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# Letting *Katz* out of the Bag: Cognitive Freedom and Fourth Amendment Fidelity

CHRISTIAN M. HALLIBURTON\*

[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.<sup>1</sup>

## INTRODUCTION

What would happen if it became impossible to keep a secret? What if everything you know, every quanta of information you possess consciously or unconsciously, could be accurately determined just by asking the right questions? Do you even know all the things that could be found there? More importantly, who would you trust with the knowledge of what's in your head? Would you allow your government, your employer, or your neighbor, access to your thoughts?

What makes you who you are, anyway? Are we the sum of our actions and our ideas, or is there a deeper essence to our identities? Is there a difference between our public and private, or our inner and outer selves? Should the answers to these questions have relevance to the law?

These seemingly far-fetched questions are suddenly and surprisingly real now that human inquiry and ingenuity have realized the ability to probe deeper and deeper into the reaches of our cognitive existence. Advances in modern scientific technique, including a proprietary process called Brain Fingerprinting have, by some accounts, made it possible to determine whether an individual possesses specific and detailed information—Brain Fingerprinting can tell the operator what an

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1. *Palko v. Connecticut*, 302 U.S. 319, 326–27 (1937).

individual does or does not know without any voluntary action, response or consent by the subject. While Brain Fingerprinting can't "read minds" in the absolute sense, it does allow irresistible access to one's thoughts, with any decision to keep those thoughts and ideas private effectively overridden by the robustness of the technique.

Brain Fingerprinting is but one example of a larger class of strategies designed to provide the means to tap into human cognitive contents and cerebral functioning for information-gathering, rather than clinical scientific purposes. Brain Fingerprinting relies centrally on electroencephalographic (EEG) monitoring; other approaches utilize functional magnetic resonance imaging (fMRI), ocular temperature fluctuations, infrared (IR) and near infrared (NIR) light detection, or a combination of some of these technologies simultaneously. The common thread uniting these complex and varied approaches is the belief that technological innovation can provide the power to peer behind the veil that keeps our thoughts and thought processes confidential, and that developing the power to do so ultimately serves the public good. Because of the ability to provide access to the individual's cognitive arena, I will refer to such devices in general as Cognitive Camera Technologies (CCTs).

There are likely two basic responses to learning of the existence of CCTs like Brain Fingerprinting and their potential: alarm and elation. Alarm flows from the recognition that this may be the previously-unimaginable sunset of democratic liberty and the ideal tool of political totalitarianism, while elation follows if one focuses on the potential of the technique to facilitate expedient outcomes in situations, involving law enforcement or otherwise, where *information* is the premium asset to be gained. Regardless of which way opinion sways, the stakes are rather high in determining what the legal position on CCTs should be.

This legal inquiry unavoidably will be pursued against the backdrop of our cultural conventions and understandings about what free thought and mental autonomy mean, and how they relate to our individual and collective social and political identities. A broad and rich discourse has taken place across numerous fields of study that begins to derive the reasons why the sanctity of our minds, and our right to be alone there, is an *a priori* assumption in the conceptualization of an open human society. A consensus has developed around the idea of unfettered and unmolested cognitive freedom as both descriptive of our natural condition and normatively superior to the alternatives. The chorus claims in harmony that the mind is free, and that our thoughts are our own.

From the outset, Brain Fingerprinting and other CCTs raise questions under the Fourth Amendment's rubric of search and seizure,

and under the general liberty guarantees of the Due Process Clause.<sup>2</sup> The technology presents a novel context in which these weathered old provisions must function and, perhaps more importantly, it operates to force investigation into the theoretical foundation or primary purpose of the criminal procedure amendments regulating police investigation as a complex.<sup>3</sup> The development of CCTs allows us a fresh opportunity to inquire into the purpose of these constitutional guarantees and to evaluate the consequence of the failure to honor them.

It is worth considering what the constitutional outcome would be should a case arise in which a ruling on the propriety of collecting CCT evidence were required. According to prevailing understandings of the Fourth Amendment, the central inquiry would revolve around the privacy expectations that society would deem reasonable given the context. This was the innovation of *Katz v. United States*, and the privacy norm articulated in that case has become a proxy for the spirit of the Fourth Amendment itself.<sup>4</sup> Yet this is not the only way in which we could seek to answer the question. Another technique for interpreting the Fourth Amendment is to focus on the nature and function of the technology that is employed to gather evidence during official investigations.<sup>5</sup> Instead of abstractly inquiring into hypothetical

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2. There is also a basic question regarding the admissibility of evidence collected by use of Brain Fingerprinting, and any other cutting-edge CCTs, in light of the evidentiary standards applied to scientific information in the courtroom. See *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993). While admissibility concerns are not truly germane to the scope of this Article, a helpful consideration of the admissibility question is set out in Professor Andre A. Moenssens' article, *Brain Fingerprinting—Can It Be Used to Detect the Innocence of Persons Charged with a Crime?*, 70 UMKC L. REV. 891 (2002).

3. It may be all but obvious that CCTs also raise questions under the Fifth Amendment's privilege against self-incrimination, and it is true that an analysis of the impact of CCTs from a Fifth Amendment perspective could advance the larger inquiry initially undertaken in this Article. It is my intention to take on the Fifth Amendment implications of advancing cognitive camera technology in a subsequent article. As of this writing, I can merely contend that some of the insights drawn from this analysis will have an important bearing on evolving Fifth Amendment considerations, and that my proposed resolution of the instant interpretive debate might offer a similarly effective model for resolving such interpretive tensions inherent in current Fifth Amendment jurisprudence.

4. 389 U.S. 347, 351–52 (1967); see also Brian J. Serr, *Great Expectations of Privacy: A New Model for Fourth Amendment Protection*, 73 MINN. L. REV. 583, 592 (summarizing post-*Katz* decisions as evidence that “[t]he holding in *Katz* forever changed the focus of fourth amendment jurisprudence from whether the police were, in a literal sense, physically ‘searching’ a constitutionally protected area to whether the police were intruding on an individual’s expectation of privacy”).

5. Cf. *United States v. Place*, 462 U.S. 696, 707 (1983) (holding that investigations aided by the enhanced sensory perceptions of trained narcotics detection dogs, so called “canine sniffs,” fall outside the Fourth Amendment’s definition of a search). See generally *Kyllo v. United States*, 533 U.S. 27, 33 (2001) (expressing its “previously reserved judgment as to how much technological enhancement of ordinary perception” turns mere observation into a Fourth Amendment search); *Florida v. Riley*, 488 U.S. 445, 451 (1989) (discussing Fourth Amendment protections in the context of surveillance effected by use of helicopter); *California v. Ciraolo*, 476 U.S. 207, 213 (1986) (discussing Fourth Amendment protections in the context of surveillance effected by use of fixed-wing aircraft); *Dow Chem. Co. v. United States*, 476 U.S. 227, 238 (1986) (discussing Fourth Amendment protections in the context of

subjective preferences regarding privacy, this approach presumably externalizes the inquiry by assessing the level of penetration of the technology, both its penetration into the community and its penetration of meaningful barriers protecting the source of evidence or information.<sup>6</sup> A final approach to the Fourth Amendment question would center on simple notions of reasonableness.<sup>7</sup> Again eschewing a focus on internal preferences regarding privacy,<sup>8</sup> and not depending on an assessment of technological sophistication, the reasonableness approach simply asks whether it seems fair and appropriate to allow law enforcement to operate in this fashion.<sup>9</sup> A so-called reasonableness test<sup>10</sup> would likely weigh the degree of intrusiveness of the search against the strength of the official justification.<sup>11</sup>

What should the Constitution do in such a circumstance? According

surveillance involving high-resolution long range photographic devices); *United States v. Karo*, 468 U.S. 705, 714–16 (1984) (discussing Fourth Amendment protections in the context of surveillance employing electronic “beepers”); *United States v. Knotts*, 460 U.S. 276, 281–82 (1983) (same).

6. *Kyllo*, 533 U.S. at 33.

7. See, e.g., *Wyoming v. Houghton*, 526 U.S. 295, 299–300 (1999) (“In determining whether a particular governmental action violates this provision, [the Court] inquire[s] first whether the action was regarded as an unlawful search or seizure under the common law when the Amendment was framed. Where that inquiry yields no answer, [the Court] must evaluate the search or seizure under traditional standards of reasonableness by assessing, on the one hand, the degree to which it intrudes upon an individual’s privacy and, on the other, the degree to which it is needed for the promotion of legitimate governmental interests.” (citation omitted)); *Vernonia Sch. Dist. 47J v. Acton*, 515 U.S. 646, 656 (1995) (upholding warrantless and suspicionless searches of high school students on the grounds that state’s interests in educational order outweighs students’ diminished interests in personal privacy and autonomy); *United States v. De Hernandez*, 473 U.S. 531, 541–42 (1985) (concluding that monitoring bowel movement of detained border crossers based upon agents’ suspicion of alimentary canal smuggling need only be, and was, reasonable); *United States v. Martinez-Fuerte*, 428 U.S. 543, 560–62 (1976) (holding brief interrogative stops of all motorists crossing certain border checkpoints are reasonable even without individualized suspicion because of sovereign interest in controlling entry). For a helpful review of “the rise of reasonableness in Fourth Amendment analysis,” see Scott E. Sundby, *A Return to Fourth Amendment Basics: Undoing the Mischief of Camara and Terry*, 72 MINN. L. REV. 383, 385–86 (1988).

8. See sources cited *supra* note 4.

9. See sources cited *supra* note 7.

10. I use the term “test” loosely to describe the reasonableness approach, as the Court has been less than forthcoming with its articulation of precisely what the outer boundaries are in determining whether official conduct is reasonable. More problematically, the Court has been unable or unwilling to provide a clear and comprehensible rule regarding when reasonableness, as opposed to one of the other two Fourth Amendment alternative tracks, should be the guiding inquiry. See Thomas Y. Davies, *Recovering the Original Fourth Amendment*, 98 MICH. L. REV. 547, 742 (1999) (reviewing the “authentic” historical sources to demonstrate that the framers never intended for a broad reasonableness standard to govern warrantless intrusions); *Leading Cases*, 120 HARV. L. REV. 163, 163–64 (2006) (“The Supreme Court has labored to articulate a consistent framework for assessing reasonableness, with various Justices arguing that history, common sense, or social norms should govern the inquiry.”); Sundby, *supra* note 7, at 385 (“Faced with novel fourth amendment questions, the Court in *Camara* and *Terry* turned to a broad reasonableness standard and an ill-defined balancing test for the immediate solutions.”).

11. See *Terry v. Ohio*, 392 U.S. 1, 21–24, 29–30 (1968).

to my working model of the Constitution, there are certain absolute social conditions which the document must maintain, and certain absolute social conditions which the document must prevent. When thinking about the Constitution as a whole, and when thinking about the Bill of Rights in particular, I find it helpful to read the charter as creating a variety of zones of exclusion, figurative if not physical spaces where the agents of government, and occasionally the feet of private actors, may not tread.<sup>12</sup> The Constitution erects fundamental barriers around these zones, from which an individual or collection of individuals has the unfettered right to exclude others and in which uninvited actors are impotent. When the barriers of these constitutional zones of exclusion are transgressed, the constitutional response should be swift and unqualified, and the line drawn by way of constitutional interpretation must be as absolute as is our commitment to preserving or avoiding the condition itself.

The Constitution's duty to draw and then police these absolute lines defining and preserving our zones of exclusion serves not only to preserve our constitutionally-derived rights, but also honors our fundamental human nature. The non-consensual use of CCTs to invade human thought intrudes upon one of the zones of exclusion that directly affects essential human nature. Indeed, the broad social consensus on our right to a cognitive zone of exclusion reflects the understanding that such a zone of exclusion is key to our essential humanity, and any legitimate mode of constitutional interpretation should contend with that essence. This is the problem sketched in the succeeding pages: the predictive discussion of what the legal response to the collection of CCT evidence may be is well out of step with a nuanced normative understanding of what the legal response should—indeed must—be. The solution proposed in response to this problem is to revisit and reformulate our conceptions of the Fourth Amendment's purpose and primary instrumental orientation, and centrally relies on the articulation of a newly-developed interpretive framework that emphasizes harmony between and within ambiguous constitutional provisions.

Part I of this Article summarizes the operational and functional aspects of Brain Fingerprinting as it currently exists, and considers the larger implications of Brain Fingerprinting by treating this specific technology as being merely one concrete iteration of a broader effort to develop the ability to probe human thought. The purpose of this section is not only to introduce the technology as part of a larger mind

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12. See *Jacobson v. Massachusetts*, 197 U.S. 11, 29 (1905) (“There is . . . a sphere within which the individual may assert the supremacy of his own will and rightfully dispute the authority of any human government, especially of any free government existing under a written constitution, to interfere with the exercise of that will.”).

reading/information gathering arms race, but also to describe in some detail the ways in which cognitive autonomy may be compromised by exposure to Brain Fingerprinting or similar CCTs. Part II then takes up the task of situating CCTs within the larger sociopolitical context created by our cultural assumptions and beliefs regarding cognitive autonomy. Part II is expressly a survey of the wide variety of disciplines that have come to the conclusion that the sanctuary of the human mind is of inestimable importance to individual identity construction, to manifestation of a spiritual existence, and to the creation of a functioning democratic order. Part II is not, therefore, designed to challenge these conclusions but rather to demonstrate their ubiquity with exemplary instances—it is unabashedly my intention to evoke the reader's intuitive understanding that the mind is a safe harbor from which all outsiders can and should be excluded should we so desire. Of course, one point to be taken from a reading of these two Parts together is that CCTs thwart our ability to do so.

Part III of this Article then turns back to the Constitution in order to determine whether the law can buttress the individual against “high-tech” cognitive incursions. The discussion will necessarily focus on the Fourth Amendment and will assess each of the three available Fourth Amendment approaches in turn, ultimately concluding that this most important Amendment will be of little assistance when CCTs eventually make their way into our daily lives. While the failure of the Fourth Amendment to preserve our cognitive autonomy may be understood as a function of the inadequacy of the available tests, it also suggests the inadequacy of a privacy-based approach to interpreting the Fourth Amendment. Yet, beyond deriving a tension between the threats posed by CCTs and prevailing Fourth Amendment principles, it is not my present intention to deconstruct the Fourth Amendment's privacy norm or to offer a theoretical alternative.<sup>13</sup>

Finally, Part IV of this Article claims that the Fourth Amendment's inability to follow where our shared social, religious and political beliefs lead us is a crisis of constitutional harmony. This Part suggests that the practical and abstract gulf between the law and our shared assumptions is an instance that calls for the deployment of holistic constitutional interpretation or, perhaps even better, for the creation of a model of “organism-perpetuating” constitutional consistency. Part IV then concludes the Article with a call to reevaluate our understanding of the Fourth Amendment and to seek alternative methods of enforcement that offer greater, more satisfying resolution of these issues.

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13. Instead, that effort will be aggressively undertaken in a corollary article to follow forthwith.

## I. BRAIN FINGERPRINTING, CCTs, AND MENTAL SANCTUARY

Technological advancement's tendency to change the way we live, for better and for worse, is well established.<sup>14</sup> Legal regimes must keep pace with these changes, and respond with new interpretations or new iterations of legal standards in order to preserve the balance that the law promises to society.<sup>15</sup> As the pace and proportion of technological change increase over time, so must the law's variety and complexity, and so must our capacity to conceive of old ideas in new ways.<sup>16</sup> It is the test of our institutions that they might survive the passing of generations, and it is the signal of their demise when the law no longer fits a present reality.<sup>17</sup> Analytically, the "new technology" approach and the reasonableness approach to thinking about the Fourth Amendment are consequential

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14. See *SHAPING TECHNOLOGY/BUILDING SOCIETY: STUDIES IN SOCIOTECHNICAL CHANGE 5* (Wiebe E. Bijker & John Law eds., 1992) (describing "philosophical studies of the implication of technologies, and technological modes of rationality, for the character of communication and human interaction"); Dr. Rita R. Colwell, Dir., Nat'l Sci. Found., NSF: Looking Ahead, Address at the Consortium of Social Sciences Associations Annual Meeting (Dec. 4, 2000) (transcript available at <http://www.nsf.gov/news/speeches/colwell/rcoo1204cossa.htm>) ("We humans continually create and employ technologies. We are doing so today at a pace unmatched in the past. These technologies in turn have a wide variety of impacts on the humans who use them and on the world in which we live."). Richard L. Marcus describes the introduction and rise of the computer as the major technological innovation of the past quarter century and how its wide distribution has resulted in the advent of discovery of electronically stored information, commonly called E-Discovery. Richard L. Marcus, *E-Discovery & Beyond: Toward Brave New World or 1984?*, 25 REV. LITIG. 633, 633-35 (2006). While technology has historically impacted litigation methods and techniques, "the potential impact of [the computer] revolution is only now being felt." *Id.* at 634. Marcus invokes Aldous Huxley's book, *BRAVE NEW WORLD* (Harper Perennial) (1932), and George Orwell's book, *1984* (New Am. Library 1961) (1949), both of which give pre-computer age accounts of a future rife with technological advancements, reading "[b]oth [to] portray technology as a device to enforce conformity to a repressive social order." *Id.* Huxley's book "offered a vision of technology as a seducer" where "technology controlled almost all aspects of life." *Id.* Orwell's book offered a vision of "technology as the enabler of the tyrannical government called Big Brother." *Id.*

15. See *Matter of Daniels*, 69 F.R.D. 579, 581 (N.D. Ga. 1975) (finding that witness deposition could be taken by videotape rather than by normal stenographic methods because "[t]he court should not be like an ostrich, sticking its head in the sand and being oblivious to advances in technology which can aid in the judicial process"); Derek T. Conom, *Sense-Enhancing Technology and the Search in the Wake of Kyllo v. United States: Will Prevalence Kill Privacy?*, 41 WILLAMETTE L. REV. 749, 774-75 (2005) (arguing that "courts should recognize that the evolution of technology poses unique obstacles for the continuing viability of a standard that hinges upon the objectively reasonable expectations of the citizenry, expectations that seem to be continuously less protective of privacy over time"); Marcus, *supra* note 14.

