NOTE

THE LEGALITY OF THE USE OF PSYCHIATRIC NEUROIMAGING IN INTELLIGENCE INTERROGATION

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Torture is obsolete, or at least obsolescent. Researchers, funded by the Department of Defense, have developed technologies that may render the "dark art" of interrogation unnecessary. As these technologies are implemented, many of the legal issues surrounding the aggressive "counter-resistance techniques" the United States presently employs against individuals detained in the Global War on Terrorism (GWOT) may be rendered moot. At the same time, however, these technologies themselves raise new legal issues.

The most promising of these new technologies is psychiatric neuroimaging, the predominant form of which is functional Magnetic Resonance Imaging (fMRI). FMRI provides near-real time, ultra-high resolution, computer-generated models of brain activity. These models allow the operator to observe a subject’s neural response to cognitive or sensory-motor tasks. In essence, fMRI allows the operator to watch the subject’s brain think. This has a number of practical applications. For instance, fMRI could function as a hyper-accurate lie detector. In addition, an interrogator could also assess a detainee’s response to specific stimuli. For example, an interrogator could present a detainee with pictures of suspected terrorists, or of potential terrorist targets, which would generate certain neural responses if the detainee were familiar with the subjects pictured. U.S. intelligence agencies have been interested in deploying fMRI technology in interrogation for years. It now appears that they can.

This Note seeks to analyze the legality of the use of fMRI during the interrogation of foreign detainees in U.S. custody in light of applicable international and domestic law. The fundamental goal of the

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3 See, e.g., Mark Bowden, The Dark Art of Interrogation, ATLANTIC MONTHLY, Oct. 2003, at 51 (discussing the history and modern practice of interrogation).
4 See Rishikof & Schrage, supra note 2.
6 See Rishikof &. Schrage, supra note 2.
7 See discussion infra Part 1.B.
9 This Note uses the term "detainee," consistent with U.S. military practice, to refer to any person captured or otherwise detained during war or operations other than war. The term detainee "is the broadest term [that can be used to refer to captured individuals,
law of interrogation is to protect, to varying degrees, a detainee's free will by restricting an interrogator's ability to employ techniques that overcome this will. In the main, the law assumes that the interrogator will attempt to overcome the detainee's will with pain. Outside of the Prisoner of War (POW) context the law will countenance the infliction of some—often surprisingly high—level of pain. Thus, the primary goal of the law in this area is to delineate how much pain an interrogator may legally inflict. FMRI, however, presents a categorically different problem. FMRI allows an interrogator to eliminate a detainee's free will painlessly. Consequently, FMRI presents a much more difficult set of legal issues than current counter-resistance techniques.

A foreign detainee in U.S. custody is entitled to varying levels of protection during interrogation depending on the detainee's legal status and physical location. Based on these factors, detainees may be grouped into three categories: POWs and civilians detained during an international armed conflict, unlawful combatants held within U.S. territory, and unlawful combatants held outside of U.S. territory. The first group, POWs and civilians, qualifies for protection under International Humanitarian Law (IHL), which provides the most expansive level of protection. IHL prohibits the use of "coercion" in interrogation.

The use of FMRI to detect deception in the voluntary statements of these detainees is probably permissible, while the use of FMRI to extract involuntary cognitive information from these detainees is probably not. IHL bans the use of "coercion" in interrogation. Under the U.S. military’s current interpretation of this provision, “co-


10 See infra Parts II, III.
11 See id.
12 See infra Part III.A.
13 See id.
15 See infra Part II.B.
The involuntary use of fMRI to extract cognitive information would compromise the detainee’s free will and, therefore, violate IHL.

The second category of detainees consists of individuals to whom IHL does not apply, such as so-called “unlawful combatants,” whom the U.S. is holding within U.S. territory. These detainees are entitled to protection under International Human Rights Law (IHRL). These conventions protect detainees against torture and cruel, inhuman, or degrading (CID) treatment. The use of fMRI in the interrogation of these detainees would almost certainly not represent torture. Torture requires the infliction of pain; fMRI is painless.

CID treatment presents a much closer question. The United States defines CID treatment as coterminous with conduct that would violate the Fifth, Eighth or Fourteenth Amendments to the U.S. Constitution, rendering the constitutional analysis associated with these amendments identical to the analysis used to identify CID treatment. A U.S. court would probably analyze this issue under the Due Process Clause, which prohibits custodial conduct that “shocks the conscience.” The inquiry into whether government conduct “shocks the conscience” requires a three part analysis: first, an analysis of the conduct surrounding the government’s personal invasion; second, an analysis of the inherent invasiveness of the personal invasion; and third, the government interest, if any, that justifies the invasion. The use of fMRI to detect deception in a detainee’s voluntary statements to interrogators would almost certainly not shock the conscience, given the minimal invasiveness of the procedure.

There probably are instances, however, where the involuntary use of fMRI to extract cognitive information from a nonconsenting detainee would shock the conscience. Although fMRI is less physically

16 See id.
18 See infra Part III.
19 See infra Part II.B.1.
20 See infra Part II.B.2.
21 U.S. CONST. amend. V.
22 U.S. CONST. amend. VIII.
23 U.S. CONST. amend. XIV.
24 See 136 CONG. REC. 36198 (1990) (documenting the Senate ratification of the CAT with the reservation that CID treatment under the Convention means “the cruel, unusual and inhumane treatment or punishment prohibited by the Fifth, Eighth, and/or Fourteenth Amendments to the Constitution of the United States”).
invasive than most practices U.S. courts have held to shock the conscience, fMRI is mentally invasive.\textsuperscript{26} Indeed, fMRI is one of the few technologies to which the now clichéd moniker of "Orwellian" legitimately applies. Thus, the use of fMRI technology to extract information from a nonconsenting detainee would probably shock the conscience, assuming the government could not provide a legitimate justification for the scan. There clearly are scenarios, however, such as high-value detainees with extensive knowledge of terrorist networks or detainees with knowledge of imminent terrorist attacks, where the government could justify the involuntary application of the scan.

The third category of detainees consists of individuals to whom IHL does not apply and whom the U.S. is holding outside U.S. territory.\textsuperscript{27} The U.S. government contends that the various human rights treaties to which the United States is party do not bind U.S. officials operating outside U.S. territory.\textsuperscript{28} Although this interpretation is of debatable validity, it does represent the historical practice of the United States, and the United States is unlikely to revise this policy in the near future. Thus, under current policy, these detainees are entitled to protection only under 18 U.S.C. §§ 2340-2340B (Federal Torture Statute).\textsuperscript{29} The Federal Torture Statute prohibits torture, but not CID treatment.\textsuperscript{30} Therefore, detainees being held outside U.S. territory are, under current policy, protected only against torture. Consequently, the use of fMRI technology in the interrogation of these detainees would be legal, at least insofar as the U.S. interpretation of applicable law is legally correct.

This Note examines the legality of the use of fMRI technology in the interrogation of foreign detainees. Part I provides background on current U.S. interrogation doctrine and the role of fMRI in interrogation. Part II examines fMRI in light of IHL, arguing that while its use to detect deception in the voluntary statements of detainees is permissible, its involuntary use in interrogation would violate the anticoercion provisions of the Geneva Conventions. Part III examines fMRI in light of IHRL and the U.S. Constitution, arguing that although fMRI would not constitute torture its use in many cases would probably shock the conscience and, therefore, would be illegal under IHRL and the Constitution. The Note concludes by arguing that although fMRI does not represent a complete technological solution to the legal problem of torture, it nevertheless is permissible in certain limited instances.

\textsuperscript{26} See infra text accompanying notes 58-79.
\textsuperscript{27} See infra Part III.A.1.
\textsuperscript{28} See id.
\textsuperscript{30} See id. § 2340.
A. U.S. Interrogation Doctrine and Techniques

U.S. military interrogators, referred to as “echoes,” are trained at the U.S. Army Intelligence Center and School at Fort Huachuca, Arizona. At Huachuca, instructors teach sixteen distinct methods, or approaches, of interrogation. These sixteen methods are based on psychological ploys. Their names reflect the bases of each ploy, such as “Love of Comrades” and “Hate of Comrades” or “Fear Down” and “Fear Up.” The first course that military interrogators take at Huachuca, however, is in the Geneva and Hague Conventions. The training emphasizes that soldiers must obey the Conventions without exception. One graduate of the interrogation school at Huachuca commented that the instructors so emphasized that anyone caught violating the Conventions would be sent to the U.S. military prison at Fort Leavenworth, Kansas that “by the end of our time at Huachuca the three syllables ‘Lea-ven-worth’ were ringing in our ears.”

Nevertheless, the United States is almost certainly engaging in conduct that violates legal restraints on the interrogation of foreign detainees. Even leaving aside such obvious excesses as Abu Ghraib, the United States has, if press and government reports are to be believed, employed extreme coercive methods in interrogation. It is also of some note that since the GWOT began, the U.S. military has launched over 370 criminal investigations into charges of misconduct involving detainees, with 130 of those investigations resulting in some

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32 See id. at 39.
33 Id.
34 See id. at 30–33.
35 Id. at 31.
form of punishment.\textsuperscript{38} Indeed, at least twenty-six detainees in U.S. custody appear to have been victims of homicide committed by U.S. personnel.\textsuperscript{39} Although U.S. interrogation practices may have become more pacific in the aftermath of Abu Ghraib and the declassification of the so-called "Torture Memos,"\textsuperscript{40} there are indications that the United States still uses aggressive interrogation techniques.\textsuperscript{41} Other means of interrogation, however, may soon be available.

