. Rather, brain activity is monitored and measured. An fMRI scan is therefore more likely to amount to a "search" than a "seizure".

So while an fMRI scan conducted for criminal justice purposes may constitute medical treatment in the widest sense, protection against such a scan is most likely to come from s 21 NZBORA.

(iv) Section 21 NZBORA: right to be free from unreasonable search.

Compelling C to undergo an fMRI assessment could amount to a search that infringes his right against unreasonable search of the person in s 21 NZBORA.

State-compelled fMRI assessment would likely constitute a "search" for the purpose of s 21. In *Hamed*, Elias CJ said that "police investigation which invades... private space constitutes a search within the meaning of s 21 [NZBORA]. It may be undertaken through remote technology or through in person observation."²³⁶ It extends not only to physical trespass, but to any unjustified intrusion on individual privacy and dignity.²³⁷

²³³ Andrew Butler and Petra Butler *The New Zealand Bill of Rights Act: A Commentary* (LexisNexis, Wellington, 2005) at 265.

²³⁴ *Hamed v R* [2011] NZSC 101.

²³⁵ *Hamed v R* per Blanchard J at [160] (emphasis added).

²³⁶ *Hamed v R* per Elias CJ at [10].

²³⁷ See *Hamed v R* per Elias CJ at [11] and per Blanchard J at [160].

Would state-compelled fMRI generally amount to an *unreasonable* search? A search is likely to be reasonable if conducted pursuant to a warrant issued under s 6 Search and Surveillance Act 2012.²³⁸

The Supreme Court in *Hamed* was divided on whether a specific statutory power was required to allow covert video surveillance by police, or whether a warrant issued on those terms would suffice even if no statute specifically provided for video surveillance powers as such. Tipping J held that police need no specific statutory authority for one kind of search compared with another.²³⁹ By contrast, Elias CJ held that specific lawful authority *was* required for all police action, pointing to long-standing common law principles, New Zealand's international law obligations and the NZBORA itself.²⁴⁰ Specifically, she said: "intrusive search is not properly to be treated as implicit in general statutory policing powers." As such, if fMRI is considered sufficiently distinct to *existing* intrusive searches carried out by the police pursuant to search warrants (such as strip searches, or bodily cavity searches), then the s 6 Search and Surveillance Act 2012 power to obtain a search warrant would not extend to permit state-compelled fMRI searches. A statutory amendment of police powers would be required.²⁴¹

I find the Chief Justice's approach more convincing. As Hardie Boys J held in the Court of Appeal in *R v Jefferies*,²⁴² "police powers are conferred expressly and specifically."²⁴³ Regardless of Parliament's willingness to override NZBORA freedoms in passing pre-crime legislation, a transparent legislative process ensures a democratic check on the executive's power as exercised through the police. I also suggest that a 'search' by way of fMRI is distinct to existing physically-invasive searches – for example because of the cognitive liberty issues it raises, as discussed above. As such, a specific statutory power would be required to make compelled fMRI searches lawful.

²³⁸ That is because the Act "codifies much of the law governing when search and surveillance can be regarded as reasonable.": Young et al, above n 214, at 2.

²³⁹ *Hamed v R* per Tipping J at [217].

²⁴⁰ See *Hamed v R* per Elias CJ at [24] – [38].

²⁴¹ Of course, given that Parliament seems willing to pass pre-crime legislation with little regard to its NZBORA implications, extending Police powers to encompass fMRI as a means of search could easily come to pass. If the Search and Surveillance Act 2012 were amended to provide for fMRI search, fMRI would no longer be automatically unreasonable under s 21.

²⁴² *R v Jefferies* [1994] 1 NZLR 290 (CA).

²⁴³ *R v Jefferies* at 313.

The Court in *Hamed* was also divided on the issue of whether an unlawful search (for example, one not permitted by a specific statutory power) is automatically unreasonable under s 21 NZBORA. Currently, there is no specific statutory power allowing the police to submit individuals to fMRI brain scans. Without such a power, any state-compelled fMRI scan would be, on the Chief Justice’s view, unlawful and therefore unreasonable under s 21.²⁴⁴

Section 21 NZBORA will protect against fMRI searches that are conducted unreasonably: whether because an unwarranted search takes place and the circumstances deem it unreasonable, or because no valid warrant can be granted without Parliament specifically extending Police powers to encompass fMRI searches.