16. See, e.g., Laura Hildner, *Defusing the Threat of RFID: Protecting Consumer Privacy through Technology-Specific Legislation at the State Level*, 41 HARV. C.R.-C.L. L. REV. 133 (2006) (discussing the capacity of the law to keep pace with changing technological realities in the context of Radio Frequency Identification (RFID) tags).

17. See *Tennessee v. Garner*, 471 U.S. 1, 15 (1985) (recognizing that "changes in the legal and technological context mean that the [common-law rule on use of deadly force] is distorted almost beyond recognition when literally applied"); Peter K. Yu, *P2P and the Future of Private Copying*, 76 U. COLO. L. REV. 653, 728 (2005) (discussing how congressional changes in copyright law as a reaction to technological innovation has created market failure, and quoting Lydia Pallas Loren, *Untangling the Web of Music Copyrights*, 53 CASE W. RES. L. REV. 673, 678-79 (2003)).



alternatives to *Katz's* privacy approach—alternatives designed to either effectuate or improve upon that privacy foundation—but none of the available approaches adequately protects our humanity. This realization begins to suggest a shortcoming in the Fourth Amendment that explains its inability to adequately deal with the threat of CCTs, and begins to suggest alternative modes for conceiving of the Fourth Amendment that avoid privacy's pitfalls.

#### A. WHAT'S ON YOUR MIND?

The possession and control of information produces political power,<sup>18</sup> and governments have always used their ability to gather and restrict the flow of information to influence the outcome of social events.<sup>19</sup> This is true when the government is fighting wars, seeking re-election, or discharging its law enforcement obligations.<sup>20</sup> In fact, it may be particularly true that information is *the* key asset in the effort to fight crime.<sup>21</sup> Whether it be described as “proof,” that kind of information we

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18. See, e.g., Katherine S. Williams, *On-Line Anonymity, Deindividuation and Freedom of Expression and Privacy*, 110 PENN ST. L. REV. 687, 689 (2006) (“Particularly in our information era, political power and authority is heavily interwoven with the dissemination of information (or the control of its dissemination).”).

19. *Id.* (suggesting that “[t]his interweaving of power and information or knowledge is not new and was the reason for the early control of the printing press through licensing and the use of seditious libel”).

20. See generally NANCY F. CONKLIN & MARGARET A. LOURIE, A HOST OF TONGUES: LANGUAGE COMMUNITIES IN THE UNITED STATES 70 (1983); *English-Only Laws and Direct Legislation: The Battle in the States over Language Minority Rights*, 7 J.L. & POL. 325, 330–31 n.36 (1991) (“Throughout the First and Second World Wars, language prejudice against Germans and Japanese was codified in state laws which sought to restrict information transmission and force assimilation through English language acquisition.”); Joshua Bosin, *Miami's Mambo: The “Cuba Affidavit” & Unconstitutional Cultural Censorship in an Embargo Regime*, 36 U. MIAMI INTER-AM. L. REV. 75, 104 n.189 (2004) (explaining that “[w]ithout an airing of the widest range of views and information, governmental actions are shielded from proper review and evaluation, resulting in the concentration of political power in the hands of dictatorial authorities”); E.E. (Bo) Edwards, *Evidence in the Court of Public Policymaking*, CHAMPION, June 2004, at 4 (arguing that the Bush administration enacted the USA PATRIOT Act and other policies that significantly expand government power at the expense of individual rights by engaging in the following strategies: (1) providing exceedingly limited information; (2) appealing to people's deeply held fears, emotions, and values; (3) accusing those seeking more information about their decisions of threatening the safety of the entire nation; and (4) using raw political power to silence dissent).

21. See Jeff Breinholt, *Seeking Synchronicity: Thoughts on the Role of Domestic Law Enforcement in Counterterrorism*, 21 AM. U. INT'L L. REV. 157, 160 (2005) (grounding his thesis “on the well-established notion that intelligence—raw information—is the key to preventing bad things from happening”); Al Baker & Sewell Chan, *New Devices Will Search for Explosives in Subways*, N.Y. TIMES, Nov. 12, 2005, at B3 (reporting that New York City Police Commissioner Raymond W. Kelly “continues to push for technological advances in the police force” because he believes that “[i]nformation is the key to so much in policing and law enforcement”); Carl Hulse & Kate Zernike, *Threats and Responses; House Passes Detainee Bill as it Clears Senate Hurdle*, N.Y. TIMES, Sept. 28, 2006, at A20 (quoting Representative Mac Thornberry, Republican of Texas, as saying that “[i]nformation is the key weapon we have to prevent [terror suspects] from killing us and prevent [terror suspects] from attacking others in the future”).

call evidence that might be used to secure a criminal conviction, or as a “tip” or a “lead,” that kind of information that might be used to intervene in future criminal activity, the data set that is human activity and individual knowledge is essential to the operation of our criminal justice system.

This means that there will always be an incentive to develop new ways to gather information, to test its validity, and to extract it from those who might keep it concealed.<sup>22</sup> Whether comparing the earliest use of telescopes,<sup>23</sup> and then binoculars,<sup>24</sup> to recent advances in long-range digital vision enhancement<sup>25</sup> and thermal imaging scopes,<sup>26</sup> or the rudimentary stages of eavesdropping<sup>27</sup> to modern high-frequency wave scanners,<sup>28</sup> there is a persistent trend toward increased information-gathering capacity. The government grows ever more aware of our actions and behaviors,<sup>29</sup> and ever more capable of piercing veils of

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22. Hildner, *supra* note 16; *see also supra* note 16 and accompanying text; *cf.* Erwin Chemerinsky, *Losing Liberties: Applying a Foreign Intelligence Model to Domestic Law Enforcement*, 51 UCLA L. REV. 1619, 1621–27 (2004) (construing both the Foreign Intelligence Surveillance Act and the USA PATRIOT Act as official government responses to the perceived need to augment law enforcement’s information-gathering capacity).

23. Albert Van Helden, *The Galileo Project*, <http://galileo.rice.edu/sci/instruments/telescope.html> (describing the telescope as “the first extension of one of man’s senses,” one which “helped shift authority in the observation of nature from men to instruments”) (last visited Nov. 22, 2007).

24. Christopher Slobogin, *Peeping Techno-Toms and the Fourth Amendment: Seeing Through Kyllo’s Rules Governing Technological Surveillance*, 86 MINN. L. REV. 1393, 1409 n.43 (2002) (comparing Fourth Amendment cases where binoculars were employed to collect evidence); Michael W. Davidson, *Molecular Expressions*, <http://micro.magnet.fsu.edu/optics/activities/students/scopes.html> (last visited Nov. 22, 2007) (documenting the history and impact of the development of binoculars).

25. *Dow Chem. Co v. United States*, 476 U.S. 227, 229 (1986) (“[The] EPA employed a commercial aerial photographer, using a standard floor-mounted precision aerial mapping camera, to take photographs of [Dow Chemical’s two thousand-acre facility in Midland, Michigan].”).

26. *Kyllo v. United States*, 533 U.S. 27, 40 (2001).

27. *See generally* *Silverman v. United States*, 365 U.S. 505, 506, 512 (1961) (holding that a search occurred when officers eavesdropped by gaining lawful access to a row house and employing a “spike mike” to listen to what was going on within the four walls of the house next door); David J. Kirschner, *The NSA’s Terrorist Surveillance Program: Is it Worth the Risk?*, 40 THE PROSECUTOR 42, 43 (2006) (discussing generally executive authority to conduct “warrantless eavesdropping against spies and foreign enemy powers.” and documenting President Franklin Roosevelt’s authorization of the use of wiretaps on national security grounds during World War II).

28. Peter J. Sampson, *After §8B, Gaping Holes in Security; Experts Say Another Attack is Inevitable*, RECORD (Bergen County, N.J.), Sept. 7, 2006, at A01 (describing the New York-New Jersey PATH train system as the testing ground for the first generation of high-tech anti-terror screening devices to be used at rail facilities, including “electromagnetic wave scanners that can ‘see’ bombs or weapons under clothing”).

29. *See* Patricia Mell, *Big Brother at the Door: Balancing National Security with Privacy Under the USA PATRIOT Act*, 80 DENV. U. L. REV. 375, 376 (2002) (expressing concern about expansions in the government’s authority to conduct clandestine surveillance); Shawn Mitchell, U.S. Representative of Colorado, *How Far Have We Come Since September 11th, 2001?*, Speech at the Denver University Law Review Symposium (Mar. 5, 2004), *reprinted in* 81 DENV. U. L. REV. 749, 755–77 (2004) (considering the argument that section 215 of the USA PATRIOT Act has a chilling effect on what

subjective secrecy.<sup>30</sup> This process both feeds and flows from the development of technology for general, private purposes, and generates its own market for commercial enterprise.<sup>31</sup>

The development of new scientific expertise and innovative applications of technology cannot but make the job of law enforcement easier.<sup>32</sup> This is not to say that access to the technology is necessarily affordable, but any device which improves the ability to detect, prevent, and prove the occurrence of crime will yield a net savings to the efficiency of the policing industry.<sup>33</sup> As long as budgets can keep pace, law enforcement leaders will consistently press for an increasingly sophisticated toolbox of technological solutions.<sup>34</sup> This pressure is compounded by the increasing realization that those who engage in crime often rely on sophisticated information control networks to achieve their illicit purposes.<sup>35</sup> Whether it involves ordinary individual criminal conduct, domestic financial criminal syndicates, or super-criminal terrorist cells, the reliance by law-breakers on information controls necessitates law enforcement's focus on penetrating closed information circuits. Much like the argument for upgrading the tactical

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you read when you go to the library or bookstore due to the government's surveillance and subpoena powers); Tom Hays, *Does Big Brother Have Too Many Eyes?*, MIAMI HERALD, Aug. 15, 2005, at 7A (reporting on the growing number of surveillance cameras in the borough of Manhattan in New York City and discussing results of a project by the New York Civil Liberties Union in which four thousand surveillance cameras were counted in a canvassing of less than one quarter of the borough).

30. Mell, *supra* note 29; Mitchell, *supra* note 29; Hays, *supra* note 29.

31. See Eric Lipton, *Security Post Would Put Kerik atop Field That Enriched Him*, N.Y. TIMES, Dec. 10, 2004, at A1 (describing how one former New York City police commissioner, Bernard B. Kerik, was involved in the commercial success of Taser International, the manufacturer of Tasers—non-lethal devices adopted in recent years by over six thousand law enforcement agencies—which experienced a ten-fold increase in sales revenue between the years 2001 and 2004).

32. This general advantage is certainly mitigated by the fact that law enforcement departments are forced to keep pace with the increasingly sophisticated use of technology by criminal actors. See U.S. DEP'T OF JUSTICE, LAW ENFORCEMENT TECHNOLOGY—ARE SMALL AND RURAL AGENCIES EQUIPPED AND TRAINED? 1 (2004), available at <http://www.ncjrs.gov/pdffiles1/nij/204609.pdf>. Nevertheless, all things being equal, greater access to technological innovation should lead to higher levels of effectiveness as a general trend.

33. See Amanda Hoey, *Techno-Cops: Information Technology and Law Enforcement*, 6 INT'L J.L. & INFO. TECH. 69 (1998).

34. See *Fingerprint Machines for Drivers 'Not Big Brother'*, N. ECHO (England), Nov. 23, 2006, at 3 (discussing police trials of hand-held electronic fingerprint reader and quoting Barry Taylor, Deputy Chief Constable of Dyfed-Powys Police, as saying that “[t]his is just another tool in the toolbox to help officers to identify individuals. There's an awful lot of concern and discussion about civil liberties and the use of technology at the moment but we are all members of the public at the end of the day”).

35. See Carlo Morselli, Pierre Tremblay, & Bill McCarthy, *Mentors and Criminal Achievement*, 44 CRIMINOLOGY 17, 20 (2006). There is of course an inherent need for secrecy or confidentiality in criminal contexts. *Id.* Many criminal actors are increasingly turning to, and benefiting from, technological developments to advance their desire to thwart detection and identification. See generally Dorothy E. Denning & William E. Baugh, Jr., *Encryption and Evolving Technologies: Tools of Organized Crime and Terrorism* (1997), available at <http://www.cs.georgetown.edu/~denning/crypto/oc-rpt.txt>.

weaponry of police forces,<sup>36</sup> upgrading their technological armaments proceeds on the premise that officials must stay “one step ahead” of their criminal quarry.

Law enforcement institutions will therefore continually be seeking greater advantage in the effort to prevent people from engaging in criminal activity and successfully keeping that fact concealed.<sup>37</sup> Long ago, that search led to the invention of the first functional lie detector testing protocol,<sup>38</sup> and now modern studies are revolutionizing the old lie detection concept. While the lie detectors already familiar to the law are based on the physiological responses of a test subject to a structured series of questions,<sup>39</sup> new innovations in neurotechnologies are allowing investigators to use brain imaging to assess the cognitive and affective processes manifest by a test subject.<sup>40</sup> The instrumentation differences between the old and new devices lead to utilization of different standards for assessing deception on the part of the test subject,<sup>41</sup> and arguably

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36. See, e.g., 135 CONG. REC. S1864-01 (daily ed. Feb. 28, 1989) (statement of William Pattison, Executive Vice President, National Association of Police Organizations) (“The availability of, and access to, assault weapons by criminals has become so substantial that police forces are being forced to upgrade the weapons supplied to police officers merely as a matter of self-defense and self-presentation.”); *Remarks Before the United States House of Representatives’ Select Committee on Narcotics Abuse and Control: Assault Weapons and Drug Enforcement*, 101st Cong. 121 (1989) (testimony of Darrel W. Stephens, Executive Director, Police Executive Research Forum) (“Their [Police Executive Research Forum members] regular encounters with the corrosive effects of drug abuse have become more dangerous, because drug traffickers and abusers have turned to semiautomatic assault guns as their weapons of choice.”).

37. See U.S. DEP’T OF JUSTICE, *supra* note 32.

38. Mary Bellis, *Police Technology and Forensic Science*, [http://inventors.about.com/od/startinventions/a/forensic\\_2.htm](http://inventors.about.com/od/startinventions/a/forensic_2.htm) (last visited Nov. 22, 2007) (“An earlier and less successful lie detector or polygraph machine was invented by James Mackenzie in 1902. However, the modern polygraph machine was invented by John Larson in 1921. . . . Used in police interrogation and investigation since 1924, the lie detector is still controversial among psychologists, and is not always judicially acceptable.”).

39. *Id.* (“The theory is that when a person lies, the lying causes a certain amount of stress that produces changes in several involuntary physiological reactions. A series of different sensors are attached to the body [and] the operator asks a series of control questions that set the pattern of how an individual responds when giving true and false answers. Then the actual questions are asked, mixed in with filler questions.”).

40. Charles N.W. Keckler, *Cross-Examining the Brain: A Legal Analysis of Neural Imaging for Credibility Impeachment*, 57 HASTINGS L.J. 509, 510 (2006) (“It is the recent technological changes in brain imaging, particularly the visualization of the brain while it is actively working—so-called ‘functional imaging’—that have allowed cognitive neuroscience the potential to identify relatively subtle processes such as deception. Moreover, the ability to examine in real time the response of the subject brain during a question and answer session makes it feasible to use this technique forensically, so long as the pattern of brain activity corresponding to deception is sufficiently well-characterized.”).

41. Paul Root Wolpe et al., *Emerging Neurotechnologies for Lie-Detection: Promises and Perils*, AM. J. BIOETHICS, Mar. 2005, at 39, 40 (2005) (describing the two prototype paradigms that have been used to generate instances of truth-telling and deception to be subjected to measurement: (1) “the comparison question test (known in polygraph literature as the control question test, CQT), which forms the basis of conventional polygraphy”; and (2) “the guilty knowledge test (GKT), which seeks to determine the salience (‘attentional value’) of information to a subject by comparing his or her

produces statistically significant differences in the observable error rates between the two.<sup>42</sup> When it comes to lie detection and knowledge concealment, it appears that scientists may be on the verge of building the better mousetrap.<sup>43</sup>

Brain Fingerprinting is simply the trade name given by Dr. Lawrence Farwell to one such trap.<sup>44</sup> Brain Fingerprinting is the process of using a complex of neural imaging devices to measure and record brain responses to certain pre-selected stimuli.<sup>45</sup> These brain wave responses are known as “event related potentials (ERPs)” because they are produced as a result of the brain having been exposed to a particular event.<sup>46</sup> The pattern of these ERPs can be correlated to different knowledge states and produces a body of comparative data that allows

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responses to ‘relevant’ and ‘neutral’ questions. . . . Whereas the CQT involves measurement of physiological or psychophysical responses to classify a response as a lie, the GKT uses such responses to indicate the presence of concealed knowledge.”).

42. *Id.*

43. See Ian Sample, *The Brain Scan That Can Read People’s Intentions*, THE GUARDIAN (England), Feb. 9, 2007, at 1, available at <http://www.guardian.co.uk/science/2007/feb/09/neuroscience.ethicsofscience>. To make matters even more complex, there are already new innovations in CCTs that are moving beyond the current focus on lie detection and knowledge concealment, and reaching into the realm of human intention. *Id.* A device currently being developed by a coalition of scientists from the Max Planck Institute for Human and Brain Sciences in Germany, University College London, and Cambridge University has shown the capacity “to look deep inside a person’s brain and read their intentions before they act.” *Id.* “Using the scanner, we could look around the brain for . . . information and read out something that from the outside there’s no way you could possibly tell is in there. It’s like shining a torch around, looking for writing on a wall.” *Id.* (quoting Professor John-Dylan Hynes). Recent empirical testing of the device involved subjects who were asked to decide whether to add or subtract two numbers, and then had their brains scanned with an fMRI device. *Id.* The researchers identified “a signature” in the subjects’ prefrontal cortex that allowed them to predict the subjects’ intent—to add or subtract—with an accuracy rate of 70%. *Id.* While these type of intentions at present seem simple, and while a solid baseline for comparison is necessary to make accurate predictions, “it’s just a matter of time” before these limiting factors are overcome by additional advances in scientific understanding. *Id.* (“For some of these techniques, it’s just a matter of time. . . . A lot of neuroscientists in the field are very cautious and say we can’t talk about reading individuals’ minds, and right now that is very true, but we’re moving ahead so rapidly, it’s not going to be that long before we will be able to tell whether someone intended to do a crime with a certain degree of certainty.” (quoting Professor Barbara Sahakian)).