B. FMRI Technology

FMRI is a form of psychiatric neuroimaging. It is a hybrid technique that generates a series of ultra-high resolution structural scans of the brain, which reveal brain activity.\textsuperscript{42} The fMRI machine itself is essentially a giant magnet, thousands of times stronger than Earth's magnetic field.\textsuperscript{43} The subject of an fMRI scan lies down on a table, which is then slid into a hollow, circular casing that houses the magnet.\textsuperscript{44} Although the subject must remain still during the actual scanning,\textsuperscript{45} the procedure is neither painful nor physically invasive.\textsuperscript{46} Moreover, fMRI has no known or foreseeable direct health risks asso-


\textsuperscript{40} See Mike Allen & Susan Schmidt, Memo on Interrogation Tactics Is Disavowed: Justice Document Had Said Torture May Be Defensible, WASH. POST, June 29, 2004, at A01 (discussing the declassification of the Bush Administration memoranda regarding torture and international law); U.S. DEP'T OF DEFENSE, WORKING GROUP REPORT ON DETAINEE INTERROGATION IN THE GLOBAL WAR ON TERRORISM: ASSESSMENT OF LEGAL, HISTORICAL, POLICY, AND OPERATIONAL CONCERNS (2003) [hereinafter DOD WORKING GROUP REPORT], in THE TORTURE PAPERS, supra note 5, at 286; Memorandum from Jay S. Bybee, Assistant Attorney General, to Alberto R. Gonzales, Counsel to the President (Aug. 1, 2002), in THE TORTURE PAPERS, supra note 5, at 172; Memorandum from John Yoo, Deputy Assistant Attorney General, & Robert J. Delahunty, Special Counsel, to William J. Haynes II, General Counsel, Dep't of Defense (Jan. 9, 2002), in THE TORTURE PAPERS, supra note 5, at 38.

\textsuperscript{41} See Tim Golden, In U.S. Report, Brutal Details of 2 Afghan Inmates’ Deaths, N.Y. TIMES, May 20, 2005, at A1; Neil A. Lewis, Red Cross Finds Detainee Abuse in Guantanamo, N.Y. TIMES, Nov. 30, 2004, at A1 (discussing the International Committee of the Red Cross's claims that the United States was employing levels of "psychological and sometimes physical coercion 'tantamount to torture'" in the U.S. detention facility in Guantanamo Bay, Cuba).

\textsuperscript{42} Michael S. Beauchamp, Functional MRI for Beginners, 5 NATURE NEUROSCIENCE 397 (2002) (reviewing RICHARD B. BUXTON, AN INTRODUCTION TO FUNCTIONAL MAGNETIC RESONANCE IMAGING: PRINCIPLES AND TECHNIQUES (2002) and FUNCTIONAL MAGNETIC RESONANCE IMAGING: AN INTRODUCTION TO METHODS (Peter Jezzard et al. eds., 2001)).

\textsuperscript{43} See id.

\textsuperscript{44} See Dennis O'Brien, Mind Readers: Scanning Technology Promises to Map the Brain's Pathways, but Some Fear Its Ability to Expose a Patient's Secrets and Lies, BALTIMORE SUN, Dec. 10, 2004, at 1E.

\textsuperscript{45} See Sample & Adam, supra note 8.

\textsuperscript{46} See Beauchamp, supra note 42, at 398.
associated with its use. The extreme power of the magnet, however, presents the one indirect risk associated with the technology—the magnet can pull metal objects, such as a metal watch on the subject's wrist or a piece of shrapnel in the subject's body, into the machine with extreme force.

The equipment is also expensive. An fMRI scanner costs around three million dollars and requires experts to operate.

FMRI involves the time-lapsed superimposition of a series of structural scans of the brain. FMRI relies on blood oxygenation level dependent (BOLD) contrast to detect increases in neuronal activity. The BOLD contrast method is based on the fact that the amount of oxygen carried by hemoglobin causes alterations in its magnetic field. The magnet in the fMRI scanner detects changes in the magnetic field. These changes in regional blood oxygenation levels indicate localized changes in metabolic activity and, therefore, brain activity. Representations of these changes are sequentially projected onto a three-dimensional, computer-generated image of the subject's brain. Because the fMRI scanner measures circulatory adjustment owing to increased brain activity rather than brain activity itself, the scanner does not provide real-time data, although the response to the stimuli can be assessed within approximately two seconds. Moreover, fMRI provides a much more detailed rendering than any comparable imaging method. For example, fMRI provides resolution that is an order of magnitude better than the previous state-of-the-art technology, the Positron Emission Tomography (PET) scan.

C. Application in Interrogation

The fMRI scanner can function as a lie detector. Researchers at the University of Texas Health Science Center's Research Imaging Center conducted one of the first publicly available studies using fMRI

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47 See id. at 397.
48 See id.
49 See O'Brien, supra note 44.
52 Id.
53 See Belliveau et al., supra note 50, at 717.
54 See Bandettini & Ungerleider, supra note 51, at 864.
55 See Belliveau et al., supra note 50, at 717.
57 See Beauchamp, supra note 42, at 398.
to detect lying. The study involved two tests. In the first, the subjects were shown a three-digit number and then shown a second number. The researchers then asked the subjects if the numbers matched. In the second set of tests, the researchers asked subjects autobiographical questions, such as where they were born. In both tests, the researchers requested that the subjects give false answers as convincingly as possible.

The researchers observed activity in four regions of the brain when the subjects lied. The fMRI scanner showed activity in the subject's left and right cerebral hemispheres, specifically in the prefrontal and frontal, parietal, temporal, and sub-cortical regions. The researchers concluded that this activation in the parietal region, which houses the brain's calculation center, was the result of the subject's formulation of the lie, as opposed to the recall of an existing memory. Thus, unlike a traditional polygraph—which measures a subject's emotional response to lying—fMRI detects a subject's decision to lie. Moreover, unlike a traditional polygraph—in which individuals could be trained to suppress the emotional response to, and hence physiological manifestation of, lying—subjects cannot control their cerebral activity to avoid detection.

The fMRI scanner, however, is much more than an advanced lie detector. The University of Pennsylvania’s Institute for Strategic Analysis and Response (ISTAR) has developed methods that apply fMRI technology to counterterrorism operations. Ruben Gur, a neuropsychologist at ISTAR, notes that fMRI technology can already be used

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59 See Lee et al., supra note 58, at 159.

60 Id.

61 Id.

62 Id.

63 Id. at 161.

64 Id.

65 See id. at 162.

66 Compare Susan Gaidos, *Written All Over Your Face: Even the Coolest Criminal Can’t Hide a Guilty Countenance*, New Scientist, Mar. 12, 2005, at 39 ("Just taking [a polygraph] can upset truthful people to the point where they appear dishonest, while practiced liars can learn to outwit the machine by remaining calm."). with G. Ganis et al., *Neural Correlates of Different Types of Deception: An fMRI Investigation*, 13 Cerebral Cortex 830, 830 (2003) (noting that using fMRI scientists may “examine directly the organ that produces lies, the brain”).

67 See Lee et al., supra note 58, at 163.

68 See Gaidos, supra note 66.

69 See Lee et al., supra note 58, at 163.

to determine if a subject recognizes a picture of another human face. As with lying, certain regions of the brain "light up" on an fMRI scan when a subject sees a familiar human face. Seeing a familiar face stimulates brain activity in the hippocampus, which regulates memory and parts of the visual cortex. Thus, fMRI reveals recognition regardless of whether the individual speaks or attempts to conceal the recognition.

Moreover, although this technique is not yet fully developed, it may soon be possible to determine how the subject became familiar with the person or item pictured, such as whether the subject had first-hand knowledge of the stimulus or whether the subject had merely become familiar with the stimulus from a picture. Similarly, it may be possible to use fMRI to determine individuals' feelings about others, rather than just whether they recognize them. For example, researchers at the University of London believe they have located the specific brain regions associated with love.

These advances probably represent only a small fraction of the ultimate capabilities of advanced brain scanning. Some scientists claim that within fifty years they "will have a way to essentially read minds." To some extent, this has already been accomplished. In a recent study, scientists using a new, higher-resolution form of fMRI were able to determine what subjects were looking at, even when the subjects themselves were not consciously aware of what they were seeing.

Although fMRI may not provide the ability to read a detainee's entire mind, the ability to assess whether a detainee has personal knowledge of people or places would nonetheless be useful in interrogation. It is important to understand, moreover, that intelligence interrogation is not about uncovering all that there is to know from "one key evil genius." Rather, interrogation is about uncovering "tiny bits of the truth" from a large number of detainees. Thus, while the ability of fMRI to detect whether an individual had person-

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71 Id.
72 See id.
73 See id.
74 See id.
76 See Sample & Adam, supra note 8.
77 See id.
78 Flam, supra note 70.
80 See Mackey & Miller, supra note 31, at xxv.
81 Id.
ally seen Osama Bin Laden or a particular building in a city would be of obvious value, so too would its potential ability to assess an individual's personal knowledge of, for example, other mid- to low-level known terrorists or terrorist training camps. Similarly, fMRI could be used during intake screening, allowing interrogation efforts to be focused on prisoners who show recognition of key people or places and facilitating the release of those who do not.