Whether evidence obtained in breach of s 21 would be admissible at a later criminal trial depends on the s 30 Evidence Act 2006 balancing test: fMRI evidence obtained in breach of s 21 NZBORA would be inadmissible under that section unless exclusion would be a disproportionate response to the impropriety in its collection.²⁴⁵

(v) Section 23(4) NZBORA: right to remain silent and the privilege against self-incrimination

Forcing C to undergo fMRI analysis may abrogate his right to silence when detained and questioned in s 23(4) NZBORA.²⁴⁶

The privilege against self-incrimination, which is a subset of the general right to remain silent, applies before and at trial. It engages where a person is required to provide specific information,

²⁴⁴ *Hamed v R* per Elias CJ at [51].

²⁴⁵ See Evidence Act 2006 s 30(4) and *Hamed v R* per Blanchard J at [186].

²⁴⁶ Section 23(4) applies to those arrested or detained. It protects the same interest as s 25(d) NZBORA – the right not to be compelled to be a witness - which applies to testimony at trial. According to the wording of s 23(4) NZBORA itself, the protection applies where an individual is arrested or detained “for [an] offence or suspected offence”. Since there is no general power of arrest except for where provided by statute, a person were submitted to a forced fMRI scan without having been detained under any enactment could pursue a remedy under s 22 NZBORA which protects the liberty of the person by preserving their right not to be arbitrarily arrested or detained.

including by a police officer in the course of investigating a possible criminal offence: s 60(1) Evidence Act.²⁴⁷ It enshrines the right of a person not to provide information that would likely be self-incriminatory.²⁴⁸

Would the results of a forced fMRI scan amount to an infringement on the right to silence or the privilege against self-incrimination, even though no verbal evidence results? That depends on how an fMRI is conceived of compared to other kinds of evidence. US Fifth Amendment²⁴⁹ jurisprudence draws a distinction between real evidence, which is not protected by the privilege, and testimonial or communicative evidence, which is.²⁵⁰ In New Zealand, the privilege against self-incrimination applies to “statements” and not real evidence.²⁵¹

Commentators are split over whether fMRI constitutes real or testimonial evidence. An fMRI scan, from which conclusions as to an individual’s sexual proclivities in general are drawn, could be considered a non-invasive measurement of a physiological characteristic yielding real, rather than testimonial evidence – akin to a fingerprint or blood sample. fMRI evidence itself does not demonstrate beliefs in the same way that a written or oral testimony – the evidence traditionally protected by the right to remain silent – do. Deduction from the scan is required to draw any conclusions about the individual’s beliefs, arguably in the same way that the fact of alcohol intoxication is deduced from a compelled blood sample. The blood sample itself does

²⁴⁷ If Parliament amended the Search and Surveillance Act to allow the police to submit individuals to pre-crime investigatory fMRI searches, the privilege against self-incrimination would not apply to protect individuals screened: this is because of the combined effect of ss 136(1)(g) and 138(1) Search and Surveillance Act 2012. See Young et al, above n 214, at 223.

²⁴⁸ Specifically, per s 60(1)(b) Evidence Act 2006, the privilege applies if the information provided would be likely to incriminate the person under New Zealand law for an offence punishable by a fine or imprisonment. Per s 60(2), a person has privilege in respect of such information and cannot be required to provide it or prosecuted for failing to do so. However, the privilege is not absolute and can be limited by statute: s 60(3).

²⁴⁹ Constitution of the United States of America 1787 (US).

²⁵⁰ The relevant part of the Fifth Amendment to the United States Constitution provides that “[n]o person... shall be compelled in any criminal case to be a witness against himself.” For a comprehensive discussion of whether BOLD fMRI evidence should attract Fifth Amendment protection, see Holloway, above n 16.

²⁵¹ The Court of Appeal confirmed in *Cropp v Judicial Committee* [2008] 3 NZLR 774 that the privilege against self-incrimination does not apply, and has never applied, to real (physical) evidence. Section 60 Evidence Act provides that the privilege against self-incrimination applies to information. Information is further defined in s 51(3) of the same Act as encompassing statements given orally or in a document given in response to questioning (eg by police). It is arguable whether fMRI results are a “statement” in document form. See Young et al, above n 214, at 223.

not communicate the intoxication – it is the chemical analysis conducted subsequently which does so.

However, forcing somebody to submit to an fMRI assessment, during which they are shown arousing images, and as a result of which they may be labelled a probable paedophile, seems qualitatively different – and more invasive - than taking a blood sample or fingerprint from them.