44. See Mark Hansen, *Truth to Tell: Attorneys for a Murder Suspect Say Brain Fingerprinting Proves His Innocence*, A.B.A. J., May 2004, at 18; Moenssens, *supra* note 2; Sara Solovitch, *Mind Reader*, LEGAL AFF., Dec. 2004, at 66.

45. Solovitch, *supra* note 44. Solovitch describes how Brain Fingerprinting works:

A headband of electrodes is placed on a subject, who watches words or pictures flash across a computer screen. Some of the images are meant to stimulate memories, which cause the brain to fire off an electrical response 300 milliseconds after the stimulus . . . . The stimuli come in three categories: “target” stimuli (details of an activity that would be known to the subject), irrelevant stimuli (which would not be expected to elicit a response), and “probe” stimuli (phrases or pictures supposedly known only to a select few, like the perpetrator and investigators of a crime). If a suspect exhibits a p300 response to a probe stimulus, he is presumed guilty. If not, he is presumed innocent.

*Id.*

46. Moenssens, *supra* note 2, at 893 (explaining that an “ERP is a scientific term that describes the electrical wave form emitted by the brain after it has absorbed the external event”).

the operator to identify either general deception or the possession of specific relevant information.<sup>47</sup> Unlike traditional lie detectors, Brain Fingerprinting does not rely on outward physical responses of the subject, such as heart rate and blood pressure fluctuations, but instead targets a specific ERP in the brain occurring 300 milliseconds after the event exposure (the P300 wave).<sup>48</sup> In the so-called P300 effect, the brain will manifest this specific wave pattern in response to “relevant” stimuli.<sup>49</sup> Relevant stimuli include those that are familiar to the subject and also those that are presented in a surprising way given the context.<sup>50</sup> In essence, the P300 effect demonstrates the subject’s exposure to “noteworthy” information, and the absence of a P300 wave demonstrates the “irrelevance” of the stimuli, indicating that the stimuli are not familiar or not significant to the subject.<sup>51</sup>

Discovery of and research into the P300 wave significantly pre-dates Brain Fingerprinting’s more modern influence, having been established scientifically as early as 1965.<sup>52</sup> Dr. Farwell’s innovation on strict P300 usage involves measuring a slightly longer sample of brain wave activity, from 300 to 800 milliseconds, which is an ERP he believes reflects a more complete sampling of the cognitive processing that occurs in response to a relevant stimuli.<sup>53</sup> It is this longer ERP pattern, between 300 and 800 milliseconds, which is at the heart of Brain Fingerprinting as a proprietary method and the basis of what he calls his Memory-and-Encoding-Related-Multifaceted-Electroencephalographic-Reponse (MERMER) signal.<sup>54</sup> Research appears to support the claim that monitoring the MERMER signal is highly accurate; the MERMER

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47. *Id.* (“An ERP measurement is the recognition of specific patterns of electrical brain activity in a subject that are indicative that certain cognitive brain activities occurred when the person was exposed to a stimulus in the form of an image or a concept expressed in words.”).

48. *Id.* at 894–95 (indicating that Dr. Farwell “began to perceive that the P300 was not simply an isolated sensory brain effect, but was part of a larger complex of phenomena that continued to take place after the initial P300 had occurred. This extended response had to do, he believed, with the cognitive processing that occurs slightly beyond the P300 wave and continuing in the range of 300-800 milliseconds after the introduction of a stimulus. It is this perception that led to the development of his own MERMER effect.”); Solovitch, *supra* note 44, at 66.

49. Moenssens, *supra* note 2, at 894 (“The P300 is a specific event-related brain potential. It could be designated also as a specific pattern of brain wave activity in the subject being tested that occurs when information related to a specific event is recognized by the brain as being significant or surprising in the context in which it is being offered. The P300, then, is a brain ‘potential’ that handles sensory processing.”).

50. *Id.*

51. *Id.*

52. *Id.* at 895 (Dr. Samuel Sutton and his collaborators discovered the P300 in 1965).

53. Lawrence A. Farwell & Sharon S. Smith, *Using Brain MERMER Testing to Detect Knowledge Despite Efforts to Conceal*, 46 J. FORENSIC SCI., 135, 136 (2001), available at <http://www.brainfingerprinting.org> (select “Research” hyperlink; then select “Journal of Forensic Sciences” hyperlink).

54. *Id.* at 137.

response “is elicited when the brain processes case-relevant information that it recognizes, and is absent when the brain does not recognize, or does not exhibit any surprise at the case-relevant data.”<sup>55</sup>

In practical terms, Brain Fingerprinting entails strapping a sensor-laden headband on the test subject, and monitoring those electrode sensors with an electroencephalogram (EEG).<sup>56</sup> The EEG data is fed into a computer, which processes the data according to an analytical algorithm and then provides a graphic reproduction of the wave pattern thus analyzed.<sup>57</sup> The EEG data itself is merely the electrical signals triggered in the subject brain in response to the stimuli of the testing protocol. According to its inventor, the Brain Fingerprinting test protocol requires that the subject be seated before a video screen which will display a series of words or images to the subject.<sup>58</sup> The words or images displayed must be carefully chosen in order to evoke and isolate the significant brain wave patterns, and are classified as “targets,” “irrelevants,” and “probes.”<sup>59</sup> Targets are images or information that would be noteworthy to, and thus provoke a P300 and MERMER response in, all subjects.<sup>60</sup> By contrast, “irrelevants,” or non-target stimulants, have no relation to the occurrence or issue that is the subject of the test and thus do not produce a P300 or MERMER response even though an innocent person might speculate or even presume them to be related to the crime.<sup>61</sup> Finally, “probes” are those bits of information that would appear as irrelevant to all subjects except those with knowledge of or a connection to the crime being investigated.<sup>62</sup> Innocent people with no connection to the crime, or who lack the relevant knowledge regarding the crime, would be unable to differentiate between the probe and other irrelevants and would therefore demonstrate neither a MERMER signal nor its included P300 wave.<sup>63</sup> “But not so for the person who possesses actual knowledge of the event being examined. To that individual, the probe would be meaningfully connected to the event and MERMER would be recorded.”<sup>64</sup> By this method, Brain

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55. Moenssens, *supra* note 2, at 894.

56. See Method and Apparatus for Multifaceted Electroencephalographic Response Analysis (MERA), U.S. Patent No. 5,363,858 (filed May 5, 1993); Method and Apparatus for Truth Detection, U.S. Patent No. 5,406,956 (filed Feb. 11, 1993); Method for Electroencephalographic Information Detection, U.S. Patent No. 5,467,777 (filed Sept. 15, 1994).

57. See sources cited *supra* note 56.

58. See sources cited *supra* note 56.

59. Farwell, *supra* note 53, at 136–37; Moenssens, *supra* note 2, at 896–97.

60. To achieve this uniform response, test operators choose an image that is universally recognized, like the Statue of Liberty or, perhaps, a branded item like a Coca-Cola bottle. See Farwell, *supra* note 53, at 137.

61. Farwell, *supra* note 53, at 137; Moenssens, *supra* note 2, at 897.

62. Farwell, *supra* note 53, at 137; Moenssens, *supra* note 2, at 897.

63. Farwell, *supra* note 53, at 137; Moenssens, *supra* note 2, at 897.

64. Moenssens, *supra* note 2, at 897; accord Farwell, *supra* note 53, at 137 (“For a subject who has

Fingerprinting allows the operator to confirm the presence or absence of specific knowledge or information in the cerebral history of the suspect.<sup>65</sup>

It should be pointed out that Brain Fingerprinting, as a specific proprietary forensic method, is open to critique. Both the neurological basis of the MERMER effect, and the accuracy of information gathered by use of the Brain Fingerprinting protocol, have not received 100% acceptance in the scientific community and are being subjected to further clinical testing.<sup>66</sup> Moreover, there has already been initial testing and analysis by the government of Brain Fingerprinting's utility,<sup>67</sup> and a report prepared by the United States General Accounting Office for Senator Charles Grassley that recognized significant obstacles to its widespread implementation.<sup>68</sup> It is not at all clear that Brain Fingerprinting would meet the standards of evidentiary admissibility under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,<sup>69</sup> and its progeny,<sup>70</sup>

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participated in the situation in question, the Probes are noteworthy due to the subject's knowledge of that situation, and, therefore, Probes elicit a MERMER when the subject is knowledgeable.”).

65. Farwell, *supra* note 53, at 137.

66. See *Slaughter v. State*, 105 P.3d 832, 834–35 (Okla. Crim. App. 2005) (concluding that there was no real evidence in that case that Brain Fingerprinting has been extensively tested, that it has been presented and analyzed in numerous peer-review articles in recognized scientific publications, that it has a very low rate of error, that it has objective standards to control its operation, or that it is generally accepted within the “relevant scientific community”); Moenssens, *supra* note 2, at 917 (noting that “while the P300 effect . . . is widely accepted as valid in the scientific community,” the MERMER technique lacks full support by the scientific community “due, in part, to the fact that Dr. Farwell has patented his technology and has been reluctant to make his computer programs available to others for independent testing. This reluctance may be due to fear of compromising what he believes to be proprietary methodology”).

67. See Lawrence A. Farwell, *Detection of FBI Agents Using Brain Fingerprinting Technology: A New Paradigm for Psychophysiological Detection of Concealed Information*, May 7, 1993—updated Mar. 2003, <http://www.brainfingerprinting.org> (select “Research” hyperlink; then select “FBI Study” hyperlink).

68. See U.S. GEN. ACCOUNTING OFFICE, GAO REPORT 02-22, INVESTIGATIVE TECHNIQUES: FEDERAL AGENCY VIEWS ON THE POTENTIAL APPLICATION OF “BRAIN FINGERPRINTING” 8–13 (2001), available at <http://www.gao.gov/new.items/d0222.pdf>.

69. *Daubert v. Merrell Dow Pharms. Inc.*, 509 U.S. 579 (1993). Compare Cassandra H. Welch, *Flexible Standards, Deferential Review: Daubert's Legacy of Confusion*, 29 HARV. J.L. & PUB. POL'Y 1085 (2006) (reflecting on the fact that the exact standard for the admission of expert testimony remains uncertain and courts have had little opportunity to reconsider the redefined standard of admissibility because evidentiary decisions are reviewed only for abuse of discretion), and Moenssens, *supra* note 2, at 920 (arguing that because the underlying methodology of MERMER technology is derived from solid, well-accepted science, it could be possible that a court exercising the *Daubert-Kumho Tire* “gatekeeping” function would rule the testimony admissible), with Jennifer Wolsing, *Daubert's Erie Problem*, 82 IND. L.J. 183 (2007) (discussing how the *Daubert* ambiguity has resulted in at least six state courts in the Ninth and Eleventh Circuits having pronouncedly more lenient standards of evidence admissibility than their federal counterparts which results in forum shopping), and *Slaughter*, 105 P.3d. at 836 (holding that Brain Fingerprinting, based solely upon the MERMER effect, would not survive a *Daubert* analysis).

70. See, e.g., *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 147 (1999) (holding that *Daubert's* “gatekeeping” obligations, requiring an inquiry into both relevance and reliability, applies not only to “scientific” testimony, but to all expert testimony); *United States v. Scheffer*, 523 U.S. 303, 309 (1998)



and it has only made its way into the record of a smattering of trial proceedings.<sup>71</sup> It is fair to say that, based on the limited scientific and official embrace of this particular commercial product, the time when brain scans are a routine investigative technique is not on our nearest horizon. However, the likelihood that we will witness such technological competence or capacity within a reasonable period of time necessitates reflection upon these constitutional matters.<sup>72</sup>

Moreover, Brain Fingerprinting relies on only one of several available methods able to bypass the peripheral nervous system, “the usual way in which we communicate information[,] and gain direct access to the seat of a person’s thoughts, feelings, intentions, or knowledge.”<sup>73</sup> Other methods include functional magnetic resonance imaging (fMRI), ocular thermal scanning or photography, and infrared (IR) or near infrared (NIR) light detection technologies.<sup>74</sup> While each of these has the

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(holding that per se rule against admission of polygraph evidence in court-martial proceedings did not violate the Fifth or Sixth Amendment rights of accused to present defense); *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 141 (1997) (holding that the “abuse of discretion” standard applies to District Court’s decisions to exclude scientific evidence).

71. *Compare* *Harrington v. State*, 659 N.W.2d 509, 516 (Iowa 2003) (reversing conviction in action for post-conviction relief for first-degree murder where defendant claimed newly discovered evidence in the form of a police report containing “novel computer-based testing,” but while the lower court appears to have admitted the evidence under non-*Daubert* circumstances, the test did not ultimately factor into the Iowa Supreme Court’s reason for reversing the conviction), *and Slaughter*, 105 P.3d. at 836 (holding that Brain Fingerprinting, based solely upon the MERMER effect, would not survive a *Daubert* analysis), *with* Solovitch, *supra* note 44, at 66 (describing a situation involving James B. Grinder, a primary suspect for over fifteen years in the murder of Julie Helton in Macon County, Missouri, who underwent a Brain Fingerprinting test which indicated, with a statistical confidence level of 99.9%, that the specific details of the crime were recorded in Grinder’s brain after which Grinder pled guilty to rape and murder in exchange for a life sentence without parole).

72. It is often the case that what begins as speculation, or even science fiction, ends up as scientific reality. One example that bears consideration is the early social imagination regarding cloning. *See* MICHAEL CRICHTON, *JURASSIC PARK* (Random House 1990) (a novel turned Hollywood blockbuster (Universal Studios 1993) that spawned scores of symposia and congressional debates about the possibility of cloning a long dead extinct creature from DNA samples); ALDOUS HUXLEY, *A BRAVE NEW WORLD* (Harper 1998) (1932) (a utopian novel where cloning is used to solve the human resource problem by altering and controlling genes to produce humans as needed for the “perfect society”); IRA LEVIN, *THE BOYS FROM BRAZIL* (Bantam 1991) (1976) (a story which was captured in a 1978 movie starring Gregory Peck and Laurence Olivier about a group of modern day, post-WWII neo-Nazis cloning Hitler), and the present reality wherein cloning is at least a limited but functioning technique. *See, e.g., UK Scientists Clone Human Embryo*, BBC NEWS, May 20, 2005, <http://news.bbc.co.uk/2/hi/health/4563607.stm>. Another, more pulpy example, is the communicator carried by the characters in the 1960s television program *Star Trek*. (NBC 1966). Anyone even remotely familiar with that program will recognize that the communicator cum cellular phone is imaginative fantasy made real.

73. Wolpe et al., *supra* note 41, at 39.

74. Functional magnetic resonance imaging (fMRI) is the use of MRI to trace the flow of blood around the brain. It is one of the most recently developed forms of neuroimaging. *See generally* G. Ganis et al., *Neural Correlates of Different Types of Deception: An fMRI Investigation*, 13 *CEREBRAL CORTEX* 830 (2003), available at <http://cercor.oxfordjournals.org/cgi/content/abstract/13/8/830>; Aiden P. Gregg, *When Lying Reveals Lying: The Timed Antagonistic Response Altiometer*, 21 *APPLIED*

capacity to reveal information contained and processes taking place within the brain, none can truly read your mind—yet.<sup>75</sup> The point is that these accumulated technologies are the incremental iterations of the larger race to develop the ability to do so—a development that is all but certain to occur—and the race is well underway.<sup>76</sup>

Indeed, these CCTs fall within a larger category of technological approaches that might be called cognitive landscape interferers (CLIs).<sup>77</sup> These broader strategies for controlling the cognitive processes of human beings go beyond probing thoughts and knowledge, and may entail specific direction or prevention of human thought and knowledge. One strategy already being employed, with the blessings of the United States Supreme Court, is the forced administration of psychotropic medication to defendants deemed too mentally ill to participate in their criminal trial without pharmacological intervention.<sup>78</sup> While the forced medication may make the defendant easier to manage in the confines of courtroom decorum, it may also distort the defendant's internal cognitive environment in a way that is unfamiliar and unnatural to him.<sup>79</sup> A similar, if not more egregious practice is the administration of psychotropic medication designed to break down individual will and reduce resistance to questioning.<sup>80</sup> The application of so-called “truth serums” has been

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COGNITIVE PSYCHOL. 621 (2006); James W. Prichard & Lawrence M. Brass, *New Horizons in Neurology: New Anatomical and Functional Imaging Methods*, 32 ANNALS OF NEUROLOGY 395 (1992).

75. Sample, *supra* note 43 (“We shouldn't go overboard about the power of these techniques at the moment, but what you can be absolutely sure of is that these will continue to roll out and we will have more and more ability to probe people's intentions, minds, background thoughts, hopes and emotions.” (quoting Professor Colin Blakemore)).

76. Päivi Oinas & Edward J. Malecki, *The Evolution of Technologies in Time and Space: From National and Regional to Spatial and Innovation Systems*, 25 INT'L REGIONAL SCI. REV. 102 (2002) (discussing how the cyclical processes in the evolution of technologies keep technological trajectories or paths moving in one direction for a period of time).

77. I use this phrase to refer to those devices or technologies that are capable of disrupting the “normal” solitude, pure subjectivity, and sense of absolute agency that characterizes human thought and perception. Here, I ask the reader to be my data, and to reflect on her own experience to appreciate the totalizing nature of internal consciousness. I suggest that when we “think about how we think,” we assume that our thoughts come from within, we proceed as though what we perceive *is*, and insist that even if we are told what to think we cannot be forced to do so. Of course, there are caveats and exceptions to these broad assertions. For example, I do not mean to suggest that persons suffering from mental illness that causes auditory hallucinations are anything less than fully constituted human beings. Rather, by the very title of mental illness we recognize that perceiving more than one source for the ideas we entertain is a pathological state frequently requiring extensive treatment and therapy.