II

FMRI Under International Humanitarian Law

A. Applicable Law

1. Detainee Status

Detainees are entitled to different levels of legal protection against interrogation depending on their legal status. Detainees protected by the Geneva Conventions receive the highest level of protection. The Conventions apply in instances of international armed conflict involving a High Contracting Party. A de facto state of armed conflict is all that is necessary to implicate the Conventions. The parties do not have to have declared war officially.

The Conventions protect two types of detainees: POWs and civilians. The Third Geneva Convention (Geneva III) addresses the treatment of POWs. Not all persons captured during an armed conflict, however, are entitled to POW status. Article 4 of Geneva III sets forth the categories of individuals to be accorded POW status upon capture. Article 4 specifies that, among other individuals, members of opposing armed forces are entitled to POW status. Similarly, Geneva III entitles members of militias and organized resistance movements to POW status upon capture, provided they meet certain other criteria such as carrying their arms openly and obeying the laws of war. In essence, the Conventions seek to accord POW status to indi-

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82 See generally Geneva I–IV, supra note 14 (protecting different groups of persons and providing varying rights to each group).
83 See id. art. 2; see, e.g., FRITS KALSHOVEN, THE LAW OF WARFARE 10–11 (1973) (defining "armed conflict" as a "conflict involving hostilities of a certain intensity between armed forces of opposing Parties").
84 Geneva I–IV, supra note 14, art. 2.
85 Id.
86 See Geneva III, supra note 14, art. 4.
88 Geneva III, supra note 14, art. 4.
89 To qualify as a prisoner of war under the Geneva Conventions, combatants must do the following: (1) serve under a commander who is responsible for his subordinates, (2)
iduals who are recognized as lawful combatants under the Conventions. In addition, the Fourth Geneva Convention (Geneva IV) specifically requires contracting parties to treat civilians humanely.\textsuperscript{90} The GWOT, however, has occasioned the use of a third classification: "unlawful combatant."\textsuperscript{91} An unlawful combatant is neither a POW nor a civilian but rather subject to an intermediate classification.\textsuperscript{92} Thus, an unlawful combatant is a person who has directly participated in hostilities but who does not satisfy the requirements for POW status.\textsuperscript{93} Under current U.S. policy, unlawful combatants do not receive protection under the Geneva Conventions.\textsuperscript{94} In addition, the United States has denied Geneva protections to other terrorist detainees under the theory that the GWOT itself does not qualify as an international armed conflict and, therefore, does not implicate the Geneva regime.\textsuperscript{95} The current U.S. policies are of debatable legal merit,\textsuperscript{96} although that debate is beyond the scope of this Note. The legal status of these detainees, to whom IHL does not apply, is addressed in Part III.

2. Protections under Geneva III

POW detainees are entitled to protection under Geneva III.\textsuperscript{97} Article 17 of Geneva III sets forth the general rule for the interrogation

wear a fixed distinctive sign, (3) carry arms openly, and (4) adhere to the laws of war. \textit{See id.} art. 4(A)(2).

\textsuperscript{90} \textit{See} Geneva IV, \textit{supra} note 14, arts. 3-4.


\textsuperscript{92} \textit{See} Ruth Wedgwood, \textit{Al Qaeda, Terrorism, and Military Commissions}, 96 Am. J. Int'l L. 328, 335 (2002) (discussing the status of Al Qaeda and Taliban members as unlawful combatants, rather than lawful combatants or civilians); John C. Yoo \& James C. Ho, \textit{The Status of Terrorists}, 44 Va. J. Int'l L. 207, 216-17 (2003) (noting the distinctions between civilians and armed forces and between lawful and unlawful combatants).

\textsuperscript{93} \textit{See} Yoo \& Ho, \textit{supra} note 92, at 215-17.


\textsuperscript{95} \textit{Id.} (quoting a senior administration official as saying, "This is a new kind of war, in which the rules we followed for more than 50 years don't necessarily apply").


\textsuperscript{97} \textit{See} Geneva III, \textit{supra} note 14, art. 4.
of POWs. It provides that "[n]o physical or mental torture, nor any other form of coercion, may be inflicted on prisoners of war to secure from them information of any kind whatever." In addition, POWs "who refuse to answer may not be threatened, insulted, or exposed to unpleasant or disadvantageous treatment of any kind." Notably, although Geneva III places restrictions on the methods that can be used to extract information from an interrogation subject, nothing in the Conventions prohibits interrogation itself. The Conventions regulate only the method of interrogation.

Article 17 expanded upon the protections that the 1929 Geneva Convention afforded POWs. The impetus for this expansion was the widespread violation of the 1929 Convention during World War II. The analogous provision of the 1929 Geneva Convention provided that "[n]o coercion may be used on prisoners to secure information relative to the condition of their army or country." Thus, Geneva III both expanded the types of information protected by the 1929 Convention ("information of any kind whatever") and reduced the means by which information could be extracted ("[n]o physical or mental torture, nor any other form of coercion"). In keeping with Geneva III’s expansive protections, both “torture” and “coercion” should be interpreted broadly.

Several other provisions in Geneva III affect interrogation methods. Article 13 states that no POW "may be subjected to... medical or scientific experiments of any kind which are not justified by the medical, dental, or hospital treatment of the prisoner concerned and carried out in his interest." Article 13 also provides that “[p]risoners of war must at all times be humanely treated,” and “must at all times be protected, particularly against acts of violence or

98 See id. art. 17.
99 Id. art. 17, para. 4.
100 Id.
102 See id.; Neil McDonald & Scott Sullivan, Rational Interpretation in Irrational Times: The Third Geneva Convention and the “War on Terror,” 44 HARV. INT’L L.J. 301, 307 (2003) (“[A]rticle 17 does not prohibit interrogation... By limiting the tactics available to elicit responses, the Geneva Convention implicitly acknowledges that interrogations of a prisoner are expected and inevitable.”).
104 See DE PREUX, supra note 101, at 163.
105 1929 Convention, supra note 103, art. 5.
106 See Geneva III, supra note 14, art. 17, para. 4; McDonald & Sullivan, supra note 102, at 309 (discussing the Geneva Convention’s attempts to broaden the protections afforded by the 1929 Convention).
107 Geneva III, supra note 14, art. 13, para. 1.
108 Id.
intimidation." According to the International Committee of the Red Cross (ICRC) Commentary on the Conventions, Article 13 both prohibits the Detaining Power from using corporal punishment and requires the Detaining Power to protect the detainee from harm. Similarly, Article 14 of Geneva III states that POWs are "entitled in all circumstances to respect for their persons and their honour."  

3. Protections under the Hague Convention and Geneva IV  

Civilians are protected under both the Hague Convention, which is designed to govern occupations, and Geneva IV. Under Article 44 of the Hague Convention, the occupying power may not "force the inhabitants of territory occupied by it to furnish information about the army of the other belligerent, or about its means of defence."  

Article 31 of Geneva IV similarly provides that "[n]o physical or moral coercion shall be exercised against protected persons [i.e., civilians], in particular to obtain information from them or from third parties." Article 27 entitles civilians, "in all circumstances, to respect for their persons, their honour, their family rights, their religious convictions and practices, and their manners and customs." According to the ICRC Commentary, the "right of respect for the person... covers all the rights of the individual... which are inseparable from the human being by the very fact of his existence and his mental and physical powers; it includes... the right to physical, moral and intellectual integrity—an essential attribute of the human person." The "right to physical integrity" prohibits acts that could impair the individual's life or health. The right to "intellectual integrity" requires the detaining power to exhibit "respect for all the moral values which form part of man's heritage, and applies to the whole complex structure of convictions, conceptions and aspirations peculiar to each individual."  

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109 Id.  
110 De Preux, supra note 101, at 141.  
111 Geneva III, supra note 14, art. 14, para. 1.  
112 Hague Convention, supra note 14, art. 44.  
113 Geneva IV, supra note 14, art. 3.  
114 Hague Convention, supra note 14, art. 44.  
115 Geneva IV, supra note 14, art. 31.  
116 Id. art 27.  
118 Id.  
119 Id.
B. Permissibility under International Humanitarian Law

The Geneva Conventions prohibit the use of coercion, but do not define the term. Geneva III, applicable to POWs, prohibits the use of "any . . . form of coercion." The Geneva IV, however, prohibits only the use of "physical or moral coercion" against civilians. The difference between Geneva III's and Geneva IV's standards is not clear, as it is unclear what techniques the phrase "physical or moral coercion" encompasses. The language seems to suggest that the prohibition against the use of coercion is stricter vis-à-vis POWs than civilians. But that result—that civilians would receive less protection than combatants—seems anomalous in the IHL context. Thus, the two standards must be interpreted to have substantially similar definitions.