Monitoring a neuroresponse while asking questions related to an alleged child sex offence could amount to compelling a testimony.²⁵² While a blood sample sheds no light on the defendant's state of mind, fMRI may do exactly that.²⁵³

A suspect undergoing an fMRI scan is not a mere 'donor' of physical evidence. The physical change in [oxygen levels] is the very thing that communicates information about the suspect's beliefs and knowledge. The physical change itself is the communication.

In *Jalloh v Germany*,²⁵⁴ the European Court of Human Rights held that whether evidence amounts to self-incrimination can depend on the invasiveness of the information-gathering tool used to obtain it. In that case, the applicant was given an emetic which forced him to regurgitate a small bag of cocaine that he had swallowed. Administration of the emetic was held to amount to a violation of Article 3 of the European Convention on Human Rights, which prohibits inhumane or degrading treatment, while the evidence obtained as a result of its use was declared inadmissible as it violated the right to a fair trial contained in Article 6 § 1.

In *Jalloh*, the applicant was left with oesophageal and gastric damage as a result of the coerced disgorgement.²⁵⁵ By comparison, fMRI assessment is perhaps not as physically invasive. Furthermore, the evidence obtained by the rights violation in that case amounted to real evidence which was used to sustain a drug conviction against Jalloh. By contrast, an fMRI scan which shows that C experienced deviant desires could not currently – without other evidence (of

²⁵² Farrell, above n 109, at 94.

²⁵³ Holloway, above n 16, at 158.

²⁵⁴ *Jalloh v Germany* (2006) 44 EHRR 667.

²⁵⁵ *Jalloh v Germany* at 61.

attempted offending, for example) - have criminal law consequences.²⁵⁶ However, in the US at least, evidence may be excluded under the Fifth Amendment²⁵⁷ if it is ‘incriminating’ in the sense that it adds a piece to the puzzle of evidence towards conviction.²⁵⁸ Based on the hypothetical assumptions made here, fMRI would constitute such evidentiary support, thereby deserving protection as “information” under s 60(2) Evidence Act 2006.²⁵⁹ So, unless statute allowed the police to compel investigatory fMRI scans,²⁶⁰ Individual C could claim that the privilege against self-incrimination applies to fMRI evidence, and thereby refuse the scan.

As well as evidentiary privilege, if compelling fMRI would amount to a forced testimony, fMRI scans conducted on a person arrested or detained without their permission would breach s 23(4) NZBORA.²⁶¹ If sought to be led at criminal trial, the fMRI results would likely be deemed inadmissible under the s 30(2) Evidence Act balancing test.²⁶²

(vi) The right to be considered innocent until proven guilty

To rely on a prediction of [future] dangerousness is tantamount to replacing presumption of innocence by presumption of guilt. Paradoxically, a person thought to be dangerous who has not

²⁵⁶ fMRI evidence could be lead to show as showing a defendant’s propensity to commit a certain kind of offence. However this will depend on whether the Court adopts the same reasoning with respect to fMRI evidence as it did to a general psychological profile of “low-risk sex offender” in *R v Evans* (discussed in Chapter II). fMRI evidence may not pass the “substantially helpful” test imposed by s 25 Evidence Act.

²⁵⁷ The relevant part of the Fifth Amendment to the United States Constitution provides that “[n]o person... shall be compelled in any criminal case to be a witness against himself.”

²⁵⁸ Boundy, above n 16, at 1642 citing *Hoffman v. United States*, 341 U.S. 479, 486 (1951).

²⁵⁹ Section 60(2) Evidence Act 2006 provides that information is privileged and cannot be compelled if, per s 60(1) its provision would be likely to incriminate the person under New Zealand law..

²⁶⁰ Given the existing operation of the Search and Surveillance Act, if it were extended to allow police a power to to submit individuals to pre-crime investigatory fMRI searches, the privilege against self-incrimination would not apply to protect screened individuals. This is because of the combined effect of ss 136(1)(g) and 138(1) Search and Surveillance Act 2012 which trump s 60 Evidence Act by virtue of s 60(3) of that Act. See Young et al, above n 214, at 223.

²⁶¹ See n 246 above.

²⁶² Furthermore, exclusion of evidence obtained in breach of s 23(4) NZBORA is the general remedy available for a breach of that protection: Butler and Butler, above n 233, at 708. The s 30 exclusion applies to real evidence as well as testimonial evidence, so provides wider protection than the privilege against self-incrimination.

yet committed the offence of which he/she is considered capable is less well protected by the law than an actual offender.²⁶³

The presumption of innocence is a “golden thread”²⁶⁴ which has run through the common law since ancient times.²⁶⁵ This right to be considered innocent until proven guilty, might, however, be compromised by pre-emptive fMRI assessment. Individual C has been forced to undergo the fMRI assessment, and it has demonstrated a potential deviance. What might the legal system do now, beyond imposing a CHPO? It seems likely that, even without having committed a concrete offence, Individual C would be considered to be at risk of doing so. The legal system’s ability to maintain the presumption of innocence in his favour is surely compromised.