78. See *Sell v. United States*, 539 U.S. 166, 180 (2003) (holding that in order to permit involuntary administration of drugs solely for trial-competence purposes a court must first find that important governmental interests are at stake); *Washington v. Harper*, 494 U.S. 210, 222–25 (1990) (reasoning that the right to be free from medication has to be balanced against the state's duty to treat mentally ill inmates and run a safe prison).

79. *Riggins v. Nevada*, 504 U.S. 127, 142–43 (1992) (describing the subtle yet debilitating effects that forced psychotropic medication can have on a defendant subjected to such practices).

80. J.R. Romanko, *Truth Extraction*, N.Y. TIMES MAGAZINE, Nov. 19, 2000, at 54; Amanda Schaffer, *What a Long Strange Trip It's Been*, SLATE, Jan. 23, 2007, <http://www.slate.com/id/2158144>

documented as part of the current military actions in the Middle East,<sup>81</sup> and the ethical consequences of physician involvement in that interrogation has been openly debated by the American Psychiatric Association and others.<sup>82</sup> Of most urgent alarm may be the development of hypersonic sound projectors that create a field of wave energy that operates directly on the auditory perceptive centers in the brain.<sup>83</sup> As an individual passes through this field, the projected information will be “heard” instantly inside the brain of the target—thoughts and words, commercial jingles, even inappropriate commands will appear indigenous to the subject.<sup>84</sup>

The legal significance of each type of CLI can and should receive significant debate, and each demands its own tailored legal response, but

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(stating that in the 1950s the U.S. Army conducted research on MDMA, otherwise known as ecstasy, as a potential incapacitant or truth serum, but apparently dropped the idea).

81. See Memorandum from Amnesty Int’l to the U.S. Att’y Gen. (Nov. 1, 2001) (available at <http://web.amnesty.org/library/index/ENGAMR511702001>) (regarding Amnesty International’s concerns relating to the post-September 11 investigations and noting these techniques would violate human rights treaties to which the United States is a party).

82. In fact, a new policy prohibiting physicians’ participation in interrogation of prisoners and detainees at Guantanamo Bay, Cuba, and elsewhere was passed after the American Psychiatric Association, the American Academy of Child and Adolescent Psychiatry, and American Academy of Psychiatry and the Law gave detailed suggestions and comments to the American Medical Association’s Council on Ethical and Judicial Affairs. See Press Release, New Policy Against Physicians Participating in Interrogations (June 12, 2006), (available at [http://www.psych.org/news\\_room/press\\_releases/06-41NewAMAPolicyonPhysiciansandDetainees.pdf](http://www.psych.org/news_room/press_releases/06-41NewAMAPolicyonPhysiciansandDetainees.pdf)); see also Michael K. Gottlieb, *Executions and Torture: The Consequences of Overriding Professional Ethics*, 6 YALE J. HEALTH POL’Y, L. & ETHICS 351, 353 (2006) (“[S]trong evidence that doctors ignored, justified, or even helped in the humiliation, degradation, and physical abuse of Iraqi detainees at Abu Ghraib has shocked many in both the medical and non-medical communities. Mounting evidence suggests that physicians . . . [engaged in] activities in contravention of international law and medical ethics.”).

83. Instead of using vibrating membrane like traditional speakers, this technology electronically converts audible tones into a pair of ultrasonic waves at frequencies far beyond human hearing. However, when the ultrasonic waves interact after being processed by Norris’s invention, they reproduce the original audible frequency; however, since it is being carried by those ultrasonic signals, it is highly directional. That means you can effectively “shine” a spot of sound where you want it. Jame Reno & N’Gai Croal, *Hearing is Believing*, NEWSWEEK, Aug. 5, 2002, at 44, available at <http://www.woodynorris.com/Articles/Newsweek3.htm>. Woody Norris has invented both a crowd control tool, called the Long Range Acoustical Device (LRAD), and the display audio technology, called the HyperSonic Sound (HSS). In fact, LRAD has been used by the U.S. military in Iraq because when in weapon mode, LRAD blasts a tightly controlled stream of caustic sound that can be turned up to high enough levels to trigger nausea or possibly fainting. Amanda Onion, *Listen Up: Unusual Forms of Sound to Emanate from RNC*, ABCNEWS.COM, Aug. 25, 2004, <http://abcnews.go.com/Technology/story?id=99472&page=1>.

84. Kevin Maney, *Sound Technology Turns the Way You Hear on Its Ear*, USA TODAY, May 20, (2003), at 1B, available at [http://www.usatoday.com/tech/news/techinnovations/2003-05-19-hss\\_x.htm](http://www.usatoday.com/tech/news/techinnovations/2003-05-19-hss_x.htm); Marsha Sella, *The Sound of Things to Come*, N.Y. TIMES MAGAZINE, Mar. 23, 2003, at 34 (describing the various ways that Woody Norris, the founder of HSS technology, contemplates using the technology); Clive Thompson, *There’s a Sucker Born in Every Medial Prefrontal Cortex*, N.Y. TIMES MAGAZINE, Oct. 26, 2003, at 54, available at [http://www.cognitiveliberty.org/neuro/neuromarketing\\_nyt.html](http://www.cognitiveliberty.org/neuro/neuromarketing_nyt.html).

the net result of the existence of these questionable techniques is the creation of a marketplace for mind penetration. In a wide variety of circumstances, just a few of which are described here, there will be incentive if not arguably legitimate need for government (and private) actors to access and manipulate the public's thoughts, knowledge, and cognitive affective states. The unrelenting general trend toward ever-greater information-gathering ability suggests that this official quest for the ability to probe the mind, in both lie detection and other cognitive data collection contexts, will likewise escalate and produce continued scientific and technical innovation.

#### B. WHITHER COGNITIVE AUTONOMY

Given the depths which Brain Fingerprinting and eventually-realized CCTs may probe and record neurological processes, it is important to understand the extent to which the use of such technologies can interfere with the mental or thought processes to which we have become accustomed. On the simplest level, CCTs will have a chilling effect on our imagination.<sup>85</sup> We cannot often anticipate where our mental explorations will take us.<sup>86</sup> Perhaps we imagine ourselves engaging in behavior which is illegal, immoral, or at least socially unacceptable.<sup>87</sup> These fantasies we might entertain are often not a true reflection of our character or our intentions, but the world of imagination operates as our field of experimentation<sup>88</sup> so that we might express and metabolize those

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85. It is rather easy to see how the possibility of discovery may change what we are willing to entertain on the mind's stage. See, e.g., Clay Calvert, *Freedom of Thought, Offensive Fantasies and the Fundamental Human Right to Hold Deviant Ideas: Why the Seventh Circuit Got It Wrong in Doe v. City of Lafayette, Indiana*, 3 PIERCE L. REV. 125, 140 (2005) (“[T]he chilling effect of this ruling, i.e., that the communication of one’s thoughts may result in being banned from public spaces, is frightening.”).

86. In fact, an entire field of Psychotherapy has developed called Cognitive Behavior Therapy that is based on modifying everyday thoughts and behaviors, with the aim of positively influencing emotions. See, e.g., JUDITH BECK, *COGNITIVE THERAPY: BASICS AND BEYOND* (Guilford Press 1995). The cognitive model says that a person’s core beliefs (often formed in childhood) contribute to ‘automatic thoughts’ that pop up in every day life in response to situations. See *id.* at 17. Cognitive Therapy practitioners hold that clinical depression is typically associated with negatively biased thinking and irrational thoughts. See *id.* at 118.

87. For example, being a pedophile is a socially unaccepted behavior, but what about imagining looking at child pornography? See, e.g., Amy Adler, *Inverting the First Amendment*, 149 U. PA. L. REV. 921, 995 (2001) (“The determination of whether a picture is child pornography has grown increasingly bound up in our projections of whether these pictures will permit pedophiles to fantasize about them. Thus, child pornography law has begun to police speech based on how people may respond to it. This is in direct contravention of traditional First Amendment tenets.”); see also Bruce Bower, *Possible Worlds—Imagination Gets Its Due as a Real-World Thinking Tool*, SCIENCE NEWS, Mar. 26, 2005, at 202 (“Imagination is about considering possibilities . . . . That’s fundamental to how people think.”).

88. A psychological theory of human behavior known as “cognitive dissonance” suggests that conflicts between behavior and beliefs create a sense of discomfort which the individual subconsciously attempts to eliminate by modifying his or her beliefs. For example, a man who believes in nonviolence may strike someone in anger. The theory states that the man will either modify his

thoughts and behaviors which are otherwise inappropriate or undesirable.<sup>89</sup>

This process of exploration and creative imagination is stymied by the knowledge that, at some point, our inner existence may be brought to light by the use of CCTs. This parallels precisely the chilling effect that is associated with government restrictions on speech under First Amendment analysis.<sup>90</sup> In such a situation, the logic is that government restriction on speech (or imposition of penalties on speakers for unfavorable speech) creates a disincentive toward full and robust expression of ideas;<sup>91</sup> if speakers are aware that their expressions will be officially scrutinized and that they may be subsequently penalized therefore, rational actors tend not to speak out of fear of the consequences.<sup>92</sup> The chilling effect manifests because actors will self-censor, and the overall amount of expressive exchange will diminish, even before the restrictable or offensive speech takes place.

So too with cognition—in fact, speech may be considered little more than the outward expression of our inner mental processes.<sup>93</sup> Indeed,

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beliefs about nonviolence to justify the violent behavior or will believe his action to be something other than violence. He may convince himself that he was acting out of instinct or self-protection rather than a desire to inflict harm, or that the provocation was so extreme that even a nonviolent person like himself would have no choice but to respond. Individuals often seek reassurance from external sources that their behavior is not in conflict with their beliefs. Nazi war criminals defended their actions to themselves and others by claiming they were “only following orders” and were not responsible for behavior that was in conflict with social mores. EDDIE HARMON-JONES & JUDSON MILLS, *COGNITIVE DISSONANCE: PROGRESS ON A PIVOTAL THEORY IN SOCIAL PSYCHOLOGY* (1999).

89. HARMON-JONES & MILLS, *supra* note 88.

90. Inhibition of—as well as prohibition against—the exercise of precious First Amendment rights is a power denied to government. *See, e.g., Freedman v. Maryland*, 380 U.S. 51, 60 (1965); *Garrison v. Louisiana*, 379 U.S. 64, 73 (1964).

91. *Thomas v. Collins*, 323 U.S. 516, 543 (1945) (Jackson, J., concurring) (“This liberty was not protected because the forefathers expected its use would always be agreeable to those in authority or that its exercise always would be wise, temperate, or useful to society. As I read their intentions, this liberty was protected because they knew of no other way by which free men could conduct representative democracy.”); *see also* President Woodrow Wilson, Address at the Institute of France, Paris (May 10, 1919), in 2 *SELECTED LITERARY AND POLITICAL PAPERS AND ADDRESSES OF WOODROW WILSON* 333 (1926) (“I have always been among those who believed that the greatest freedom of speech was the greatest safety, because if a man is a fool, the best thing to do is to encourage him to advertise the fact by speaking. It cannot be so easily discovered if you allow him to remain silent and look wise, but if you let him speak, the secret is out and the world knows that he is a fool. So it is by the exposure of folly that it is defeated; not by the seclusion of folly, and in this free air of free speech men get into that sort of communication with one another which constitutes the basis of all common achievement.”).

92. *N.Y. Times Co. v. Sullivan*, 376 U.S. 254, 301 (1964) (“The American Colonists were not willing, nor should we be, to take the risk that ‘[m]en who injure and oppress the people under their administration [and] provoke them to cry out and complain’ will also be empowered to ‘make that very complaint the foundation for new oppressions and prosecutions.’” (citation omitted)).

93. Professor Tribe, among others, has discussed how freedom of thought is an essential ingredient in the freedom of expression. *See* LAWRENCE TRIBE, *AMERICAN CONSTITUTIONAL LAW* § 15-7, at 906 (2d ed. 1988) (“The guarantee of free expression is inextricably linked to the protection and

cognition is prefatory to speech, so we may routinely expect restrictions on freedom of thought to translate directly or indirectly into restrictions on speech.<sup>94</sup> CCTs will take that chilling effect one step further. Instead of merely fearing the consequences of expressing one's ideas, utilization of these technologies will produce a fear of the consequences of having the ideas in the first place.

This is particularly problematic if one appreciates that our thought processes are often not self-directed.<sup>95</sup> Instead, the "mind wanders" and takes us to places, or to novel notions, that we cannot see coming in advance.<sup>96</sup> Much of our most important, creative, or personally significant revelations come not because we intentionally produce them, but because the brain has a trajectory of its own, and we are along for the ride.

CCTs also have the capacity to reveal information about us which will interfere with our opportunity to participate freely in the routine aspects of daily social life. Aside from the pure chilling effect that the development of CCTs will have on our individual and collective mental exploration, CCTs make it possible to differentiate among individuals based on the subjective acceptability of their ideas. For example, in the modern era many employers, educational institutions, and public

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preservation of open and unfettered mental activity."); *see also* ROBERT N. BELLAH ET AL., *HABITS OF THE HEART: INDIVIDUALISM AND COMMITMENT IN AMERICAN LIFE* 142 (Univ. of Cal. Press 1985) ("We believe in the dignity, indeed the sacredness, of the individual. Anything that would violate our right to think for ourselves, judge for ourselves, make our own decisions, live our lives as we see fit, is not only morally wrong, it is sacrilegious."); THOMAS EMERSON, *THE SYSTEM OF FREEDOM OF EXPRESSION* 21–22 (1970) ("Forming or holding a belief occurs prior to expression. But it is the first stage in the processes of expression, and it tends to progress into expression. Hence, safeguarding the right to form and hold beliefs is essential in maintaining a system of freedom of expression."); JOHN STUART MILL, *ON LIBERTY* 18 (Curran V. Shields ed., Bobbs-Merrill Co. 1956) (1859) (describing "the liberty of thought, from which it is impossible to separate the cognate liberty of speaking and of writing").

94. *See* *Ashcroft v. Free Speech Coal.*, 535 U.S. 234, 253 (2002) ("First Amendment freedoms are most in danger when the government seeks to control thought or to justify its laws for that impermissible end. The right to think is the beginning of freedom, and speech must be protected from the government because speech is the beginning of thought."); *Jones v. Opelika*, 316 U.S. 584, 618 (1942) ("Freedom to think is absolute of its own nature; the most tyrannical government is powerless to control the inward workings of the mind.").

95. *See, e.g.*, DANIEL M. WEGNER, *THE ILLUSION OF CONSCIOUS WILL* 27 (Bradford Books 2002) ("Each of our actions is really the culmination of an intricate set of physical and mental processes, including psychological mechanisms that correspond to the traditional concepts of will, in that they involve linkages between our thoughts and our actions."). *See generally* DANIEL M. WEGNER, *WHITE BEARS AND OTHER UNWANTED THOUGHTS: SUPPRESSION, OBSESSION, AND THE PSYCHOLOGY OF MENTAL CONTROL* (Guilford Press 1994) (1989).

96. "The constant metamorphosis of consciousness turns out to be a natural product of the mechanism that allows consciousness to control itself. In other words, mindwandering, is a conscious manifestation of contrary unconscious processes created when we attempt to control the direction of consciousness." Daniel M. Wegner, *Why the Mind Wanders*, in *SCIENTIFIC APPROACHES TO CONSCIOUSNESS* 295, 295–96 (J.D. Cohen & J.W. Schooler eds., 1997), available at <http://www.wjh.harvard.edu/%7Ewegner/pdfs/Wegner%20Mind%20Wander.pdf>.

accommodations observe anti-discrimination policies.<sup>97</sup> These policies often (rightly) prohibit differential treatment based on race, religion, sexual orientation, disability or nationality, and the expression of bias on these grounds.<sup>98</sup> CCTs actually make it possible to determine, before the actual expression of animus, whether an individual mind harbors such bias and therefore will allow such institutions to avoid associating with individuals who possess indicia of such animus in their brain scans.<sup>99</sup>

The problem here is that, much like the chilling effect produced by the government's regulation of speech, the use of CCTs to identify those "undesirables" who demonstrate brain activity consistent with bias has the capacity to exclude those individuals from the social context well before they behave in an inappropriate way and before the harm to be avoided is ripe. This will produce a deeper type of chilling effect on society. Instead of reducing the amount of expression that takes place in society, and thus reducing the quality of the "marketplace of ideas," CCTs will reduce the number of individuals deemed "acceptable" for participation in our social institutions and thus reduce the number of "merchants" who participate in the market *ex ante*.

Notwithstanding these effects, CCTs may do as much harm in the abstract as they will do in practical application. In addition to producing individual self-censorship and creating the opportunity for social exclusion, the existence and utilization of CCTs is a powerful rhetorical statement about the relationship of our individual lives to the larger collective life of the community of which we are a part. CCTs articulate a philosophy of authoritarianism, or even totalitarianism if the government is the operator of CCTs, which diminishes each person's sense and exercise of agency with respect to their personal affairs. If we are not free

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97. Taking examples close to home, businesses like Google, municipalities like the City of Seattle, Washington, and universities such as my own Seattle University all have anti-discrimination policies. See GOOGLE CODE OF CONDUCT, available at <http://investor.google.com/conduct.html#2> (last visited Nov. 22, 2007); SEATTLE MUN. CODE, tit. 14, ch. 14.04 (Dec. 2006); SEATTLE UNIVERSITY, NONDISCRIMINATION POLICY, available at [http://www.seattleu.edu/home/about\\_seattle\\_university/policies/statement\\_on\\_diversity](http://www.seattleu.edu/home/about_seattle_university/policies/statement_on_diversity) (last visited Nov. 22, 2007).

98. For example, the City of Seattle's comprehensive anti-discrimination code states that the policy of the City, in the exercise of its police powers for the protection of the public health, safety, and general welfare, and for the maintenance of peace and good government, is to assure equal opportunity to all persons, free from restrictions because of race, color, sex, marital status, sexual orientation, gender identity, political ideology, age, creed, religion, ancestry, national origin, or the presence of any sensory, mental or physical disability. Furthermore, gender identity means a person's identity, expression, or physical characteristics, whether or not traditionally associated with one's biological sex or one's sex at birth, and includes transsexual, transvestite, and transgendered persons within the scope of its protections. SEATTLE MUN. CODE, tit. 14, ch. 14.04, subchapter 14.04.020.