The U.S. military's Field Manual 34-52: Intelligence Interrogation (FM 34-52) sets forth the U.S. military's basic doctrine regarding coercion in interrogation. FM 34-52 defines coercion as "actions designed to unlawfully induce another to compel an act against one's will." In interrogation, the "act" that occurs against the detainee's will is the detainee's revelation of information to the interrogator. FM 34-52 goes on to state that "coercion revolve[s] around eliminating the source's free will." This suggests a very broad reading of the coercion element. Moreover, American constitutional law, although it is not a binding interpretation of the Geneva Conventions, is also instructive. In U.S. domestic law, a defendant's confession is inadmissible if the defendant has been coerced. A defendant is coerced if the individual's "will was overborne" or if the defendant's confession was not "the product of a rational intellect and a free will."

Is fMRI coercive? In this regard, it is important to distinguish between the scanner's use as a next-generation lie detector and its use to extract cognitive information more generally from the detainee. Traditional lie detectors are not coercive. Polygraphs work by detecting physical changes in a subject's body when that subject answers interrogation questions. As such, they are mere passive observers.

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120 Geneva III, supra note 14, art. 17, para. 4.
121 Geneva IV, supra note 14, art. 31.
122 See Jinks, supra note 96, at 378 (noting that civilians generally receive protections "identical" to those provided to POWs).
124 See id. at 1-8; DOD WORKING GROUP REPORT, supra note 40, at 332 (discussing the role and status of FM 34-52).
125 FM 34-52, supra note 123, at 1-8.
126 Id.
130 See Langleben et al., supra note 58, at 727.
Moreover, there is also an element of consent in a traditional poly-graph examination, as the detainee must voluntarily answer the interrogator's questions for the polygraph examination to work.\(^{131}\)

Furthermore, in theory, nothing prevents an interrogator—without the assistance of a polygraph—from assessing some of the same physiological responses in a detainee, such as increased respiration, heart rate, or galvanic skin response. Such an interrogator would not be able to make these assessments with the same degree of accuracy as a polygraph, but this is a difference of degree, rather than kind. And there would, of course, be nothing objectionable about an interrogator with such highly attuned observational powers. Thus, an fMRI scanner, when being used to detect deception when the detainee is voluntarily answering questions, is analogous to a traditional polygraph and probably not coercive.

When the fMRI is used to extract cognitive information from a detainee, such as whether the detainee knew particular people or places, however, the legal question is much closer. Arguably, the polygraph analogy also applies to fMRI in this context, as the scanner is being used as a passive collector of information—here, brain activity rather than respiration or galvanic response. In this case, however, the analogy to the polygraph is erroneous.

Here the analogy relies upon the mistaken assumption of mind-body dualism.\(^{132}\) While commonly held, the concept of mind-body dualism—that there exists a separate "mind" that controls the brain—has been conclusively rejected by the vast majority of neuroscientists.\(^{133}\) The assumption of mind-body dualism fundamentally misunderstands the structure and function of the brain. There is, for example, neither a central memory storage depot in the brain, which "the mind" then accesses,\(^{134}\) nor some internal theatre in the brain


\(^{133}\) See Michael Morgan, *What's Mind? No Matter!*, 2 NATURE NEUROSCIENCE 1049, 1049 (1999) (reviewing Ian Glynn, *An Anatomy of Thought: The Origin and Machinery of the Mind* (1999)). Morgan remarks, "Clearly we are all identity theorists now; dualists in neuroscience are about as common as Lamarkians in biology." Id. Lamarck was a pre-Darwinian evolutionary theorist; Lamarkians are, therefore, uncommon. See Jean-Baptiste Lamarck, *Zoological Philosophy: An Exposition with Regard to the Natural History of Animals* (Hugh Elliot trans., Univ. Chi. Press 1884) (1809).

\(^{134}\) See Gerald D. Fischbach, *Mind and Brain*, SCI. AM., Sept. 1992, at 48, 48 (describing the mind as "a collection of mental processes").
that plays sensory inputs for the mind's viewing.\textsuperscript{135} Thus, although the scanner is monitoring brain activity, it is not monitoring some secondary or tertiary indicator of thought processes or memories being computed or residing elsewhere "in the mind." FMRI is, in actuality, "reading a person's mind," to the extent that that phrase is intelligible. Consequently, in this context, fMRI is not passively monitoring the brain for information but rather affirmatively extracting information from it.

Furthermore, the analogy ignores the inherently involuntary nature of fMRI in this context. Even if a detainee took a conscious, affirmative decision that he would not provide an interrogator with any information regarding the identities of people or places, fMRI would compromise this decision and extract the information from the detainee's mind. In this way, fMRI is much more coercive than most methods of aggressive interrogation, such as the application of physical pressure. Physical pressure is coercive because it puts the subject to a choice between enduring more physical pressure or providing information. Under such circumstances, a subject's decision to provide information is said to be "coerced" because external forces have compromised the subject's ability to take a rational decision to reveal or not reveal information.

Admittedly, fMRI does not present the subject with such a choice. But this makes fMRI more, rather than less, coercive. The proper focus of any analysis of coercion is not the detainee's "choice," but rather the destruction of the detainee's free will to choose. It is problematic to discuss "choice" in a coercive interrogation environment because the use of the term rests on a dubious inversion of "the ideas of agency, consent, and responsibility that help shape our ideas of self and of self-government."\textsuperscript{136} Thus, the point is not that the detainee "chooses" to endure more coercion or to give up information, but rather that the coercive interrogation method has robbed the detainee of his free will to choose. As does fMRI.

Consequently, fMRI simply represents a more extreme form of coercion than techniques such as physical pressure. Because individuals cannot control their cognitive activity, the fMRI scanner completely eliminates the detainee's free will.\textsuperscript{137} For example, fMRI can reveal whether the subject recognizes a certain face by analyzing the subject's brain activity after an interrogator shows the subject a picture.
of that face.\textsuperscript{138} This is true even in cases in which the subject has taken a conscious decision to not reveal his knowledge.\textsuperscript{139} Thus, whereas other means of coercive interrogation have the potential to compromise a subject's free will, fMRI in fact involves the complete "elimination of the source's free will."\textsuperscript{140}

Although fMRI does extract information from the detainee against the detainee's will, does it "compel an act against one's will," as required to meet the definition of coercion set forth in FM 34-52?\textsuperscript{141} Unlike physical coercion, fMRI does not require the detainee to affirmatively act, as it never requires the detainee to verbalize the information. In this sense, fMRI does not compel an action. But while FM 34-52 includes this "compel an act" requirement, it is not found in the Conventions. The Conventions prohibit any form of coercion "inflicted on prisoners of war to secure from them information of any kind whatever."\textsuperscript{142} FMRI does "secure" information from the detainee, as the term "secure" does not implicate any action on the part of the detainee. Thus, as the Conventions, rather than FM 34-52, are the controlling legal authority, the compulsion requirement set forth in FM 34-52 is inapplicable.

Therefore, because fMRI secures information from the detainee against the detainee's free will, it must be regarded as "coercive" under the Conventions.

III
FMRI UNDER INTERNATIONAL HUMAN RIGHTS LAW
AND U.S. LAW

A. Applicable Law

1. Detainee Status

Under current U.S. policy, the legal rights of a detainee to whom IHL does not apply are dependent upon the detainee's physical location. The United States has never explicitly confirmed this policy, although it can be inferred from official statements. For example, the Bush Administration opposed legislation that would have had the effect of prohibiting members of other governmental agencies from employing CID treatment against detainees held abroad.\textsuperscript{143} In a letter to Congress, then-National Security Adviser Condoleezza Rice opposed the measure because it would "provide[ ] legal protections to foreign

\textsuperscript{138} See Flam, \textit{supra} note 70.
\textsuperscript{139} See \textit{id.}
\textsuperscript{140} See FM 34-52, \textit{supra} note 123, at 1-8.
\textsuperscript{141} See \textit{id.} at 1-8.
\textsuperscript{142} Geneva III, \textit{supra} note 14, art. 17, para. 4.
prisoners to which they are not now entitled under applicable law and policy.”144 Similarly, during his confirmation hearing, Attorney General Alberto Gonzales, in response to written questions regarding whether U.S. personnel engage in CID treatment abroad, stated that “the Department of Justice has concluded that under Article 16 there is no legal prohibition under the CAT on cruel, inhuman or degrading treatment with respect to aliens overseas.”145 The United States argues that the same geographic limitations apply with respect to the ICCPR.146 All members of the U.S. Armed Forces are prohibited from engaging in CID treatment regardless of their location.147 Thus, under current U.S. policy, only members of other governmental agencies operating outside U.S. territory may engage in conduct that would constitute CID treatment if it occurred in the United States.

The Administration’s position is based on two arguments. First, Article 16 of the CAT requires states to “undertake to prevent in any territory under its jurisdiction other acts of cruel, inhuman or degrading treatment or punishment.”148 The Administration argues that this Article sets forth a territorial limitation on the extent of the United States’ obligations under the CAT to “any territory under its jurisdiction,” which would exclude any place overseas that is not under U.S. jurisdiction.”149

144 Id. (emphasis added). Although Congress ultimately did not approve this measure, a similar, though more limited, provision was successfully attached to a later budget appropriation providing additional funds for the wars in Iraq and Afghanistan. See Eric Lichtblau, Congress Adopts Restriction on Treatment of Detainees, N.Y. TIMES, May 11, 2005, at A16. This provision specified that none of the appropriated funds could be expended to subject any person to CID treatment. Id.