A problem which is raised by any prediction of criminal offending, but seems particularly alarming in this hypothetical scenario, is the conflation of thoughts, wants, desires and intent:²⁶⁶

Someone experiencing a paedophilic *urge* may never develop a paedophilic *want*, if he does not identify with that urge in such a way that he would wish it to be fulfilled. And that person may not develop an *intention* to abuse a child unless he sets his mind towards bringing about the satisfaction of that urge.

Presumably, some individuals who experience paedophilic urges, wants and desires are successful in resisting them. By tarring C with the child sex offender brush – first, by suspecting him of being a paedophile and making him submit to an fMRI scan, and secondly, by telling him that he has a deviant brain – we may reduce his chance to act morally and resist his own deviant urges. C’s future guilt is presumed.

²⁶³ See the minority dissent of Baghwati, Chanet, Ahanhanzo and Yriyogen, appendix to *Rameka v New Zealand* (2003) 7 HRNZ 663 - a consideration by the United Nations Human Rights Committee of New Zealand’s preventive detention regime.

²⁶⁴ *Woolmington v DPP* [1935] UKHL 1 per Viscount Sankey LC.

²⁶⁵ See Andrew Stumer *The Presumption of Innocence: Evidential and Human Rights Perspectives* (Volume 8, Hart Publishing, Oxford, 2010) at 1. In modern times, the presumption of innocence is set out in Article 14.2 of the International Covenant on Civil and Political Rights, an international Treaty which New Zealand ratified in 1978.

²⁶⁶ Gavaghan, above n 113, at 218.

In this way, measures like CHPOs circumvent the right to be considered innocent until proven guilty by treating individuals as dangerous, on the brink of offending, and therefore as good as guilty in the eyes of the public. This is difficult to square with long-standing criminal law jurisprudence.

(vii) Conclusion

The idea of fMRI assessment occurring before an individual has committed any sort of offence, whether related to child sex offending or not, is far from fictional: as well as creating CHPOs, New Zealand's proposed Vulnerable Children Bill introduces a screening programme for all government staff and contractors working with children.²⁶⁷ It is certainly conceivable that fMRI assessment could, in the future, form part of this legislatively-mandated vetting process.

As this section has set out, such use of fMRI would raise many issues about individuals' rights which need to be balanced against the merits of precautionary screening.

It is clear that paedophilic behaviour is an "infringement on a child's right to physical and psychological integrity."²⁶⁸ Children have no ability to consent to such an invasion of their personal boundaries. Their rights are of utmost importance and will weigh heavily against offenders' own rights – and potentially *would-be* offenders' such as Individual C as well. However, we may be weighing a relatively uncertain risk of harm to a potential child victim against a certain deprivation of Individual C's rights by detaining him on the basis of fMRI (or other predictive) evidence alone.

So while child sex offending is a heinous crime, and each victim is one victim too many, it seems problematic to directly compare the potential rights of perhaps only a few future victims against an immediate deprivation of rights of potential child sex offenders – not just those already in the throes of the prison system, but also ordinary citizens who apply for early

²⁶⁷ See "Screening and Vetting", Children's Action Plan website <<http://www.childrensactionplan.govt.nz/legislation/screening-and-vetting>>

²⁶⁸ Fagan et al., above n 116, at 2460.

childhood teaching jobs, for example - based on fMRI evidence of their proclivities alone. It is extremely difficult to draw a fair balance.

E Conclusion: negotiating the rights-balancing tightrope

The hypothetical near-future applications of fMRI discussed in this chapter exemplify that state-compelled fMRI would infringe on fundamental rights. Yet, a meaningful discussion of the relevant competing interests may prove elusive. Parliament has seen fit to ignore the Attorney-General's declarations of NZBORA-inconsistency in the past. A dominant government can create legislation under urgency, bypassing debate in the House.²⁶⁹ NZBORA-protected rights can be overridden by statute.²⁷⁰

Given the range of rights potentially infringed by fMRI, such a statute (that is, granting power to compel fMRI scans) would likely be declared a non-demonstrably justifiable in a free and democratic society limit under s 5 NZBORA. Nevertheless, in the absence of a judicial strike-down power, the statute would continue in force. Therefore, existing rights protection measures would prove ineffectual against clear Parliamentary policy mandating fMRI's pre-crime use.