99. Critics argue that this application could have a potent impact on company recruitment decisions. For example, private firms employing CCT technology may come to offer "deception detection" to banks looking for honest employees, to schools looking to weed out potential child molesters, or to security companies seeking to identify those that might have a propensity for corruption. See Wolpe et al., *supra* note 41, at 45-46.

to think what we will, or if we are not free to observe the thought processes that take place within us, we are simply not agents free to construct our own realities or to creatively engage our individual world view. If our cognitive processes are shackled by a fear that our unorthodox ideas will be discovered, we are not free to create our own subjective existence.

Unfortunately, a robust sense of agency (or hyperagency as one neurobiologist has described it)<sup>100</sup> is exactly what our brains are designed to offer us.<sup>101</sup> When actors in positions of power have the capacity to intrude upon our cognitive autonomy and interfere with our perceived ability to self-regulate, self-actualize, and self-direct, they undermine the primary evolutionary value of our expansive cerebral capacities. Agency, or a sense of the self that possesses the capacity to act, is necessary to socialization.<sup>102</sup> We cannot conceive of our relationship to others if we cannot develop a full sense of our self.<sup>103</sup> Much like a mathematical relationship, we cannot derive our relational equation without knowing the value of all the variables. Such anti-social outcomes should be internalized to the calculated cost of using CCTs if the full impact of their use is to be appreciated.

## II. EMANCIPATE YOURSELF FROM MENTAL SLAVERY<sup>104</sup>

The purpose of Part II of this Article is to situate CCTs, both as they now exist and as representative of the larger trend in information-gathering institutions toward probing mental content, within the larger social discourse around the role and importance of the mind in creating

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100. MICHAEL S. GAZZANIGA, *THE ETHICAL BRAIN* 54 (Dana Press 2005).

101. *See id.* This concept enables us to feel that we have a distinct choice about how we live our lives. It is the unique ability to make choices and enjoy a sense of autonomy and freedom that makes us uniquely human and not “predestined robots” on a spiral path toward our own destruction. *Id.*

102. Researchers have studied how different cultures have valued the construction of the individual, or “self,” finding that in collective cultures individuals may be induced to subordinate their personal goals to the goals of some of the collective, while in individualistic cultures, individuals end relationships and form new ones rather than subordinate their personal goals. Imbedded in these findings is the concept of social comparison in which one’s ability to identify with others in relationship to their concept of “self” is what forms the basis of their social identity. *See* KENNETH J. GERGEN, *AN INVITATION TO SOCIAL CONSTRUCTION* (SAGE Publications 1999) (evaluating the effect of increased social stimulation on the concept of self); Harry C. Triandis et al., *Individualism and Collectivism: Cross-Cultural Perspectives on Self-Ingroup Relationships*, 54 *J. PERSONALITY & SOC. PSYCH.* 323 (1988) (analyzing the different notions of self as they are reflected in both subjective and collective societies); *see also* ALAN FOGEL, *DEVELOPING THROUGH RELATIONSHIPS: ORIGINS OF COMMUNICATION, SELF, and CULTURE* 139–53 (Univ. of Chicago Press 1993).

103. *See generally* KENNETH JAY GERGEN, *THE SATURATED SELF: DILEMMAS OF IDENTITY IN CONTEMPORARY LIFE* (Basic Books 1991) (discussing the history and major issues in social constructivism).

104. BOB MARLEY, *Redemption Song, on UPRISING* (Island Records 1980) (“Emancipate yourselves from mental slavery, none but ourselves can free our minds.”).



various individual identity vectors.<sup>105</sup> The thesis behind this discussion is that CCTs may have the capacity to interfere with the creation and maintenance of subjective social realities, and may interfere with both individual and collective definitions of the “self.” Three different aspects of identity construction are offered as illustrative of how CCTs can intrude upon these important social-situating processes, with the express understanding that this is a representative and not exhaustive listing of the wider array of cognition-based functions that may be impeded by intrusive CCTs.<sup>106</sup>

#### A. IDENTITY CONSTRUCTION AND THE SOLITUDE OF THE MIND

Perhaps the simplest place to start this discussion is with an individual’s sense of her own identity as being distinct from the identity of other members of the community. This construction of the self allows us to distinguish the subject “I” from the collective “we” and the discreet “they,” and relies centrally on separateness and apartness for its structural significance.<sup>107</sup> At the core of the ego concept of “I” is a unitary and solitary conception of the self as the fully individualized, indivisible, lowest common denominator of social organizations;<sup>108</sup> in essence, individuals with discreet core identities are the basic building blocks of any larger and more sophisticated social unit. This concept of personhood is grounded in the notion that there is an inner existence which is unique and available only to that individual,<sup>109</sup> and upon the attendant consequence that no other social being can inject their presence into another’s inner existence without the individual’s consent.<sup>110</sup>

It has long been conjectured that individual subjective thought is the basis for our sense of self,<sup>111</sup> and is the medium by which we create and then navigate our perceptual reality.<sup>112</sup> The most famous expression of this now well established premise was penned by René Descartes in his

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105. See, e.g., Nancy Ehrenreich, *Subordination and Symbiosis: Mechanisms of Mutual Support Between Subordinating Systems*, 71 UMKC L. REV. 251, 270 (2002) (listing “sexuality, class, physical ability, age[, and] religion” as among the many “vectors” of individual and group identification); Leti Volpp, *Feminism Versus Multiculturalism*, 101 COLUM. L. REV. 1181, 1202 (2001) (discussing the “mutually constitutive” operation of race and gender as vectors of identity).

106. These three modes for discussing social identity are among the many to which the collection of cognitive evidence is germane. This section is thus little more than a sampling of the kind of considerations CCTs may raise, and it is not meant to delve into any one of these three areas any deeper than is necessary to demonstrate the connection between cognitive freedom and the creation of an autonomous sense of self.

107. MORRIS ROSENBERG, *CONCEIVING THE SELF* 5–51 (Basic Books 1986).

108. *Id.*

109. *Id.*

110. *Id.*

111. *Id.*

112. *Id.*

Discourse on Method and Meditations on First Philosophy, when he sought to discard all knowledge that could be questioned and ended with the irreducible truth: "I think, therefore I am."<sup>113</sup> To unpack that slightly, Descartes is expressing his conclusion that it is the process of cognition that creates the world in which we subjectively live; that it is the process of cognition, our ability to question our existence initially, that proves we are real. It is the mind's ability to think that allows the formation of the self that can then express the ego concept of "I."<sup>114</sup>

Western philosophy is built upon the footing of Descartes' initial realization that thinking is the crucial process that marks our subjective existence,<sup>115</sup> and upon his theory of dualism, which holds mind and body to be wholly distinct aspects of the self.<sup>116</sup> By placing thought at the center of an individual's identity construction mechanisms, post-Cartesian philosophy emphasizes the role of the mind in explaining our experienced social realities and in acquiring and processing knowledge.<sup>117</sup> Whether attributed to the physical layout of human cerebral structures,<sup>118</sup> or rather to information processing responses to cultural influences,<sup>119</sup> our cognitive content, patterns and behaviors remain central factors

113. RENÉ DESCARTES, DISCOURSE ON THE METHOD AND MEDITATIONS ON FIRST PHILOSOPHY 21-6 (David Weissman ed., Yale Univ. Press 1996).

114. Chin-Tai Kim, *Cartesian Dualism and the Unity of Mind*, 80 MIND 337, 346-52. (1971); R.A. Wilson, *Some Problems for "Alternative Individualism"*, 67 PHIL. SCI. 671, 674-76 (2000).

115. THE CAMBRIDGE COMPANION TO DESCARTES 140-41 (John Cottingham ed., Cambridge Univ. Press 1992).

116. *Id.* at 236. See generally Frank B. Dilley, *Taking Consciousness Seriously: A Defense of Cartesian Dualism*, 55 INT'L J. FOR PHIL. RELIGION 135 (2004).

117. ALFRED SCHUTZ, THE PHENOMENOLOGY OF THE SOCIAL WORLD 142 (Heinemann Educ. Books 1972); John W. Yolton, *Perceptual Acquaintance from Descartes to Reid*, 94 MIND 300, 300-02 (1985); David Hartman & Diane Zimberoff, *Trauma, Transitions, and Thriving*, 8 J. HEART-CENTERED THERAPIES 3, 71-72 (2005); Woodrow W. Clark Jr. & Michael Fast, *A New Foundation for Micro-Economic Theory—Interactionism* 8-13 (Int'l Bus. Econs. Ctr. for Int'l Studies, Working Paper No. 35, 2001), available at <http://www.business.aau.dk/ivo/publications/working/wp35.pdf>; Philip Lewin, *The Problem of Objectivity in Post-Critical Philosophy*, 18 POLANYI SOC'Y PERIODICAL 18, 21 (1991-1992), available at <http://www.missouriwestern.edu/orgs/polanyi/TAD%20WEB%20ARCHIVE/TAD18-1/TAD18-1-fnl-full-pdf.pdf>. See generally JAMES L. MARSH, POST-CARTESIAN MEDITATIONS: AN ESSAY IN DIALECTICAL PHENOMENOLOGY (Fordham Univ. Press 1988).

118. Roberto Cabeza & Lars Nyberg, *Imaging Cognition II: An Empirical Review of 275 PET and fMRI Studies*, 12 J. COGNITIVE NEUROSCIENCE 1 (2000); Richard Lane et al., *Neural Correlates of Levels of Emotional Awareness: Evidence of an Interaction Between Emotion and Attention in the Anterior Cingulate Cortex*, 10 J. COGNITIVE NEUROSCIENCE 525 (1988); David Rock & Jeffrey Schwartz, *The Neuroscience of Leadership*, STRATEGY + BUS., Summer 2006, <http://www.strategy-business.com/press/freearicle/06207>.

119. See, e.g., Evelyn González-Figueroa & Deborah Koniak-Griffin, *Understanding Cultural Influence on Health Behaviors of Latino Adolescent Parents*, LATINO POL'Y & ISSUES BRIEF, Feb. 2006, at 1-3, available at [http://www.ph.ucla.edu/cehd/Documents/LPIB\\_12Feb2006.pdf](http://www.ph.ucla.edu/cehd/Documents/LPIB_12Feb2006.pdf); Stephan Dahl, *Communications and Culture Transformation* 8-21 (unpublished project presented to the European University, Barcelona, available at <http://stephweb.com/capstone/capstone.pdf> (last visited Nov. 22, 2007)).

philosophers use to describe the nature of the self.<sup>120</sup>

Psychological approaches to defining the self parallel the philosophical focus on cognition as the process of, or at least central to the process of, identity construction.<sup>121</sup> Answering the question “who am I?” from a psychological perspective requires a model of the mental states that provide an awareness of the subject in relation to the external world.<sup>122</sup> According to certain structural approaches, the self is simply a theory of identity constructed by the individual as she weaves her experiential life history into a unified, whole concept of her being.<sup>123</sup> Competing theories of social psychology suggest that individual identity is really a collection of multiple “selves” acquired during and influenced by the course of interpersonal interaction.<sup>124</sup> The shared perspective in any psychological study of the self is one that focuses on the mind and the locus of the narrative tale we tell ourselves in order to know who and what we are.

Neurobiological influences on psychological understandings further the parallel. While psychologists have gone a long way toward charting the “self-talk” or internal narrative that articulates our thoughts and represents our character,<sup>125</sup> neurobiologists have supplemented our knowledge by correlating observable cognitive strategies to underlying brain behaviors.<sup>126</sup> In addition to mapping the location of cerebral

120. Linda Martín Alcoff, *Habits of Hostility on Seeing Race*, 44 PHIL. TODAY 30, 34–35 (2000); Kim Chong, *Zhuangzi and the Nature of Metaphor*, 56 PHIL. E. & W. 370, 381–83 (2006); James S. Hans, *Alexander Nehamas and the Art of Living*, 44 PHIL. TODAY 190, 196–201 (2000). See generally Deborah Cook, *Nature Becoming Conscious of Itself: Adorno on Self-Reflection*, 50 PHIL. TODAY 296 (2006).

121. See generally ROM HARRÉ, *THE SINGULAR SELF: AN INTRODUCTION TO THE PSYCHOLOGY OF PERSONHOOD* (1998).

122. Maggie MacLure, *Arguing for Your Self: Identity as an Organising Principle in Teachers' Jobs and Lives*, 19 BRIT. EDUC. RES. J. 311, 314–19 (1993); Scott Webster, *Personal Identity: Moving Beyond Essence*, 10 INT'L J. CHILDREN'S SPIRITUALITY 5, 5–16 (2005).

123. See LÁSZLÓ TENGYELI, *THE WILD REGION IN LIFE-HISTORY* (G. Kallay trans., Northwestern Univ. Press 2004).

124. See HOWARD GARDNER, *MULTIPLE INTELLIGENCES: THE THEORY IN PRACTICE* 8–9 (Basic Books 1993) (discussing evidence for the existence of semi-independent intelligences, such as logical-mathematical, linguistic, spatial, musical, etc. which are located in specific areas of the human brain); Michael S. Gazzaniga, *The Split Brain Revisited*, SCI. AM., July 1998, at 50–55 (reviewing studies on patients whose separated cerebral hemispheres act as two semi-independent selves); Brent W. Roberts & Eileen M. Donahue, *One Personality, Multiple Selves: Integrating Personality and Social Roles*, 62 J. PERSONALITY 199, 200–02 (1994).

125. See Maggie MacLure, *Mundane Autobiography: Some Thoughts on Self-Talk in Research Contexts*, 14 BRIT. J. SOC. EDUC. 334, 337 (1993) (“[T]o understand ourselves we must examine how currently we account for ourselves in everyday self-talk, the procedures and practices we routinely use in making sense of our activities to one another [ . . . ] our concepts of ourselves are revealed to us in how we talk about ourselves in all the different ways that we do.”) (alteration in original) (citation omitted).

126. See Jeffrey Rosen, *The Brain on the Stand*, N.Y. TIMES MAGAZINE, Mar. 11, 2007, at 49, 50 (“This is the new frontier in law and science—we’re peering into the black box to see how the brain is actually working, that hidden place in the dark quiet, where we have our private thoughts and private

responses to various types of stimuli—cerebral responses that manifest our cognitive processing—neurobiologists are also successfully associating certain pathological personality disorders with organic and traumatic brain damage.<sup>127</sup> Without dwelling on the excessively technical, neurobiology is building upon the advances of psychology by linking the flawed construction of the subjective self to clinically observable flaws in the cognitive processing equipment.

Central to every one of these various approaches to studying the brain, the mind, and personality is the connection between thinking and being. It is our ability to think, and the character of our thoughts, that gives us a sense of who we are and the perceived autonomy of self-definition. In fact, these two concepts are reflexively linked, for one belief we are conditioned to hold is that autonomous self-definition is an aspect of identity as well as a process by which identity is created.<sup>128</sup> Intrusion upon that thought process, therefore, necessarily impacts the products of the cognitive processing in two ways.

First, a well developed sense of self is based on the perceived impenetrability of our cognitive environment—I can think of my “self” as that unique aggregation of thoughts to which no one else is privy. Enforcing second party privacy, by intruding upon the solitude of individual thought processing, detracts from that formulation of the sense of self which depends on exclusion for its meaning.

Second, CCTs and other efforts to peer into cognitive processes and thought patterns do in fact divest the individual of some control over the identity she can create. Exposure of the individual’s thought processes destroys the intimacy of her self-talk so that it cannot play the same role in identity construction as can the uninterrupted internal monologue. More blatantly, forcible interjection of information, thoughts, and ideas through CCTs and other CLIs forces the individual to internalize those messages such that the individual’s identity is no longer a reflection solely of the processes naturally occurring within her. Being alone with one’s thoughts, and preserving the retreat of the individual mind, is thus a central feature of our functioning as rational, self-aware beings.

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reactions—and the law will inevitably have to decide how to deal with this new technology.” (quoting Professor Owen Jones)).

127. See, e.g., Robert van Reekum et al., *Can Traumatic Brain Injury Cause Psychiatric Disorders?* 12 J. NEUROPSYCHIATRY & CLINICAL NEUROSCIENCE 316, 317 (2000) (discussing the long-accepted association between traumatic brain injury and changes in mood, personality, and behavior, as well as the correlation between brain injury and other psychiatric disorders including major depression, bipolar affective disorder, general-anxiety disorder, obsessive-compulsive disorder, panic disorder, and posttraumatic stress disorder).

128. Personal and Social Identity, <http://science.jrank.org/pages/9745/Personal-Social-Identity-Commitment-Culture-Relation-between-Personal-Social-Identity.html> (last visited Nov. 22, 2007).

## B. COGNITION AND THE DIVINE

Individual thought processes, and the ability to think freely, are also central to our basic understanding of metaphysical and spiritual existence. To take one example, meditation or prayer, as a form of divine communion, is a feature of almost every organized spiritual tradition.<sup>129</sup> Both meditation and prayer entail a channeling or concentration of thought upon the divine object, and are held to allow communication between the spiritual aspect of our persona, often called our soul, and the supernatural or creative forces of the universe that may be worshipped in various forms.<sup>130</sup> In very simplified terms, meditation and prayer are little more than a process of engaging in directed thinking while especially attuned to the will of the divine audience.<sup>131</sup> Some religious traditions conceive of their deity as existing separate and apart from the world, observant of but not present in the material plane we inhabit.<sup>132</sup> Other religious traditions understand their deity as imbuing all material existence and as residing, in undiminished part, in each person.<sup>133</sup> Whether the narrative is directed across that perceived distance, or directed to the divine presence within each person, the key to our ability to subjectively communicate with the greater god-like forces in which we believe is our ability to think we are doing so.<sup>134</sup> Descartes might have put it thus: we think we know God, therefore we know God.