146 See ICCPR, supra note 17, art. 2(1) (“Each State Party . . . undertakes to respect and to ensure to all individuals within its territory and subject to its jurisdiction the rights recognized in the present Covenant.”); Luigi Condorelli & Pasquale De Sena, The Relevance of the Obligations Flowing from the UN Covenant on Civil and Political Rights to US Courts Dealing with Guantánamo Detainees, 2 J. INT’L CRIM. JUST. 107, 108 (2004) (“The Covenant itself defines, in Article 2(1), the territorial scope (ratione loci) of the obligations imposed on States Parties.”). The now-declassified April 2003 Department of Defense Working Group Report on Detainee Interrogations in the Global War on Terrorism argues that the United States “has maintained consistently that the Covenant does not apply outside the United States or its special maritime and territorial jurisdiction.” See DOD WORKING GROUP REPORT, supra note 40, at 290.

147 See Uniform Code of Military Justice art. 93, 10 U.S.C. § 893 (2000) (prohibiting U.S. armed forces from engaging in cruelty toward or oppression or maltreatment of prisoners); id. art. 128 (prohibiting assault); id. art. 134 (prohibiting threats, i.e., conduct bringing "discredit upon the armed forces").

148 See CAT, supra note 17, art. 16.

Second, the Administration argues that the U.S. reservations, understandings and declarations (RUDs) to the CAT, which are discussed in depth infra, only prohibit CID treatment to the extent that such treatment is prohibited by the Fifth Amendment to the U.S. Constitution. Because, the Administration argues, the Fifth Amendment does not apply to aliens in U.S. custody overseas, this geographic restriction was incorporated into the CAT and ICCPR by the U.S. RUDs. Thus, even if the interpretation of the geographic restriction of Article 16 is erroneous, U.S. personnel would still not be prohibited from engaging in CID treatment abroad.

There is serious debate regarding the validity of these arguments. In particular, the Supreme Court's decision in the combined cases of Rasul v. Bush and Al Odah v. United States, holding that detainees at Guantanamo Bay may challenge their detentions via writs of habeas corpus, casts doubt on the validity of current U.S. policy. This debate, however, lies beyond the scope of this Note. Because U.S. policy still distinguishes detainees held abroad from those held in the United States, this Note analyzes the potential use of fMRI in interrogation under the assumption that neither the Fifth Amendment nor IHRL anti-CID treatment provisions apply abroad. If Fifth Amendment and CID treatment protections are eventually extended to detainees in U.S. custody abroad as a matter of policy or as the result of legal challenges, the analysis of the legality of fMRI in those interrogations would become the same as the analysis for detainees held in U.S. territory set forth infra.

Regardless of the extent of the extraterritorial application of the U.S. Constitution, federal statutes prohibit all U.S. personnel from us-
ing torture outside U.S. territory. The Federal Torture Statute criminalizes acts of torture committed by a U.S. national outside U.S. territory. The statute’s definition of torture tracks the language found in the CAT. It does not, however, include any provision regarding CID treatment. Notably, the Torture Memos only analyzed the interrogation of foreign detainees held abroad under the Federal Torture Statute, further suggesting that the United States has determined that only the statute, and not the U.S. Constitution, protects these detainees.

Thus, under current U.S. policy, detainees held within the United States are protected by both IHRL and the U.S. Constitution, but detainees held outside the United States are entitled to protection only under the Federal Torture Statute.

2. Protections under the CAT and U.S. Law

In 1978, the U.N. Commission on Human Rights began drafting the CAT, which the U.N. General Assembly adopted in 1984. The CAT establishes two categories of prohibited behavior. First, the CAT prohibits governments from engaging in acts of torture. The CAT defines torture as any act, done by a person acting in an official capacity, by which “severe pain or suffering, whether physical or mental, is intentionally inflicted on a person for such purposes as obtaining . . . information” from him. Article 2 of the CAT states that

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158 Compare CAT, supra note 17, art. 1(1) (addressing “any act by which severe pain or suffering, whether physical or mental, is intentionally inflicted on a person . . . by . . . a public official or other person acting in an official capacity”), with 18 U.S.C. § 2340(1) (defining torture as “an act committed by a person acting under the color of law specifically intended to inflict severe physical or mental pain or suffering”).
159 See 18 U.S.C. §§ 2340-2340B.
160 See Memorandum from Jay S. Bybee, Assistant Attorney General, to Alberto R. Gonzales, Counsel to the President, supra note 40, at 172, 202-04 (discussing only “constitutional problems” related to the Federal Torture Statute).
162 See CAT, supra note 17. For a detailed history of the CAT’s drafting, see J. HERMAN BURGERS & HANS DANIELIUS, THE UNITED NATIONS CONVENTION AGAINST TORTURE: A HANDBOOK ON THE CONVENTION AGAINST TORTURE AND OTHER CRUEL, INHUMAN OR DEGRADING TREATMENT OR PUNISHMENT 31-113 (1988).
163 CAT, supra note 17, art. 2.
164 Id. art. 1(1). The full definition of torture reads, 
[A]ny act by which severe pain or suffering, whether physical or mental, is intentionally inflicted on a person for such purposes as obtaining from him or a third person information or a confession, punishing him for an act he or a third person has committed or is suspected of having committed, or intimidating or coercing him or a third person, or for any reason based on discrimination of any kind, when such pain or suffering is inflicted by or at the instigation of or with the consent of [sic] acquiescence of a public official or other person acting in an official capacity.
"[n]o exceptional circumstances whatsoever, whether a state of war or a threat of war, internal political instability or any other public emergency, may be invoked as a justification of torture."165

Second, the CAT prohibits "other acts of cruel, inhuman or degrading treatment or punishment" and "ill-treatment."166 These terms, however, are not defined.167 Nevertheless, the U.N.'s Code of Conduct for Law Enforcement Officials states that the phrase "should be interpreted so as to extend the widest possible protection against abuses, whether physical or mental."168 Under Article 16, State Parties are required to "undertake to prevent" these acts.169

The United States ratified the CAT in 1994.170 Before ratification, however, the United States made a number of RUDs to the CAT.171 The United States is only bound to adhere to the provisions of the CAT to the extent of its RUDs.172 The U.S. reservations contained two important limitations relating to the definition of torture under the CAT.173 First, the United States attached a "specific intent" requirement to the definition of torture.174 In other words, the torturer must intend to inflict severe pain upon the subject. Second, the United States clarified the "mental pain or suffering" requirement of the torture definition, declaring that mental pain or suffering required "prolonged mental harm."175 Moreover, this prolonged mental harm must have resulted from one of the following:

(1) the intentional infliction or threatened infliction of severe physical pain or suffering; (2) the administration or application, or

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165 Id. art. 2(2).
166 Id. arts. 13, 16(1).
171 See Vienna Convention, supra note 171, art. 21 ("A reservation . . . in]odifies for the reserving State . . . the provisions of the treaty to which the reservation relates to the extent of the reservation . . . "); Dunoff et al., supra note 171, at 65-66.
173 See id. at S17491 ("[T]he United States understands that, in order to constitute torture, an act must be specifically intended to inflict severe physical or mental pain or suffering . . . ").
174 Id.
threatened administration or application, of mind altering substances or other procedures calculated to disrupt profoundly the senses or the personality; (3) the threat of imminent death; or (4) the threat that another person will imminently be subjected to death, severe physical pain or suffering, or the administration or application of mind altering substances or other procedures calculated to disrupt profoundly the senes [sic] or personality.176

The United States also attempted to clarify the lines between torture, CID treatment, and acceptable practice. The Senate declared that the United States would only consider itself bound to prevent CID treatment "only insofar as the term . . . means the cruel, unusual and inhuman treatment or punishment prohibited by the Fifth, Eighth, and/or Fourteenth Amendments to the Constitution of the United States."177

3. Protections under the ICCPR

The ICCPR uses the same language as the CAT to prohibit torture and CID treatment.178 Article 7 states that "[no] one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment."179 As with the CAT, the United States entered a number of RUDs to the ICCPR.180 Specifically, the Senate clarified the meaning of Article 7 through a reservation that defined "cruel, inhuman or degrading treatment or punishment" as "the cruel and unusual treatment or punishment prohibited by the Fifth, Eighth, and/or Fourteenth Amendments to the Constitution of the United States."181 Thus, the analysis of this issue is identical under the CAT, the ICCPR, and U.S. domestic law.

B. Permissibility under U.S. and International Human Rights Law

1. Torture

Little decisional law defines the threshold of torture. What law does exist, however, indicates that torture requires the infliction of severe pain.182 There is also widespread agreement that certain ex-

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176 Id.
177 Id.
178 See ICCPR, supra note 17, art. 7.
179 Id.
180 See 138 CONG. REC. 8070–71 (1992) (documenting the U.S. Senate resolution of advice and consent to ratification of the International Covenant on Civil and Political Rights).
181 See id. at 8070.
182 See, e.g., Prosecutor v. Furundija, 121 I.L.R. 213, 264, 292 (ICTY App. Chamber 2000) (defining torture as (i) . . . the infliction, by act or omission, of severe pain or suffering, whether physical or mental; in addition
treme methods of physical pressure represent torture per se. For example, international tribunals have held that beatings with wood sticks or metal bars severe enough to cause pain and swelling—but not broken bones—constitute torture. Tribunals have also found that extended periods of standing, starvation, electric shock, being hung from the arms, and having one's head held under water also constitute torture.