Courts may be powerless to respond in the face of clear legislative policy. Increasingly, they may strain to adopt NZBORA-consistent interpretations of the legislation that Parliament creates.²⁷¹

In short, public opinion driving a political response has already resulted in legislation which is beginning to strip away fundamental criminal procedure rights. fMRI brain scans, as an example of technology which may assist predictive assessments of dangerousness, could easily be assimilated into the pre-crime arsenal. Cognitive liberty, as well as other personal privacy and

²⁶⁹ For example, Chapter I contains a more lengthy discussion of the passage of amendments to the Extended Supervision Orders regime, which passed through the House in a single day, and with no debate.

²⁷⁰ Section 4 NZBORA

²⁷¹ Section 6 NZBORA provides that “[w]herever an enactment can be given a meaning that is consistent with the rights and freedoms contained in this Bill of Rights, that meaning shall be preferred to any other meaning.” Of course, if no reasonable NZBORA-consistent meaning is available, the courts may find themselves impotent to protect citizens’ civil liberties.

security rights which we consider fundamental, could easily be subsumed by pre-crime policies and the dominant cry of 'public safety'.

Conclusion

“[T]he strength of a legal system is often assessed by its ability to give effect to the fundamental rights of unpopular groups.”²⁷²

Pre-crime intervention of the law, based on assessments of dangerousness, demands accurate risk prediction. fMRI as a neurolegal tool is emerging at a time when pre-crime risk aversion is beginning to dominate the policy debate. Parliament is likely to be interested in using “good enough” science – such as fMRI – to achieve its predictive ends.²⁷³ fMRI’s predictive use may not, therefore, receive the level of scrutiny it ought to.

A common theme running through this dissertation is that shifts in legislation and policy have emerged out of public concern over high profile cases and a desire to minimise risk of all kinds. With the public supporting pre-crime intervention in the interests of promoting collective safety, legislatures have responded with kneejerk, populist measures, including PPOs, ASBOs, anti-terrorism legislation and CHPOs, all of which demonstrate a policy of precautionary criminalisation.

These pre-crime tools are not necessarily unwarranted or inappropriate. However, the powerful role of public opinion which has driven their generation and acceptance must be acknowledged. So too, the conflict between pre-crime intervention and civil liberties must be openly discussed. Might public opinion push things too far in the interests of a perceived increase in collective safety? Could pre-crime policy soon extend to prophylactic screening of puberty-aged males via fMRI, to try and detect wayward desires harboured by a few? Does it matter that even those detected as ‘dangerous’ might never go on to commit a child sex offence if left to contend with their own desires?

²⁷² Gledhill, above n 108, at 78.

²⁷³ Shen, above n 178, at 712.

In the US context, Shen has asserted that “the legal system is readily equipped to provide citizens with adequate protection against government-compelled or coerced mind-reading with neuroimaging.”²⁷⁴ I argue that the New Zealand situation is different.

New Zealand’s constitutional system facilitates a dominant executive,²⁷⁵ and, lacking an entrenched constitutional document, is *not* readily equipped to provide citizens with adequate protection against government-compelled measures such as fMRI scans. All too easily, rights that have long been considered bedrock values of Anglo-American criminal procedure jurisprudence - the right to be considered innocent until proven guilty beyond reasonable doubt, the right to silence, the right to be free from unreasonable search – could be eroded by a determined executive gunning for popular support. Even public opposition or concern over legislation seems futile in the face of a clear policy goal.

If current neuroscience is to remain simply science, and not science fiction, more meaningful rights protection is required. Otherwise, perceived justice for the majority will surely come at the expense of a drastic curtailment of rights for a despised, deemed-dangerous minority. Not even Tom Cruise will save us then.

²⁷⁴ Shen, above n 178, at 713.

²⁷⁵ Almost the “elective dictatorship”, an idea propounded famously by Lord Hailsham in reference to the English Parliament in 1976 (under a First Past the Post electoral system, distinct from New Zealand’s Mixed Member Proportional system) that an elected government which enjoys a majority of the House of Commons (and whose members vote along party lines) has little trouble in passing legislation, with opposition MPs in the House futile in the face of a Parliamentary majority: “Elective dictatorship”. *The Listener*: 496–500. 21 October 1976.

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