Free and unfettered thought is also central to one other dynamic underlying many of the world's religions—the divinely-inspired vision. From Moses' receipt of the Ten Commandments,<sup>135</sup> to Joseph Smith's dream that bore the Mormon Church,<sup>136</sup> to Siddhartha Gautama's realization under the banyan tree,<sup>137</sup> religious mythology makes regular

129. See Marianne Szegedy-Maszak & Caroline Hsu, *How We Talk to God*, U.S. NEWS & WORLD REP., Dec. 20, 2004, at 55. See generally DENIS LARDNER CARMODY & JOHN TULLY CARMODY, PRAYER IN WORLD RELIGIONS (Orbis Books 1990); HUSTON SMITH, THE WORLD'S RELIGIONS (Harper Collins 1991).

130. See Eleonore Stump, *Petitionary Prayer*, in PHILOSOPHY OF RELIGION: A READER AND GUIDE 609, 609–24 (William Lane Craig ed., 2002).

131. See Felicity Brock Kelcourse, *Prayer and the Soul: Dialogues That Heal*, 40 J. RELIGION & HEALTH, 231, 231–32 (2001).

132. On deism, see NORMAN L. GEISLER, CHRISTIAN APOLOGETICS 151–73 (Baker Academics 2004) (1988), and Michael A. Harbin, *Theistic Evolution: Deism Revisited?*, 40 J. EVANGELICAL THEOLOGICAL SOC'Y 639, 649 (1997).

133. On Catholicism, see NEW ADVENT CATHOLIC ENCYCLOPEDIA, <http://www.newadvent.org/cathen/06612a.htm> (last visited Nov. 22, 2007). On Judaism, see WAYNE DOSICK, LIVING JUDAISM: THE COMPLETE GUIDE TO JEWISH BELIEF, TRADITION, AND PRACTICE (Harper Collins 1998).

134. See generally ENCYCLOPEDIA OF THE WORLD'S RELIGIONS (R. C. Zaehner ed., Beacon Press 1959) (discussing examples from Christianity, Hinduism, Islam, Judaism, and Sikhism).

135. See *Exodus* 20:1–17 (King James); *Deuteronomy* 5:6–21 (King James).

136. See LDS.org, Joseph Smith—History 1, [http://scriptures.lds.org/js\\_h/1/3#3](http://scriptures.lds.org/js_h/1/3#3) (describing account of first revelatory vision) (last visited Nov. 22, 2007); see also Joseph Smith, Jr. et al., *History of the Church*, in PERSONAL WRITINGS OF JOSEPH SMITH 9–14 (Dean C. Jessee ed., Deseret Book 2002) (1984).

137. CARL OLSON, THE DIFFERENT PATHS OF BUDDHISM: A NARRATIVE-HISTORICAL INTRODUCTION 45

use of transcendent revelation as a way to convey divine knowledge or communicate divine will to worldly followers. There are two crucial components which underlie the ability of revelatory visions to achieve these educative effects.<sup>138</sup> First is the assumed validity of human perceptive experience, whereby honest perceptual experience of an event can be translated into or stand as proxy for its actual objective occurrence.<sup>139</sup> Given that assumption, the visionaries who would be labeled prophets need to convince followers that they in fact had the described vision; they do not need to convince followers that, if the vision was real, it reflects the word of God. The second component is the unchallenged assumption that what happens in the inner perceptual reality of the mind of one person is not available for consumption by others.<sup>140</sup> That is what makes the visions so precious, because by the nature of the mind the experience can only be had one person at a time. With respect to both aspects of religious vision narratives, the freedom to receive divine inspiration and instruction comes from each person's innate right to think for and by themselves.

CCTs would intrude on the role that religion plays in personal and communal life in myriad ways. First and perhaps foremost, CCTs could greatly enhance the existing tension between scientific and religious explanations for various phenomena. Already there are efforts to explain the institution of religion as a function of neurobiology.<sup>141</sup> These efforts taken several dangerous steps further could be used to argue that religion and religious belief are nothing more than neuropathology, with CCTs being used to chart the various wave patterns we might otherwise associate with contact with the transcendent. The beginnings of a neurobiological basis to explain a belief in God, expressed in terms of the cognitive behaviors being engaged in by a specific person's brain, will go a long way toward undermining that person's faith.<sup>142</sup> This is not to say that science and religion are necessarily at odds, but it does suggest that the developing ability to scan the brain while it works will have significant secondary social effects that should be considered from a legal perspective.

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(Rutgers Univ. Press 2005); see also *THE WORLD'S RELIGIONS*, *supra* note 129, at 85–86.

138. Ina Praetorius, *Speaking of God as a Woman Since the Enlightenment*, 15 *FEMINIST THEOLOGY* 84, 88–90 (2006).

139. *Id.*

140. *Id.*

141. See EUGENE D'AQUILI & ANDREW B. NEWBERG, *THE MYSTICAL MIND* 147 (Fortress Press 1999); James B. Ashbrook & Carol Rausch Albright, *The Humanizing Brain: An Introduction*, *ZYGON*, Mar. 1999, at 7; Rebecca Sachs Norris, *Examining the Structure and Role of Emotion: Contributions of Neurobiology to the Study of Embodied Religious Experience*, *ZYGON*, Mar. 2005, at 181.

142. See Seth Holtzman, *Science and Religion: The Categorical Conflict*, 54 *INT'L J. FOR PHIL. RELIGION* 77, 77 (2003); George Johnson, *Science and Religion Cross Their Line in the Sand*, *N.Y. TIMES*, July 12, 1998, § 4, at 1.

Likewise, the use of CCTs to violate a zone of cognitive exclusion interferes with religious existence by intruding upon the confidential nature of the relationship we might create with our deity of choice. Non-consensual exposure to CCTs during communication and communion with the divine destroys the intimacy in that mortal/immortal relationship that gives it its power as a moral and social guiding force. Moreover, the use of CCTs to observe what the subject may believe to be communication with the divine is descriptively incompatible with notions of omniscience<sup>143</sup> and the belief that God is revealed to those who are chosen,<sup>144</sup> not to those with the right apparatus. Again, the use of CCTs to invade sanctified cognitive spaces intrudes on our ability to engage fully in the pursuit of religious or spiritual truth by interfering with our thoughts, which are the primary mechanism of its realization.

### C. MENTAL FREEDOM AND POLITICAL AGENCY

The right to think freely, and to make uncoerced judgments about public policy questions is essential to our democratic institutions and our political theory of informed rational choice.<sup>145</sup> The constitutional theory of democracy presumes the existence of a body of voters who have the capacity to make calculated decisions about matters of collective importance.<sup>146</sup> The institutions of government depend on the exchange of ideas and the process of political debate to produce leadership direction and the authority to govern.<sup>147</sup> Indeed, much of the credibility possessed by instruments of the government comes from the perception that “We the People,” being fully informed and free to decline, accepted this representative form of government because it best preserved the freedom of thought and belief we held to be innate in free citizens.<sup>148</sup> Constraints on conscience are antithetical to democratic government if only because those constraints are an inefficiency that impedes the ability of mechanisms for political exchange to identify optimal social outcomes or policies.

Likewise, informed choice models generally rely on the freedom of the decision maker to reach her own conclusions,<sup>149</sup> and invest primary

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143. Michael Carasik, *The Limits of Omniscience*, 2 J. BIBLICAL LITERATURE 221, 221 (2000).

144. See generally ENCYCLOPEDIA OF THE WORLD'S RELIGIONS, *supra* note 134. The idea of divine selection and the human channeling of God's will or wisdom figures prominently in the theological narratives of Christianity, Islam, and Judaism. *Id.*

145. See Stanley Ingber, *The Marketplace of Ideas: A Legitimizing Myth*, 1984 DUKE L. J. 1, 8–9; Scott C. Pugh, *Checkbook Journalism, Free Speech, and Fair Trials*, 143 U. PA. L. REV. 1739, 1752 (1995); see also *Buckley v. Valeo*, 424 U.S. 1, 14–15 (1976).

146. See Ingber, *supra* note 145; Pugh *supra* note 145.

147. See Ingber, *supra* note 145; Pugh *supra* note 145.

148. See Akhil Reed Amar, *The Fifty-Seventh Cleveland-Marshall Lecture: The Bill of Rights and Our Prosperity*, 42 CLEV. ST. L. REV. 573, 577–78 (1994). See generally MICHAEL LESSNOFF, *SOCIAL CONTRACT* (Humanities Press Int'l 1986); JOHN RAWLS, *A THEORY OF JUSTICE* (1999).

149. See *Abood v. Detroit Bd. of Educ.*, 431 U.S. 209, 234–35 (1977) (“[A]t the heart of the First

importance in the quality of the information that forms the basis of the decision.<sup>150</sup> In the political context, informed choice models of individual democratic behaviors presume that correct decision making follows rational calculation of known variables.<sup>151</sup> The validity of these decision-making moments depends on there being a genuine choice presented to the decision maker, or else the rational calculation is short-circuited.<sup>152</sup> Again, constraints on conscience are inconsistent with informed choice by political actors because such constraints interfere with the process of evaluation that leads to correct decision making.

To connect these two political considerations to Brain Fingerprinting and CCTs permits a review of much that has already been said. The development of CCTs will create an environment in which public and private actors can violate space that previously belonged to the individual alone. In that space occurs many of the most important constructive processes that give us a sense of who we are. To be observed, and perhaps recorded, in the process of cognitively navigating the outer world will distort that process irretrievably simply by virtue of the observation.<sup>153</sup> No one can think as freely and as broadly when they are being watched, either by themselves or by others. This in turn creates an environment for the promotion and enforcement of political orthodoxy, for knowing how and what an individual thinks on political matters allows differentiation among people on those grounds.<sup>154</sup> The fear of such ideological monitoring by use of CCTs will unavoidably change the substance of individual subjective ideologies and, in the long run, diminish the richness of ideological and political exchange overall.

These three arenas of cognitive inquiry, into the nature of our subject self, about the nature of our spiritual reality, and regarding our political beliefs and civic commitments, outline just three of the identity vectors that, in the aggregate, define us both subjectively and objectively, or from the perspective of the internal and external viewer. CCTs and other CLIs threaten the effectiveness of each of these three areas of human thought and threaten the authenticity of the results reached

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Amendment is the notion that . . . in a free society one's beliefs should be shaped by his mind and his conscience rather than coerced by the State.").

150. See John H. Aldrich, *Rational Choice and Turnout*, 37 AM. J. POL. SCI. 246 (1993); Thomas I. Emerson, *Toward a General Theory of the First Amendment*, 72 YALE L.J. 877, 882-84 (1963).

151. See Aldrich, *supra* note 150.

152. See *id.*

153. One might at this point draw a useful analogy to Heisenberg's uncertainty principle. According to Heisenberg, we can never know both the exact location and exact velocity of a particle in motion, because the energy required to view the particle will actually affect its motion. Likewise, the nature of unfettered thought would be altered simply by its observation, without regard to any subsequent consequence of that observation.

154. See Owen M. Fiss, *Silence on the Street Corner*, 26 SUFFOLK U. L. REV. 1 (1992); Owen M. Fiss, *Why the State?*, 100 HARV. L. REV. 781 (1987); Vicki C. Jackson, *Holistic Interpretations, Comparative Constitutionalism, and Fiss-ian Freedoms*, 58 U. MIAMI L. REV. 265 (2003).



through these inquiries. While the time for such deep interference has yet to come, eventual interference will impair the ability of individuals to create and maintain a social identity and thus impair the effectiveness of our social institutions insofar as they are built around the self as the basic unit of accumulated social communities.

### III. FOURTH AMENDMENT FAILINGS: THE PROBABLE CAUSE/WARRANT COMPLEX

Justice Jackson's 1948 opinion in *United States v. Johnson*<sup>155</sup> discussed the Fourth Amendment's command that "no Warrants shall issue, but upon on probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized."<sup>156</sup> In deciding whether law enforcement officers were legally permitted to forcibly enter the Seattle hotel room of Ms. Anne Johnson without prior judicial approval based on credible reports of ongoing narcotics activity,<sup>157</sup> the Court had to determine whether the warrant process had a role to play in regulating searches such as these.<sup>158</sup> Even though the officers, based on their training and experience, unquestionably had probable cause to believe that crime was afoot, Justice Jackson invalidated the officer's behavior precisely because no warrant had issued.<sup>159</sup> The suppression of evidence was necessary to communicate that

[t]he point of the Fourth Amendment, which often is not grasped by zealous officers, is not that it denies law enforcement the support of the usual inferences which reasonable men draw from evidence. Its protection consists in requiring that those inferences be drawn by a neutral and detached magistrate instead of being judged by the officer engaged in the often competitive enterprise of ferreting out crime.<sup>160</sup>

With this decision, Justice Jackson gave concrete form to a previously amorphous "warrant preference,"<sup>161</sup> and established a standard under which all warrantless intrusions (that is, either a "search" or "seizure" as those terms of art are defined) are presumptively illegal.<sup>162</sup>

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155. 333 U.S. 10 (1948).

156. U.S. CONST. amend. IV.

157. *Johnson*, 333 U.S. at 12.

158. *Id.* at 13-14.

159. *Id.* at 16-17.

160. *Id.* at 13-14.

161. See *Silverthorne Lumber v. United States*, 251 U.S. 385, 392 (1920); *Weeks v. United States*, 223 U.S. 383, 391 (1914).

162. See *Johnson*, 333 U.S. at 13-14; accord *Steagald v. United States*, 451 U.S. 204, 213 (1981); *Coolidge v. New Hampshire*, 403 U.S. 443, 449-53 (1971) (invalidating law enforcement search for failure to secure a warrant); *Katz v. United States*, 389 U.S. 347, 357 (1967); see also *Knowles v. Iowa*, 525 U.S. 113, 116 (1998) (discussing the "warrant preference" in the context of doctrinal exceptions to application of the preference); *Minnesota v. Dickerson*, 508 U.S. 366, 379 (1993); *Arizona v. Hicks*, 480 U.S. 321, 326 (1987); *California v. Carney*, 471 U.S. 386, 394 (1985).

According to Justice Jackson, any intrusion upon Fourth Amendment interests must be, at least in the ordinary case, based on the informed judgment of a judicial officer and not on the whims or determinations of law enforcement officers.<sup>163</sup> To assume “that evidence sufficient to support a magistrate’s disinterested determination to issue a warrant will justify the officers in making a search without a warrant would reduce the Amendment to a nullity and leave the people’s homes secure only in the discretion of police officers.”<sup>164</sup>

Thus, under the warrant preference approach, officers seeking to engage in Fourth Amendment searches or seizures must be able to demonstrate to a magistrate, in advance, evidence that would lead a person of reasonable caution to conclude that evidence of crime, or contraband items, will be discovered in the place (or on the person) to be searched.<sup>165</sup> This is one approach a court might take in deciding whether to allow the use of CCTs in an individual circumstance.

Not surprisingly, given the nature of the test, the warrant preference will do little to prevent the utilization of Brain Fingerprinting or other CCTs if officers can demonstrate that admissible evidence will be discovered as a result. In fact, there is nothing about the warrant preference test that would be especially responsive to CCTs. Instead, the use of CCTs would be treated like any other search, and the only impediment to the invasion of the mind of a suspect is the government’s ability to demonstrate a “fair probability”<sup>166</sup> that legitimate evidentiary targets will be hit. To make matters worse, according to a recent D.C. Circuit decision, there is nothing to prevent the same argument from being used to secure judicial approval to invade the mind of a non-suspect, so long as the evidence officers possess is relevant to a prosecutable offense and the investigating agent can demonstrate a likelihood of its discovery.<sup>167</sup>

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163. *Johnson*, 333 U.S. at 14.

164. *Id.*

165. *Carroll v. United States*, 267 U.S. 132, 162 (1924). The Court in *Carroll* suggested that probable cause exists if “the facts and circumstances within [an officer’s] knowledge and of which they had reasonably trustworthy information were sufficient in themselves to warrant a man of reasonable caution in the belief that [the crime was being committed].” *Id.* “The point of the Fourth Amendment, which often is not grasped by zealous officers, is not that it denies law enforcement the support of the usual inferences which reasonable men draw from evidence. Its protection consists in requiring that those inferences be drawn by a neutral and detached magistrate instead of being judged by the officer engaged in the often competitive enterprise of ferreting out crime.” *Johnson*, 333 U.S. at 13–14. “[T]he Constitution requires ‘that the deliberate, impartial judgment of a judicial officer . . . be interposed between the citizen and the police’ . . . and that searches conducted outside the judicial process, without prior approval by judge or magistrate, are per se unreasonable under the Fourth Amendment—subject only to a few specifically established and well-delineated exceptions.” *Katz*, 389 U.S. at 357 (footnotes and citations omitted).

166. *Illinois v. Gates*, 462 U.S. 213, 238 (1983).

167. *See Johnson v. Quander*, 440 F.3d 489 (D.C. Cir. 2006), *cert. denied*, 127 S. Ct. 103 (2006).

### A. THE PUBLIC PENETRATION OF CCTs

One method employed by courts to avoid the absolutist position of the warrant preference approach, and to circumvent the associated presumption of inadmissibility applied to warrantless intrusions, is to construe a particular investigative technique as falling outside the category of conduct amounting to a search or seizure.<sup>168</sup> This determination relieves the intruding agent of the responsibility of being constitutionally justified in her conduct, and the consequences of the determination have led courts to define the terms narrowly in order to minimize the impact of the exclusionary rule.<sup>169</sup>

This decision-making technique is particularly common where evidence is collected by use of a technological sense-enhancer that allows remote surveillance.<sup>170</sup> Again, even before the constitutional reasonableness can be assessed, a court must decide whether the government's use of the sense-enhancing technology leads to the type of privacy invasion against which the Fourth Amendment protects.<sup>171</sup> In the paradigmatic case, officers occupying lawful locations employ mechanical or technological advantage to gather facts not otherwise perceivable. For

168. While it is true that the absence of physical penetration of a location was at one time thought to foreclose further Fourth Amendment inquiry, *Olmstead v. United States*, 277 U.S. 438, 466 (1928), the Court has since departed from such a narrow view now holding that what a person seeks to keep private, even in public, may be constitutionally protected. *See generally Katz*, 389 U.S. at 351. Hence, an implied analysis evolved to which the court must first determine if there was in fact a "search" or "seizure" under the Fourth Amendment and only then proceed to ask if it was constitutional or "reasonable." *See, e.g., California v. Greenwood*, 486 U.S. 35, 38 (1988) (holding that there was no search when the police examined garbage bags left on the curb); *United States v. White*, 401 U.S. 745, 749 (1971) (holding that "however strongly a defendant may trust an apparent colleague, his expectations in this respect are not protected by the Fourth Amendment when it turns out that the colleague is a government agent regularly communicating with the authorities").