Furthermore, the concurrent application of techniques that would not, by themselves, represent impermissible treatment may be illegal. For example, in Ireland v. United Kingdom, the European Commission on Human Rights found that, taken as a whole, certain British military interrogation techniques used in Northern Ireland against suspected members of the Irish Republican Army amounted to torture. British forces allegedly subjected detainees to extended standing, loud noises, sleep deprivation, and starvation and dehydration. The United Kingdom appealed the decision to the European Court of Human Rights, which reversed the Commission. The court found that the practices represented inhuman and degrading treatment but held that they did not rise to the level of torture. The court also found that the difference between torture and inhuman and degrading treatment was a difference in the "intensity of the suffering inflicted." The court noted that torture carries "a special stigma" and therefore should be limited to practices that have a "particular intensity and cruelty."

Thus, pain would appear to be a necessary condition for physical torture. FMRI is not painful. As the Massachusetts General Hospital/Harvard Medical School's standard patient consent form for fMRI-related studies notes, "A magnetic resonance scan is not uncomforta-

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183 See Nigel S. Rodley, The Treatment of Prisoners Under International Law 89-90 (2d ed. 1999) (noting that the European Commission of Human Rights held in 1997 that "numerous medically certified trauma on various parts of the body, consistent with the application of beatings involving punches, kicks and blows with a truncheon and baseball bat . . . was proof of torture").

184 See id. at 85-90 (listing various actions that international tribunals have deemed torturous).


186 See id. at 514.


188 Id. at 80.

189 Id.

190 Id.
The only conceivable pain that the fMRI could inflict would result from restraints to keep the individual immobile while inside the fMRI scanning device. Because fMRI works by superimposing a series of still scans over one another, an individual's head movement could compromise the quality of the scan. Nevertheless, the restraints are not severe. At Massachusetts General Hospital, for example, a subject's head is immobilized with foam pillows.

Even allowing for additional restraint of an uncooperative subject in an interrogation, these restraints would almost certainly not inflict anything near the level of pain that would rise to torture. Moreover, although the individual would need to be in this position for an extended period, the subject is required only to remain lying down. Thus, the fMRI technique is dissimilar to so-called "stress positions" and certainly bears no relation to the extreme stress positions, such as being hung by the arms, that international tribunals have deemed to be torture.

The use of an fMRI scanner would almost certainly not represent mental torture either. Arguably, a claustrophobic detainee might experience mental suffering while in the fMRI machine. However, the United States clarified the "mental pain or suffering" requirement of the torture definition, declaring that mental pain or suffering required "prolonged mental harm." Moreover, this "prolonged mental harm" must have been the result of, amongst other things, the use of mind-altering substances or procedures.

Even if fMRI were a mind-altering procedure, the slight mental discomfort resulting from a psychological condition inherent in the detainee is probably not sufficiently severe to rise to the level of torture. Thus far, cases of mental torture tend to be limited to severe forms of mental suffering occasioned by actions such as mock execution or threatened dismemberment or castration. Moreover, regardless of a detainee's mental condition while in the fMRI scanner, the use of mental pain or suffering requires "prolonged mental harm" as defined by the United States.

192 See id. Individuals who have electrical, magnetic, or mechanical implants may be subject to additional risks. See id.; supra Part I.B.
193 See MARTINOS CENTER, supra note 191.
194 Id.
196 See Rodley, supra note 183, at 85–90.
198 Id.
the detainee would almost certainly not suffer prolonged mental harm because of it. Therefore, the use of an fMRI scanner in interrogation would probably not constitute torture under IHRL and U.S. law.

2. Cruel, Inhuman, or Degrading and "Conscience-Shocking" Treatment

The permissibility of fMRI under the CID treatment provisions of international law, as well as under U.S. domestic law, is much less clear. Under the conventional international interpretation of CID treatment, the use of an fMRI scanner during interrogation would likely not violate the prohibition on CID treatment. The few international tribunals that have examined the definition of CID treatment have, as with torture, focused on the infliction of pain as the key element. For example, the European Court of Human Rights emphasized that the level of "suffering inflicted" was the key distinction between CID treatment and torture, indicating the need for some level of suffering for a technique to rise to the level of CID treatment. Because the fMRI is painless, these provisions would not prohibit it.

a. Effect of U.S. RUDs

Nevertheless, the U.S. reservations to the CAT and ICCPR may—unusually—establish greater protections against interrogation with fMRI technology than the treaties themselves would provide. The U.S. RUDs to the CAT and ICCPR define CID treatment as "the cruel, unusual and inhumane treatment or punishment prohibited by the Fifth, Eighth, and/or Fourteenth Amendments to the Constitution of the United States." The full meaning of this reservation is not immediately obvious.

Clearly, the reservation incorporates U.S. Eighth Amendment constitutional jurisprudence into the definition of CID treatment. Thus, any behavior that violates the "cruel and unusual punishment" provision of the Eighth Amendment, but does not rise to the level of torture, is CID treatment under U.S. law. The Eighth Amendment provides, "Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted." Most, if not all, of the punishments the Eighth Amendment prohibits would rise to the level of torture under existing international legal definitions of that term and, therefore, would not need to be analyzed as CID treatment. For example, in Wilkerson v. Utah, the Supreme Court noted that the Eighth Amendment prohibited behavior

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202 U.S. CONST. amend. VIII.

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such as beheading, quartering, or disembowelling a prisoner; burning a prisoner alive; or dragging a prisoner to the place of execution.\textsuperscript{203} Few modern interrogation techniques fall into this category of behavior, however, and fMRI certainly would not.

The Court later expanded Eighth Amendment jurisprudence, noting that in addition to providing minimum standards for treatment from which the government could not deviate, the Eighth Amendment also drew "its meaning from the evolving standards of decency that mark the progress of a maturing society."\textsuperscript{204} As such, the Court will look to standards in the United States and, in some cases, the world,\textsuperscript{205} to determine if societal opinion has coalesced against a particular practice, rendering it an Eighth Amendment violation.\textsuperscript{206}

The vast majority of the Court's opinions relating to "evolving standards of decency," however, involve the death penalty or prison conditions. The death penalty cases provide no guidance for determining whether a practice short of the infliction of capital punishment would constitute CID treatment. Similarly, the prison-conditions cases do not shed much light on the use of fMRI. These cases prohibit practices such as the "unnecessary and wanton infliction of pain"\textsuperscript{207} or "deliberate indifference" toward a prisoner's physical needs.\textsuperscript{208} Considering the very high standard these cases establish, the painless use of fMRI would not rise to the level of an Eighth Amendment violation. "Evolving standards of decency" may prohibit the use of a device as mentally invasive as fMRI, but it is not clear what evidence would presently support this assertion because there has been insufficient time for public opinion to form on this issue.

The role of the Fifth and Fourteenth Amendments in the United States' RUDs to the CAT and the ICCPR is unsettled. The RUDs state that CID treatment is any "cruel and unusual treatment or punishment" that the Amendments prohibit.\textsuperscript{209} Nevertheless, the Fifth and Fourteenth Amendments do not, per se, prohibit "cruel and unusual treatment or punishment."\textsuperscript{210} It seems reasonable to read this provision to mean that the United States defines CID treatment as coterminous with actions that would violate the Fifth or Fourteenth Amendments.

\textsuperscript{203} 99 U.S. 130, 135-36 (1878).
\textsuperscript{205} See, e.g., Roper v. Simmons, 125 S. Ct. 1183, 1200 (2005) ("It is proper that we acknowledge the overwhelming weight of international opinion against the juvenile death penalty, resting in large part on the understanding that the instability and emotional imbalance of young people may often be a factor in the crime.").
\textsuperscript{206} See Trop, 356 U.S. at 101.
\textsuperscript{207} Whitley v. Albers, 475 U.S. 312, 320 (1986).
\textsuperscript{208} Estelle v. Gamble, 429 U.S. 97, 104 (1976).
\textsuperscript{209} 136 CONG. REC. 36198 (1990).
\textsuperscript{210} See U.S. CONST. amends. V, XIV.
Not all provisions of the Fifth and Fourteenth Amendments are, however, applicable in the context of interrogation of foreign detainees. The Self-Incrimination Clause of the Fifth Amendment is almost certainly not applicable. In *Chavez v. Martinez*, the U.S. Supreme Court held that the clause was a “trial right.”\(^{211}\) As such, unless and until the government introduces statements elicited in violation of Fifth Amendment protections at the defendant's trial, there is no Fifth Amendment violation.\(^{212}\) Thus, unless the U.S. government seeks to bring a detainee to trial, which appears unlikely under current U.S. policy, the Self-Incrimination Clause of the Fifth Amendment will not affect the interrogation. The Court left open the question of whether other Fifth or Fourteenth Amendment rights were also “trial rights.”\(^{213}\)

It may be possible to extend the logic of the Court's holding to the Due Process Clauses of the Fifth and Fourteenth Amendments. If so, none of the protections would apply unless the government sought to introduce the detainee's statement at trial. A close reading of the Court's opinion in *Chavez*, however, suggests that the Due Process Clauses of the Fifth and Fourteenth Amendments protect detainees regardless of whether they are brought to trial. In *Chavez*, the Court approved\(^{214}\) its holding in *Rochin v. California*, in which it noted that official conduct, including custodial conduct, that "shocks the conscience" violates the Due Process Clause when the conduct itself occurs.\(^{215}\) Although the *Chavez* Court rejected the defendant's due process claim, the Court considered whether the state actor's behavior shocked the conscience without considering whether the evidence was used at trial.\(^ {216}\) This suggests that the Court would countenance a substantive due process violation even if the statement extracted was not used at the detainee's subsequent trial.

b. *The "Shocks the Conscience" Test*

The effect of the RUDs and Court's holding in *Chavez* is to bring the archaic "shocks the conscience" standard to the forefront of this analysis.\(^ {217}\) It is less than clear what interrogation techniques "shock...
the conscience.” At a minimum, due process “prohibits improper . . . use of physical force, threats of force, and extreme forms of psychological pressure during interrogation . . . .” It is crucial to understand, moreover, that “the standard for finding a confession to be involuntary is much lower than the 'shock the conscience' substantive due process standard.” The shocks-the-conscience standard provides protection against “only the most egregious official conduct.” Thus, the “touchstone of due process is protection of the individual against . . . the exercise of power without any reasonable justification in the service of a legitimate governmental objective.”

The Supreme Court's holdings in this area are not overly helpful in clarifying the issue. At times the Court speaks of a “sense of justice” or notions of “fair play and decency” as embodying, or at least informing, the due-process standard, while at other times it uses the disjunctive to compare these concepts and the standard. Similarly, a plain reading of the test suggests that the judge’s conscience is the one that must be shocked, although the Court has also suggested that the “whole community sense of 'decency and fairness' that has been woven by common experience into the fabric of acceptable conduct” provides the appropriate “yardstick.” Moreover, the Court has taken pains to emphasize that the standard is not merely subjective.

If the Court’s shocks-the-conscience jurisprudence is to be something more than the subjective, visceral reaction of the putative shockee to the methods used, the shocks-the-conscience test must necessarily be reduced to two component elements: the nature of the

tenenth Amendment's Due Process Clause governs instead of the Fifth Amendment's Self-Incrimination Clause).


Id. at 845–46 (internal quotations and citations omitted).

See Rochin v. California, 342 U.S. 165, 173 (1952) (“Due process of law, as a historic and generative principle, precludes defining, and thereby confining, these standards of conduct more precisely than to say that convictions cannot be brought about by methods that offend 'a sense of justice.'”).

See Breithaupt v. Abram, 352 U.S. 432, 437 (1957) (holding that "a blood test taken by a skilled technician is not such 'conduct that shocks the conscience,' nor such a method of obtaining evidence that it offends a 'sense of justice'" (emphasis added) (citations omitted)).

Indeed, in Rochin, Justice Frankfurter specifically noted the uniform shock of the judges below. See 342 U.S. at 166–67.

See Breithaupt, 352 U.S. at 436.
bodily invasion and the degree of coercion exercised in effecting that invasion.\textsuperscript{227} Consider, for example, the Court's holding in \textit{Rochin v. California}.\textsuperscript{228} In \textit{Rochin}, the Court held that involuntarily pumping the stomach of a suspect to extract capsules that contained illegal narcotics shocked the conscience.\textsuperscript{229} In its reasoning, the Court was concerned with the invasiveness of the use of a stomach-pump to gather evidence, but it was equally, if not more, concerned with the tactics the police used to effect the stomach-pumping.\textsuperscript{230}

The dual considerations of inherent invasiveness and coercion used to effect the invasion were also salient, though not explicit, in the Court's ruling in \textit{Breithaupt v. Abram}.\textsuperscript{231} In \textit{Breithaupt}, the Court held that drawing blood from an unconscious suspect to determine his level of intoxication did not shock the conscience.\textsuperscript{232} The Court distinguished the behavior at issue in \textit{Breithaupt} from the involuntary stomach pumping at issue in \textit{Rochin} on the grounds that "there is nothing 'brutal' or 'offensive' in the taking of a sample of blood when done, as in this case, under the protective eye of a physician."\textsuperscript{233} The Court placed great weight on the fact that these types of blood tests were routine procedures, carried out in accord with medical standards.\textsuperscript{234} While acknowledging the individual's right "that his person be held inviolable,"\textsuperscript{235} the Court noted that "millions of Americans" submit to blood tests "as a matter of course nearly every day"\textsuperscript{236} and concluded that "the absence of conscious consent, without more, does not necessarily render the taking a violation of a constitutional right."\textsuperscript{237} Thus, the Court's opinion could be read to suggest blood testing is less inherently brutal or offensive than stomach pumping, primarily owing to the commonality with which Americans' blood is drawn. But this cannot be correct.

As Chief Justice Warren noted in dissent, this blood sampling might have appeared benign, especially when compared to the facts in \textit{Rochin}, because the defendant was not in a position to object or resist.\textsuperscript{238} No physical coercion accompanied the blood test—unlike the

\begin{footnotesize}
\begin{enumerate}
\item See \textit{id.} at 441 (Warren, C.J., dissenting).
\item 342 U.S. 165 (1952).
\item \textit{Id.} at 172.
\item See \textit{id.} ("Illegally breaking into the privacy of the petitioner, the struggle to open his mouth and remove what was there, the forcible extraction of his stomach's contents—this course of proceeding by agents of government to obtain evidence is bound to offend even hardened sensibilities.").
\item 352 U.S. 432 (1957).
\item \textit{Id.} at 436-37.
\item \textit{Id.} at 435.
\item See \textit{id.}
\item \textit{Id.} at 439.
\item \textit{Id.} This estimate may overstate the amount of blood testing in the United States.
\item \textit{Id.} at 435.
\item See \textit{id.} at 441 (Warren, C.J., dissenting).
\end{enumerate}
\end{footnotesize}
violent methods used to suppress the stomach pump in *Rochin*—because the defendant in *Breithaupt* was unconscious. Assume, however, that the defendant in *Breithaupt* was conscious and engaged in a struggle with the police to avoid the blood test. Specifically, assume the police behaved exactly as they did in *Rochin*, except that instead of "forcibl[y] extract[ing] his stomach's contents," they forcibly extracted the contents of his veins. On these facts, the Court's ruling in *Breithaupt* might have been different. At least it would have been a closer question, as the *Breithaupt* Court gave significant weight to the benign, clinical setting of the blood test, particularly as compared to the violence that permeated the government action in *Rochin*.

Thus, although a court may conduct a shocks-the-conscience analysis as a totality-of-the-circumstances test, as noted above two factors are actually at issue: first, the level of coercion the government would use to effect the bodily invasion, and second, the inherent level of shock from the invasiveness of the technique itself. It is the cumulative effect of these two factors that determines whether actions shock the conscience. Moreover, as the Court noted in *County of Sacramento v. Lewis*, government action "in the service of a legitimate governmental objective" could provide a "reasonable justification" for the conduct, which would, therefore, not shock the conscience. Consequently, it is difficult to make an a priori assessment of whether fMRI shocks the conscience because the level of coercion used to effect the scan and the government interest which the scan will service is unknowable.

With respect to the level of coercion used to effect the scan, two points are notable. First, unlike blood tests, the fMRI scanner cannot operate on an unconscious individual, so some form of restraint will be required. Second, fMRI requires the subject to be very still during the procedure. Thus, the government will have to use considerable restraint to ensure that an unwilling subject remains virtually motionless.

The issue of fMRI's inherent invasiveness is more suitable to a priori analysis. As in the IHL context, fMRI could arguably be likened to the polygraph. Existing precedent does not regard the use of a lie detector in an investigatory—rather than trial—setting as a violation

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239 See *id.* at 435.
241 See *Breithaupt*, 352 U.S. at 435 (noting that the testing was conducted "under the protective eye of a physician").
242 See *supra* note 227 and accompanying text.
244 The government would be advised, however, to use the minimum feasible amount of force to secure the individual in the scanner.
of the defendant's rights. There is certainly no holding suggesting that the application of a polygraph in this setting would shock the conscience. In light of this, consider the following hypothetical.

Assume that the polygraph could be improved such that it could achieve substantially the same result as an fMRI scan. The polygraph would still rely on testing physiological responses such as heart rate, blood pressure, and galvanic response, but technological improvements would provide the examiner with an essentially infallible ability to detect lying and even to discern certain reactions, such as facial recognition. Would the increased effectiveness of such a hypothetical "advanced polygraph" render its use unconstitutional in an investigatory setting? The answer would appear to be no. While this may suggest that fMRI should also be permissible, the issue is somewhat more complicated.

Although the polygraph and fMRI appear comparable, they are fundamentally different technologies. Indeed, it is these differences that highlight the true implications of fMRI technology in interrogation. U.S. law regarding polygraphs does not resolve the fMRI issue because of the consent-based nature of polygraphs and because of the general inadmissibility of polygraph evidence. No court has ever held that that the involuntary application of a polygraph violates a detainee's rights because involuntary application is impossible. The polygraph is a consent-based interrogation method. The individual has to choose to answer for the polygraph to generate a reading of the individual's physiological manifestations of the stress of lying. Thus, there is no precedent addressing an "involuntary polygraph," as the concept is incoherent.