169. *See White*, 401 U.S. at 753 (declaring that undercover surveillance employing remote electronic surveillance does not implicate a reasonable expectation of privacy, and thus is not a search within the meaning of the amendment, in part because of the consequential suppression of evidence that is likely to result: "[W]e [should not] be too ready to erect constitutional barriers to relevant and probative evidence which is also accurate and reliable").

170. *See, e.g., Dow Chem. Co. v. United States*, 476 U.S. 227, 239 (1986) (holding that aerial photographs taken using a "mapping camera" of petitioner's plant complex from an aircraft lawfully in public navigable airspace was not a search prohibited by the Fourth Amendment); *California v. Ciraolo*, 476 U.S. 207, 213 (1986) (holding "[t]hat the area is within the curtilage does not itself bar all police observation" within public navigable airspace); *United States v. Knotts*, 460 U.S. 276, 282 (1983) ("Nothing in the Fourth Amendment prohibited the police from augmenting the sensory faculties bestowed upon them at birth with such enhancement as science and technology afforded them in this case.").

171. However, in *United States v. White*, the Court stated:

Our problem is not what the privacy expectations of particular defendants in particular situations may be or the extent to which they may in fact have relied on the discretion of their companions. . . . Our problem, in terms of the principles announced in *Katz*, is what expectations of privacy are constitutionally 'justifiable'—what expectations the Fourth Amendment will protect in the absence of a warrant.

401 U.S. 745, 751–52 (1971).

example, in *Florida v. Riley*, law enforcement officers used low altitude fly-overs to detect marijuana growing operations within the otherwise protected curtilage of a suspect's home.<sup>172</sup> After executing a search of the property and seizing the plants, officers offered them into evidence in Riley's prosecution.<sup>173</sup>

The defendant challenged admission of this evidence as being the product of a warrantless search in violation of the Fourth Amendment.<sup>174</sup> In upholding the warrantless use of the aircraft for visual inspection, the Supreme Court emphasized that Riley had not taken adequate precautions to protect his backyard from aerial surveillance.<sup>175</sup> Even though his garden was not visible from the ground,<sup>176</sup> and though it would have required a physical trespass by the officers to be discovered,<sup>177</sup> the fact that the officers could see the plants while lawfully occupying public airspace was determinative.<sup>178</sup> So long as he left his activities open for observation to anyone who decided to fly over his property, and so long as the officers were in lawful overflight, Riley would be construed to have knowingly exposed his activities and surrendered any expectation of privacy he may have once had.<sup>179</sup>

The Court had already determined that aerial surveillance from a fixed-wing aircraft flying in legally navigable airspace is not equivalent to a search and therefore need not be conducted pursuant to a judicial warrant.<sup>180</sup> In *Dow Chemical Co. v. United States*,<sup>181</sup> Dow challenged the Environmental Protection Agency's (EPA) warrantless use of an aerial camera to take surveillance photos during a fly-over of Dow's facility as part of an EPA enforcement action.<sup>182</sup> The facility was photographed from altitudes as low as 1,200 feet, and the camera used was a high resolution type normally used for making detailed maps.<sup>183</sup> In spite of Dow's "elaborate security around the perimeter of the complex barring

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172. 488 U.S. 445, 448, 450 (1989).

173. *Id.* at 448-49.

174. *Id.* at 449.

175. *Id.* at 450 ("Because the sides and roof of [Riley's] greenhouse were left partially open, however, what was growing in the greenhouse was subject to viewing from the air [and thus] Riley could not reasonably have expected the contents of his greenhouse to be immune from examination.").

176. *Id.* at 448.

177. *See id.* Physical trespass would have been required to discover the contents of the garden because the investigating officer could not see the contents of the greenhouse from the road. *Id.*

178. *Id.* at 450.

179. *Id.* at 450-51.

180. *See California v. Ciraolo*, 476 U.S. 207, 215 (1986) (holding that naked-eye aerial observation from an altitude of one thousand feet of a backyard within the curtilage of a home does not constitute a search under the Fourth Amendment).

181. 476 U.S. 227 (1986).

182. *Id.* at 229-30.

183. *Id.* at 229.

ground-level public views,”<sup>184</sup> the company’s failure to obscure the plant from overhead surveillance deprived it of constitutional protection.<sup>185</sup> Because “any person with an airplane and an aerial camera could readily duplicate” the photos, their collection did not constitute a search.<sup>186</sup> Implied in this decision is an assumption that some private parties do in fact have access to both airplanes and high resolution aerial mapping cameras.

Building on these aerial surveillance cases, the Court’s 2001 decision in *Kyllo v. United States*<sup>187</sup> articulates with greater clarity the principles on which previous technology or remote surveillance decisions appear to be based. Writing for the Court, Justice Scalia determined that the Fourth Amendment is not offended if law enforcement officers collect evidence of criminal activity by use of technology that is available to the general public, even if that observation is made without prior judicial approval.<sup>188</sup> The reasoning behind this conclusion is that the Fourth Amendment, when called on to respond to search techniques that did not exist at the time of the framing of the Amendment, should nevertheless be interpreted to provide that level of protection from official invasion which the founders would have enjoyed.<sup>189</sup> In implementing this operational inquiry, a court must inquire whether the challenged search is sufficiently like the searches which motivated the drafting of the Fourth Amendment to merit equivalent treatment.<sup>190</sup> Most importantly, for purposes of determining which technological advantages the government may permissibly employ, the Court emphasized that we can only expect that level of protection from the government’s gaze as we can expect from our neighbors’.<sup>191</sup>

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184. *Id.*

185. *Id.* at 230 (“Dow indeed had a subjective expectation of privacy in certain areas from *ground-level* intrusions, but the court was not persuaded that Dow had a subjective expectation of being free from *aerial* surveillance since Dow had taken no precautions against such observations, in contrast to its elaborate ground level precautions.”); *see also id.* at 237 n.4 (“If elaborate and expensive measures for ground security show that Dow has an actual expectation of privacy in ground security, as Dow argues, then taking *no* measure for aerial security should say something about its actual privacy expectation in being free from aerial observation.” (quoting *Dow Chem. Co. v. United States*, 749 F.2d 307, 312 (6th Cir. 1984))).

186. *Id.* at 231.

187. 533 U.S. 27 (2001).

188. *See id.* at 40 (“Where, as here, the Government uses a device that is not in general public use, to explore details of the home that would previously have been unknowable without physical intrusion, the surveillance is a ‘search’ and is presumptively unreasonable without a warrant.”).

189. *Id.* at 34.

190. *Id.* at 40 (“The Fourth Amendment is to be construed in the light which was deemed an unreasonable search and seizure when it was adopted, and in a manner which will conserve public interest as well as the interests and rights of individual citizens.” (quoting *Carroll v. United States*, 267 U.S. 132, 149 (1925))).

191. *See id.* at 35 n.2. (rejecting the dissent’s comparison of the thermal imaging to various circumstances in which outside observers might be able to perceive, without technology, the heat of

This means, according to *Kyllo's* technology-centered approach, that we have no expectation of privacy in expression or behavior that could be observed or recorded using devices that are generally available.<sup>192</sup> The airplane and the binoculars at issue in *Florida v. Riley* fit this description. The long-range camera used in *Dow Chemical*, even though somewhat specialized for commercial photography, fit this description. Presumably, the wireless scanning device you can buy from a local electronics store means that the cordless telephone conversations it can monitor are no longer entitled to an expectation that the uninvited ear will be excluded. It also meant that, in the actual case, Mr. *Kyllo* possessed an expectation of privacy in the waste heat that emanated from his home because thermal imaging devices were not at that time available to or used by members of his community.<sup>193</sup>

The pivotal question, according to *Kyllo*, in deciding what sort of warrantless, technology-enhanced evidence collecting techniques will be permissible under the Fourth Amendment is the extent to which the public can or does make use of the same devices.<sup>194</sup> Applying this to Brain Fingerprinting and current CCTs, there is no question that warrantless use of these devices to collect brain scans is not now in the offing. The size and price of the MRI and EEG machines necessary to collect such data are prohibitive of public access. However, only a short memory is required to recall the time when cell phones, and even personal computers, were likewise room-sized machines unavailable to the public, and there is no reason to assume that CCT technology will not also decrease in both size and expense. This is particularly true if the law operates in such a way as to create and enhance the commercial market for such technologies.<sup>195</sup> In the yet-far-off age when CCT is accessible to

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the home—for example, by observing snowmelt on the roof, the majority stated: “The fact that equivalent information could sometimes be obtained by other means does not make lawful the use of means that violate the Fourth Amendment”).

192. *Id.* at 34 (“We think that obtaining by sense-enhancing technology any information regarding the interior of the home that could not otherwise have been obtained without physical ‘intrusion into a constitutionally protected area,’ constitutes a search—at least where (as here) the technology in question is not in general public use.” (quoting *Silverman v. United States*, 365 U.S. 505, 512 (1961))).

193. *Id.* at 40.

194. The Court has sent ambiguous signals as to which type of public use, actual or simply potential, matters most for these purposes. In fact, in *Florida v. Riley*, this question fractured what would otherwise have been a majority opinion. 488 U.S. 445, 455 (1989) (O’Connor, J., concurring in the judgement).

195. This market participatory feature of constitutionally-based law enforcement regulation has been demonstrated with myriad other technologies, ranging from non-lethal weaponry to pilot-less drone aircraft to camera-equipped robotics. See, e.g., U.S. DEP’T OF JUSTICE, GUIDE TO THE TECHNOLOGIES OF CONCEALED WEAPON AND CONTRABAND IMAGING AND DETECTION (2001), available at <http://www.ncjrs.gov/pdffiles1/nij/184432.pdf>; U.S. DEP’T OF JUSTICE, NONLETHAL WEAPONS AND EQUIPMENT REVIEW: A RESEARCH GUIDE FOR CIVIL LAW ENFORCEMENT AND CORRECTIONS (2004), available at <http://www.ncjrs.gov/pdffiles1/nij/205293.pdf>; U.S. DEP’T OF JUSTICE, VIDEO SURVEILLANCE EQUIPMENT SELECTION AND APPLICATION GUIDE (1999), available at

the civilian community, *Kyllo's* approach to regulating the use of technology against the public without judicial approval will provide no obstacle to the official invasion of our mental spaces.

This is precisely the problem, or at least a problem, with *Kyllo's* emphasis on the availability of the challenged technology and its minimization of the nature of the intrusion in the Fourth Amendment analysis. It converts what should be a normative inquiry into the proper relationship between individual freedom and government authority into a descriptive exercise in which the Court is allowed to take "judicial notice" of, if not actually define by reference to unstated assumptions, the prevalence of public use of a particular device. This is not to suggest that the legitimate boundaries of our right to an autonomous personal existence cannot be informed by reference to public rather than governmental behaviors and interests, for these matters should be a part of the assessment. But the way in which *Kyllo* forces us to think about the role of our neighbors in interpreting the Fourth Amendment leaves this constitutional provision with no firm or absolute meaning. According to such an interpretation, there is no floor beneath which private protection from government intrusion cannot sink.

There are, of course, theoretical and practical limitations constraining the scientific development of new means of technological intrusion, but to rely on these constraints as the bulwark against erosion of the rights protected by the Fourth Amendment inverts the proper relationship between a constitution and the society it organizes. Instead of deriving its meaning solely by reference to what private citizens may do to invade each other's rightful zone of exclusion, a principled interpretation of the Amendment would begin by asking what basic behaviors are inconsistent or incompatible with the standards around which our society is organized. Essentially, *Kyllo* allows law enforcement regulation to turn on the inherently shifting sands of private behavior, since there need be no normative justification for the private uses of technology that then provide permission for official exploitation of the same technique. Absent from *Kyllo's* test is any inquiry into the moral or ethical acceptability of using thermal imagers (for example) to spy on one's neighbors. Regardless of whether the public possesses thermal imagers, we might say that it is not morally appropriate to covertly use them on other people without consent.

There may be yet another way in which *Kyllo* can be used to create an opportunity for official exploitation of CCTs, even before such technology permeates the public. *Kyllo's* public use approach is theoretically founded on the doctrine of "knowing exposure."<sup>196</sup> Going

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<http://www.ncjrs.gov/pdffiles1/nij/179545.pdf>.

196. *Katz v. United States*, 389 U.S. 347, 351 (1967) ("What a person knowingly exposes to the

back to the decision in *Katz*, the Court distinguished Mr. Katz's conversation, which was meant to be and entitled to remain private, from that behavior which may be knowingly exposed to and perceived by others, which by contrast carries with it no privacy expectation.<sup>197</sup> Under *Kyllo's* approach, the level of public availability of a technological device is a guide to determining whether or not we have, routinely, knowingly exposed our otherwise private affairs to observers who possess such a device. This blind spot in the *Kyllo* opinion has implications for technologies that we are routinely exposed to, even if the exposure is due to official and institutional, rather than private and individual, surveillance behavior.

For example, many municipalities have installed a vast array of closed circuit video monitors to record activity taking place in public places.<sup>198</sup> These monitors are operating around the clock, and are capable of capturing higher resolution images over far greater distances than is the human eye.<sup>199</sup> When these monitors are used, intentionally or inadvertently, to record human behavior, the Fourth Amendment would be of no avail to a suspect seeking to challenge the admission of that evidence.<sup>200</sup> On a very simple level, activity that takes place in public is

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public, even in his own home or office, is not a subject of Fourth Amendment protection. But what he seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected." (citations omitted)).

197. *Id.* at 352. The Court makes the distinction that Katz did not knowingly expose his conversation to the public, but actually sought to exclude the "uninvited ear" when he entered the public telephone booth. *Id.* The Court specifically stated that in regards to telephone booths: "One who occupies it, shuts the door behind him, and pays the toll that permits him to place a call is surely entitled to assume that the words he utters into the mouthpiece will not be broadcasted to the world." *Id.*

198. The International Association of Chiefs of Police (IACP) surveyed law enforcement agencies across the United States to ascertain current applications of CCTV/video cameras and assess its impact in the field. LAURA J. NICHOLS, CUTTING EDGE OF TECHNOLOGY: THE USE OF CCTV/VIDEO CAMERAS IN LAW ENFORCEMENT, INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE EXECUTIVE BRIEF 3 (Mar. 2001), available at <http://www.theiacp.org/research/CuttingEdge/UseofCCTVExecBrief.pdf>. Eighty percent of agencies that responded to the IACP survey utilized CCTV, while half of the remaining 20% anticipated using it in the future. *Id.* at 4. Sixty-six percent of respondents have utilized CCTV for more than five years. *Id.* at 5. The most frequent CCTV applications in law enforcement are in cars, interrogation rooms, and government buildings; other uses include in high crime areas, courtrooms, schools, parks, public housing, and at special events. *Id.* at 5.

199. For example, more than 150,000 closed-circuit television cameras monitor public areas in Britain, each equipped with a powerful zoom lens, which can read the wording on a cigarette packet at one hundred yards and can track individuals wherever they go—even into buildings. David Banisar, *Big Brother Goes High Tech*, COVERT ACTION Q., Spring 1996, at 6. Use of CCTV in the United States is much more recent in comparison to other countries, such as the United Kingdom, which has conducted most of the research regarding the effectiveness of CCTV applications. See MARTIN GILL & ANGELA SPRIGGS, HOME OFFICE RESEARCH, DEVELOPMENT AND STATISTICS DIRECTORATE, RESEARCH STUDY 292, ASSESSING THE IMPACT OF CCTV (Feb. 2005), available at <http://www.homeoffice.gov.uk/rds/pdfs05/hors292.pdf>; NICHOLS, *supra* note 198, at 5.

200. Of equally deep concern is the fact that, by definition, innocent or at least non-criminal behavior captured by use of these cameras will provoke absolutely no response from the law as it



not entitled to Fourth Amendment protection precisely because it has been made public, and thus has been knowingly exposed. But this is not factually true of activity that can only be observed because of the technological sophistication of these high-resolution digital cameras; this conduct does not truly take place in public, nor is it routinely observable by members of the community. Instead, such conduct is *constructively* public, and the logic of the construction flows from the ubiquity of the cameras themselves. The basis of the legal fiction, that this manner of observing otherwise private conduct is not a search, is that all members of society are now well aware of the presence of these cameras, and are or should be sufficiently conditioned to their presence that we are presumed to have weighed that surveillance factor in our consideration of how to behave in a monitored and recordable context.<sup>201</sup> The fiction turns baseless when we realize that society is not, generally, aware of either the ubiquity nor the powerful capacity of these surveillance devices.<sup>202</sup>

In July 2001, the Tampa, Florida, Police Department began monitoring Ybor City, a nightlife district, using advanced video technology that contains a facial recognition system with the purpose of identifying persons who are potentially wanted by police.<sup>203</sup> The facial recognition system uses proprietary design technology to scan human faces and identify matches with existing police records, and then generates alerts to authorities based on the strength of the match.<sup>204</sup> This

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presently operates. My current focus on the Fourth Amendment is not meant to suggest that all that is really at stake in these contexts is the rights of criminal actors to preserve illicit secrets, but rather reflects the recognition that the Fourth Amendment is the primary vehicle for defining the law-abiding public's right to be free from unwanted government intrusion. In such a regime, the vindication of the constitutional rights of suspects protects the rights of the innocent because "[n]othing can destroy a government more quickly than its failure to observe its own laws, or worse, its disregard of the charter of its own existence." *Mapp v. Ohio*, 367 U.S. 643, 659 (1961); *see also Olmstead v. United States*, 277 U.S. 438, 485 (1928) (Brandeis, J., dissenting) ("If the government becomes a lawbreaker, it breeds contempt for law; it invites every man to become a law unto himself; it invites anarchy.").