The same is not true of the fMRI, which could extract information such as facial recognition and emotional response involuntarily from the detainee. Moreover, even if administering an involuntary polygraph were somehow possible, the courts simply have not had an opportunity to consider the possibility because of the general inadmissibility of polygraph evidence without stipulation. Consequently, the polygraph precedents are inapposite to the extent the detainee does not consent to procedure.

See, e.g., Leeks v. State, 245 P.2d 764, 771 (1952). Courts traditionally have excluded polygraph evidence from trial based on concerns of reliability, lack of standardization, and undue impact on the jury. See U.S. v. Brevard, 739 F.2d 180, 182-83 (4th Cir. 1984); deVries v. St. Paul Fire & Marine Ins. Co., 716 F.2d 939, 945 (1st Cir. 1983); Leeks, 245 P.2d at 771. For our purposes, however, such trial-related concerns are irrelevant, as the government would likely be more interested in extracting information from the detainee, rather than obtaining information to use against the detainee at trial.

Thanks to Michael Schrage for suggesting this hypothetical, which very much clarified my thinking in this area.
Thus, to the extent that a detainee consents to an fMRI scan, however, its use probably would not be distinguishable from that of a polygraph. In a consent context, therefore, the use of fMRI in interrogation would probably not represent a violation of due process and almost certainly would not shock the conscience. The more interesting and important question is whether the involuntary application of fMRI in interrogation, such as in cases where it is used to extract involuntarily cognitive information from the detainee, violates due process.

The use of fMRI to extract involuntary information from a detainee's mind should be regarded as infringing upon a "fundamental liberty interest." To rise to the level of a "fundamental liberty interest," the right must be "deeply rooted in this Nation's history and tradition" and "implicit in the concept of ordered liberty." Furthermore, the Court has repeatedly expressed its reluctance to expand the protections of substantive due process, and the Court has never explicitly found a right "to be free from unwanted extractions from the mind" to exist. The lack of a clear holding on this point is unsurprising, considering that no technology has existed that would allow the government to reach into an individual's mind.

Nevertheless, such a fundamental liberty interest must exist, in light of "this Nation's history and tradition." As Justice Cardozo noted in Palko v. Connecticut, "[F]reedom of thought . . . is the matrix, the indispensable condition, of nearly every other form of freedom. With rare aberrations a pervasive recognition of that truth can be traced in our history, political and legal." The guarantee of freedom of thought, furthermore, "includes both the right to speak freely and the right to refrain from speaking at all."

Furthermore, the right to be free from unwanted extractions from the mind is a necessary and fundamental component of the right to privacy. Although "the Constitution does not explicitly mention any right of privacy," the Court has repeatedly recognized that the Due Process Clause's guarantee of liberty protects "a right of personal privacy, or a guarantee of certain areas or zones of privacy." Thus far, the focus of the Court's right to privacy has been on freedom in personal decisionmaking, such as with abortion.

248 See id.
249 See id.
253 Id.
riage, procreation, family relations, child rearing and education, and contraception. But such concern with privacy in decisionmaking necessarily implies concern with privacy and security in one’s own mind. If the right to privacy is to mean anything, it must mean security from unwanted government intrusion into the mind.

As the Court has held, “The makers of our Constitution ... sought to protect Americans in their beliefs, their thoughts, their emotions and their sensations.” Consequently, the use of fMRI to extract cognitive information from a nonconsenting detainee must be regarded as compromising a fundamental liberty interest.

While it is true that the detainee’s body is not physically compromised by fMRI, this point cannot be determinative for two reasons. First, the fact that fMRI technology is passive, in the sense that it does not enter the body (aside from magnetic waves passing through the body), is irrelevant to these considerations because the concern is with the mental, rather than physical, intrusion. Second, assuming there is a fundamental liberty interest in private thought, the mere—and inevitable—advance of technology cannot be allowed to erode this right. As the Court noted in Kyllo v. United States, in the Fourth Amendment context technological advance cannot be allowed to erode the “degree of privacy against government that existed when” the Constitution was adopted. Notably, in Kyllo the Court rejected as “a mechanical interpretation of the Fourth Amendment” the argument that the thermal imaging technology, which allows police to measure heat emanating from particular areas of a structure, was consistent with the Fourth Amendment because it passively measured heat emanating “off-the-wall” of the building, rather than actively looking “through-the-wall.” Thus, regardless of the technological particulars of the fMRI, it still must be regarded as intruding upon the fundamental liberty interest in private thought.

Finally, consideration must also be given to the government’s purpose in subjecting the detainee to the fMRI scan. The Court noted in Lewis that the conduct “most likely to rise to the conscience-shocking level” is the “conduct intended to injure in some way unjustifiable by any government interest.” Thus, even a substantial liberty

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261 See id. at 35.
interest militating against this type of invasive procedure may not prevent the use of fMRI in scenarios in which the government's conduct could be justified. Although the government's interest in interrogating a high-value terrorist may be justifiable, its interest in interrogating every foreign detainee probably will not rise to a requisite level of importance.

In Chavez, however, Justice Thomas appears to apply the "any government interest" standard very broadly.263 Ironically, the government interest Justice Thomas relied on to justify the police's treatment of Martinez was "the need to investigate whether there had been police misconduct," the police misconduct being the police shooting of Martinez.264 Thomas' comments suggest that nothing short of random violence by the government against individuals could ever shock the conscience, and fMRIs against suspected terrorists would certainly not be captured under this standard. Nevertheless, Thomas' application of the "any government interest" element is overly broad and, if followed, would render the shocks-the-conscience standard irrelevant.

Thomas' reading of the "any government interest" standard is wrong for two reasons. First, it misinterprets the Court's statement of the standard in Lewis, where the Court found that conduct "most likely to rise to the conscience-shocking level" is the "conduct intended to injure in some way unjustifiable by any government interest."265 The Court's statement does not mean that "any government interest" will justify any government conduct, but rather that the chances of such conduct shocking the conscience would increase if there were no government interest present. Thus, while the presence of a government interest may increase what level of egregious government conduct is required to shock the conscience, it does not foreclose the possibility that conduct, even in the service of a government interest, could shock the conscience. Second, Thomas' interpretation ignores the fact that the Court has held conduct in the service of government interest to shock the conscience. In Rochin, for example, the police pumped the suspect's stomach to obtain evidence in a criminal investigation, yet the involuntary stomach pumping still shocked the conscience.266

Consequently, the government will likely have to allege some reasonable justification to subject a detainee to involuntary fMRI.

263 See Chavez v. Martinez, 538 U.S. 760, 775 (2003) ("Here, there is no evidence that Chavez acted with a purpose to harm Martinez by intentionally interfering with his medical treatment.").
264 See id.
265 523 U.S. at 849.
Clearly, in the case of a detainee believed to have information regarding an imminent terrorist attack, the government would have a sufficient interest to subject the detainee to fMRI, assuming that reasonable levels of force were used to secure the detainee in the scanner. Beyond this it is difficult to establish a per se rule, as the elements of coercive force used to effect the scan and the government interest involved will, of course, vary with each detainee. Given the extreme expense and operational requirements of contemporary fMRI scanners, however, it is, as a practical matter, unlikely that the government will be subjecting large numbers of detainees to fMRI in the foreseeable future.

**CONCLUSION**

The issue of torture raises a fundamental question about the American character: Can we be inhumane in the defense of our humanity? fMRI represents a quintessentially American solution to this problem—namely, the application of technology to avoid the issue.

As a policy matter, fMRI is appealing. An fMRI scan simply "looks" better than physical abuse. As such, revelations regarding the use of fMRI in interrogation will not likely cause the same type of global condemnation and outrage that compromised American moral legitimacy and prestige after Abu Ghraib. Indeed, unlike most other aggressive interrogation techniques, the use of fMRI is not likely to result in Abu Ghraib-type abuses or to even expand much beyond high-value terrorist detainees. Although the introduction of aggressive interrogation techniques into a detention facility always occasions the risk that interrogators will apply these techniques to detainees not deemed to be high-value, there is a much smaller chance of such migration with fMRI technology. Moreover, fMRI would obviate concerns regarding the reliability of information obtained by torture.

Despite its appeal, fMRI's use remains legally questionable. The involuntary use of fMRI scanning in interrogation most likely violates IHL and, therefore, cannot be used against detainees captured during an armed conflict who are entitled to POW or civilian status. In cases where the United States uses excessive force in securing the detainee in the fMRI scanner or where there is no reasonable government in-

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267 See, e.g., Bowden, supra note 3, at 53 (arguing that if there is any situation in which the use of torture in interrogation may be justified it is in the interrogation of terrorists plotting major attacks).

268 See O'Brien, supra note 44.

269 See generally Seymour M. Hersh, Chain of Command: The Road from 9/11 to Abu Ghraib 60-63 (2004) (arguing that techniques originally designed for use solely against high-value targets migrated to increasingly lower-level detainees).

270 See O'Brien, supra note 44 ("[V]ictims will often say anything (to the point of falsely incriminating themselves) to put an end to pain.").
terest at stake in the scan, the use of fMRI against detainees protected by IHRL and the U.S. Constitution would probably shock the conscience. Nevertheless, this does not prevent the United States from deploying fMRI against high-value targets or detainees with knowledge about an imminent terrorist attack, as the government interest there implicated would be sufficient to justify all but the most egregious government conduct.