201. Similarly, courts have applied such an assumption of risk analysis upon joint occupants of a residence thereby holding that when one occupant has voluntarily consented to a search it is valid against the co-occupant, which then permits the government to use the evidence discovered in the search against the co-occupant in a criminal trial. *United States v. Matlock*, 415 U.S. 164, 170 (1974) (holding that shared tenancy is understood to include an "assumption of risk," on which police officers are entitled to rely); *see also Frazier v. Cupp*, 394 U.S. 731 (1969) (holding that by allowing his cousin the use of a duffel bag, and by leaving the bag in his cousin's house, Frazier was held to have assumed the risk that his cousin would allow someone else to look inside the bag).

202. *See, e.g., JERRY RATCLIFFE, U.S. DEP'T OF JUSTICE, RESPONSE GUIDES SERIES NO. 4, VIDEO SURVEILLANCE OF PUBLIC PLACES 8-9* (Feb. 2006), available at <http://www.cops.usdoj.gov/mime/open.pdf?Item=1693>.

203. Andrew E. Taslitz, *The Fourth Amendment in the Twenty-First Century: Technology, Privacy, and Human Emotions*, LAW & CONTEMP. PROBS., Spring 2002, at 125.

204. *See id.* As the camera scans the crowd, the computer software searches the database to match faces to wanted criminals. *Id.* Images that do not produce a match are discarded, while those that do produce a match are reviewed by the system operator to "determine whether there was enough of a

monitoring system is privately operated under contract with the city, and is uniformly applied to all people appearing in the targeted locations, without any prior basis of suspicion.<sup>205</sup> Disclaimer signs inform individuals that they are being monitored by “smart CCTV,” but these seem to provide little by way of actual notice.<sup>206</sup> Similarly, the 2001 Super Bowl was blanketed by digital surveillance cameras linked to the FaceIt facial recognition system in an effort to deter and detect public lawlessness that had marred competitions in previous years.<sup>207</sup> Neither of these uses, in particular, seem particularly objectionable on their face, and it is precisely their palatability that will lead to their introduction into a wider variety of contexts.

There is nothing inherently different about CCTs that would prevent their similar usage. If we think forward to the day when CCTs are capable of detecting legally relevant brain activity from a distance, one can imagine the utility of installing a similar web of CCT receivers in public spaces and randomly monitoring the thoughts of people who happen to be milling about.<sup>208</sup> When the individual is located whose brain scans are consistent with a present intention to rob the corner bank, for example, authorities may be alerted prior to commission of the crime, just as they are currently alerted to the presence of a wanted party by the use of FaceIt technology. If that cognitive evidence is then used as a basis

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match to notify a uniformed officer to investigate and possibly make an arrest.” *Id.*

205. *Id.* The cameras do not initially seek out a specific individual; rather the system scans the entire crowd, then attempts to match those images against the database, immediately discarding those with no match. *See id.*

206. *Id.* (“Signs in the area warned passersby, ‘Smart CCTV in use,’ though most interviewed for a news story on the system did not know what the message meant.”).

207. Richard Lacayo, *Terrorizing Ourselves*, TIME, Sept. 24, 2001, at 92; *Police System Analyzed Every Face at Super Bowl*, N.Y. TIMES, Feb. 1, 2001, at A16; Louis Sahagun & Josh Meyer, *Secret Cameras Scanned Crowd at Super Bowl for Criminals; Surveillance: Faces Were Cross-Checked by New Technology in Bid to Catch Terrorists, Other Suspects. Privacy Concerns Are Raised*, L.A. TIMES, Feb. 1, 2001, at A1; Peter Slevin, *Police Video Cameras Taped Football Fans; Super Bowl Surveillance Stirs Debate*, WASH. POST, Feb. 1, 2001, at A1; *The Digital Eye Is on You*, L.A. TIMES, Aug. 13, 2001, at B10. There were hundreds of stories written about surveillance at the Super Bowl from right before the Super Bowl to eight or nine months later until the terrorist attacks of September 11, 2001, after which articles about surveillance during football’s biggest game disappeared.

208. This is precisely what some advocates of Brain Fingerprinting or cognitive forensic monitoring hope for. In fact, video cameras and other surveillance technology are viewed as creating a potential counterbalance—a kind of virtual ombudsman for society at large. *See* Adam L. Penenberg, *The New Rules of Engagement: The Surveillance Society*, WIRED, Dec. 2001, at 157, available at [http://www.wired.com/wired/archive/9.12/surveillance\\_pr.html](http://www.wired.com/wired/archive/9.12/surveillance_pr.html).2001. For example, proponents of broad electronic surveillance have cited the 1991 beating of Rodney King by Los Angeles police officers, which was caught on video, as an example of the benefits of such monitoring. *See id.* “Though the subsequent trial ended in acquittal,” advocates state that this “prove[s] the potency of videotapes as evidence.” *Id.* In fact, since the World Trade Center attacks of September 11, 2001, the usual “fractious debate between privacy hawks and security hounds” has become muted insofar as the public is willing to trade civil liberties in exchange for increased protection and surveillance capabilities. *See id.* at 157.

to intrude upon the freedom of the suspect, the Fourth Amendment should come into play.

The problem is, under the circumstances described, the Fourth Amendment inquiry will be short circuited by the fact of the CCTs' widespread and notorious usage. Just as with closed circuit camera monitoring, which may already be coupled with additional technology like FaceIt, CCTs could be used to create a pervasive web of surveillance<sup>209</sup> which, when paired with tidy little disclaimer postings such as those in Ybor City, effectively destroy our ability to expect *not* to have our thoughts constantly monitored when appearing in public places. In such a scenario, the theoretical underpinnings of *Kyllo's* technology-centered approach would allow a court to treat any subjectively private thoughts occurring in a monitored public place as constructively knowingly exposed for all to share.

#### B. PLEASE, LET'S BE REASONABLE

Should either of the foregoing approaches prove inadequate, the Fourth Amendment offers one final opportunity to vindicate the use of CCTs. Instead of insisting on a strict complex of probable cause and judicial approval, and instead of focusing on the prevalence of technology in public usage or in public places, a court considering a challenge to CCT evidence may simply ask whether it seems reasonable to allow the government to collect evidence in such a fashion.<sup>210</sup> The logic of this approach is that, because the Fourth Amendment only explicitly requires that searches and seizures be reasonable, no particular litany of conduct is *per se* necessary to insulate that conduct from constitutional challenge,<sup>211</sup> and no presumption of inadmissibility applies to warrantless

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209. Complementary strands of that web are already being deployed, sometimes in what appear to be the most benign ways. The current ubiquity of cell phones has, perhaps inadvertently, created a massive—even global—human tracking system. Researchers at MIT are developing a project that allows users to track “the flow of people around a city in real time.” *Go with the Flow: Data from Mobile-Phone Networks Can Create Maps that Show How People Are Moving Around*, *ECONOMIST TECH. Q.*, Mar. 10, 2007, at 18. “The results take the form of luminous maps adorned with moving and colour-coded arrows, dots and patches of light that indicate the speed and population density of people in the city in question, with an accuracy down to a dozen or so metres.” *Id.*

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The Fourth Amendment does not require a policeman who lacks the precise level of information necessary for probable cause to arrest to simply shrug his shoulders and allow a crime to occur or a criminal to escape. On the contrary, *Terry* recognizes that it may be the essence of good police work to adopt an intermediate response. A brief stop of a suspicious individual, in order to determine his identity or to maintain the status quo momentarily while obtaining more information, may be most reasonable in light of facts known to the officer at the time.

*Adams v. Williams*, 407 U.S. 143, 145–46 (1972) (citations omitted).

211. *New Jersey v. T.L.O.*, 469 U.S. 325, 340 (1985) (“The fundamental command of the Fourth Amendment is that searches and seizures be reasonable, and although ‘both the concept of probable cause and the requirement of a warrant bear on the reasonableness of a search, . . . in certain limited circumstances neither is required.’” (quoting *Almeida-Sanchez v. United States*, 413 U.S. 266, 277

intrusions.<sup>212</sup> According to proponents of this reasonableness approach, a court need only decide whether the government's interest in the intrusion outweighs the individual's interest in being free therefrom.<sup>213</sup> In essence, a court will weigh the official need for the search against the extent of its invasiveness, where increasing need justifies more and more personally invasive conduct.<sup>214</sup>

This "reasonableness" alternative to the traditional approach—essentially a balancing test—has its roots outside the criminal law,<sup>215</sup> and this fact is the basis of its most significant drawback as a decision-making model.<sup>216</sup> First announced as a way to mitigate the harshness of the Fourth Amendment in non-criminal contexts, the reasonableness approach was used to permit government entry into private spaces based on less than probable cause,<sup>217</sup> but the context is instructive. The entry at issue in the first reasonableness case was by municipal housing inspectors—civil agents charged with the enforcement of non-criminal housing code standards—and the question was whether these agents needed to demonstrate full-blown, individualized suspicion as would be required for a criminal investigation before they could inspect a subject housing unit.<sup>218</sup> Recognizing that application of the traditional probable cause standard would defeat the legitimate government purposes served by the housing code inspection regime,<sup>219</sup> the *Camara* Court sought to

(1973) (Powell, J., concurring))) (alteration in original).

212. *Terry v. Ohio*, 392 U.S. 1, 20 (1968) (“[W]e deal here with an entire rubric of police conduct—necessarily swift action predicated upon the on-the-spot observations of the officer on the beat—which historically has not been, and as a practical matter could not be, subjected to the warrant procedure.”).

213. *T.L.O.*, 469 U.S. at 337 (“On one side of the balance are arrayed the individual's legitimate expectations of privacy and personal security; on the other, the government's need for effective methods to deal with breaches of public order.”); *see also* *United States v. Brignoni-Ponce*, 422 U.S. 873, 883 (1975) (holding that the interference with individual liberty that results when an officer stops an automobile based on reasonable suspicion and questions its occupants is modest when balanced against the valid public interest of preventing illegal entry of aliens at the Mexican border).

214. *T.L.O.*, 469 U.S. at 341 (“Where a careful balancing of governmental and private interests suggests that the public interest is best served by a Fourth Amendment standard of reasonableness that stops short of probable cause, we have not hesitated to adopt such a standard.”).

215. The use of reasonableness as an explicit standard for resolving Fourth Amendment questions, rather than as a way to identify the range of necessary exceptions to the probable cause-based warrant, was developed as a standard for administrative, not criminal, search warrants. *See Camara v. Mun. Court*, 387 U.S. 523 (1967).

216. Academic critique of the Court's reasoning abounds. *See, e.g.*, Robert Berkley Harper, *Has the Replacement of 'Probable Cause' with 'Reasonable Suspicion' Resulted in the Creation of the Best of All Possible Worlds?*, 22 AKRON L. REV. 13, 16 (1988); Sundby, *supra* note 7, at 398 (“The Court's basic inability to agree on when to use a reasonableness standard instead of traditional probable cause evidences its failure in defining the relationship between the warrant and reasonableness clauses.”).

217. *Camara*, 387 U.S. at 534 (disagreeing with the appellant's contention that “code enforcement inspection programs must be circumscribed by a warrant procedure, [and] . . . that warrants should issue only when the inspector possesses probable cause to believe that a particular dwelling contains violations of the minimum standards prescribed by the code being enforced”).

218. *Id.* at 538.

219. *Id.* at 535. (“The primary governmental interest at stake is to prevent even the unintentional

create a less rigorous alternative manner of mediating the relationship between the individual and the government vis-à-vis private zones of exclusion.<sup>220</sup>

Justice White's opinion for the Court in *Camara* held that, in certain *non-criminal* settings where the need for the government's action was greatly enhanced and the liberty violation of the intrusion was somewhat reduced, a lower level of justification would be required before the intrusion would be permitted.<sup>221</sup> The Court reasoned that an administrative warrant, issued pursuant to reasonable legislative or administrative standards for conducting an area search, would supplant the probable cause standard where "the burden of obtaining a warrant is likely to frustrate the government purpose behind the search."<sup>222</sup> It was also absolutely crucial to the Court's analysis that the inspectors sought entry to enforce non-criminal housing code provisions.<sup>223</sup> Under these circumstances, the individual presumably has less at stake because she is not liable to arrest and prosecution (i.e. a loss of liberty), nor is she subject to the level of stigma associated with criminality (i.e. a loss of dignity), and thus has a reduced interest to be protected against invasion.<sup>224</sup>

At its heart, *Camara* is about balancing—balancing the rights of the individual against the communal interests protected by the state. The reasonableness approach that was born of this decision by design balances the interests of the individual in being let alone, or enforcing her zone of exclusion, against the strength of the government's interest in intruding upon her peace.<sup>225</sup> The decision recognizes that, by consequence of life in a complex and heavily regulated society, there are some community standards by which we must abide and which carry associated inconveniences we must tolerate.<sup>226</sup>

Equally essential to *Camara*'s reasoning is the fact that it was a civil case.<sup>227</sup> The public welfare purpose that characterized the government's inspection program provided the inspectors with a "special need" to

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development of conditions which are hazardous to public health and safety.").

220. *Id.* at 537 ("[B]ecause the inspections are neither personal in nature nor aimed at the discovery of evidence of crime, they involve a relatively limited invasion of the urban citizen's privacy.").

221. *Id.* at 537.

222. *Id.* at 533.

223. *Id.* at 525–26. The inspection at issue was a routine annual inspection for possible violations of the city's Housing Code. *Id.* at 526.

224. *See id.* at 537–38 (stating that "because the inspections are neither personal in nature nor aimed at the discovery of evidence of crime, they involve a relatively limited invasion of the urban citizen's privacy").

225. *Id.* at 539.

226. *Id.* at 537.

227. *Id.* at 525–26.

conduct generalized searches, a special need separate and apart from the ordinary governmental interest in law enforcement.<sup>228</sup> The perceived absence of such ordinary law enforcement interests in part justified the lower level of Fourth Amendment protection provided by the Court.<sup>229</sup>

And yet it took only one year for a majority of Justices to seize on the opportunity offered by *Camara* to author an assault on previously well established Fourth Amendment principles. Almost as if the lines of *Camara* had not been penned, Chief Justice Earl Warren imported wholecloth *Camara*'s reasonableness balancing approach into the formerly-forbidden criminal context in *Terry v. Ohio*.<sup>230</sup> Seeking to strike a balance (ironically) between the need to regulate under the Constitution unpredictable, street-level encounters between a largely white police force and minority groups,<sup>231</sup> and the need to empower individual police officers to protect themselves from armed suspects,<sup>232</sup> Chief Justice Warren turned to the balancing technique of the reasonableness approach.<sup>233</sup> Now famously, the *Terry* Court declared it reasonable for an officer to conduct a brief stop and limited frisk of a suspect for weapons based on the officer's "articulable suspicion" of criminality and dangerousness,<sup>234</sup> a standard expressly less demanding than probable cause.<sup>235</sup>

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228. *Id.* at 535–37.; see also Sundby, *supra* note 7.

229. *Id.* at 530 ("Since the inspector does not ask that the property owner open his doors to a search for 'evidence of criminal action' which may be used to secure the owner's criminal conviction, historic interests of 'self-protection' jointly protected by the Fourth and Fifth Amendments are said not to be involved, but only the less intense 'right to be secure from intrusion into personal privacy.'" (quoting *Frank v. Maryland*, 359 U.S. 360, 365 (1959))).

230. See *Terry v. Ohio*, 392 U.S. 1 (1968).

231. *Id.* at 13–15 n.11. Ironically, one element the Court did not factor into its analysis, was the legitimate concerns about police prejudice toward blacks and other minorities. A 1966 study reinforced the already known and observed bias against blacks by showing that, when "[a]sked to indicate in which locations they most expected to encounter antagonistic and hostile response to them, policemen put the minority areas at the top of the list." Tracey Maclin, *Terry v. Ohio's Fourth Amendment Legacy: Black Men and Police Discretion*, 72 ST. JOHN'S L. REV. 1271, 1311–12 (1998) (quoting DAVID H. BAYLEY & HAROLD MENDELSON, *MINORITIES AND THE POLICE: CONFRONTATION IN AMERICA* 91 (1969)); see also David A. Harris, *Factors for Reasonable Suspicion: When Black and Poor Means Stopped and Frisked*, 69 IND. L.J. 659, 660 (1994) (discussing how *Terry* transformed the law and allowed for a criminal search and seizure without probable cause which resulted in increased stops based simply on "location plus evasion").

232. *Terry*, 392 U.S. at 23–24. Furthermore, relying on statistics from the Federal Bureau of Investigation, Uniform Crime Reports for the United States—1966, the Court took notice of the number of law enforcement officers who die in the line of duty and recognized that a substantial portion of those deaths are caused by handguns. *Id.* at 24 n.21. Because those weapons remain readily available to potential criminals, these statistics were perceived to be "relevant to an assessment of the [law enforcement] need for some form of self-protective search power." *Id.*

233. *Id.* at 20–21.

234. *Id.* at 27.

235. *Id.* ("Our evaluation of the proper balance that has to be struck in this type of case leads us to conclude that there must be a narrowly drawn authority to permit a reasonable search for weapons for the protection of the police officer, where he has reason to believe that he is dealing with an armed

The specific rule of the case is both well known and less important for present purposes than its rearticulation of *Camara's* balancing logic and its elevation of reasonableness as *the* method for regulating police behavior. As did Justice White when considering the interest in housing inspections, Justice Warren believed that an officer confronting a suspect he reasonably believes is presently armed and dangerous faces a security threat that raises considerations separate and apart from his obligations as a law enforcement officer.<sup>236</sup> This gives the officer an interest, in addition to the standard penological interest in preventing crime, which must be weighed against the individual's right to avoid such searches,<sup>237</sup> at least in the absence of probable cause.<sup>238</sup> Diminishing that interest is the nature of the search itself: it consists of a limited pat down of the exterior clothing for the sole and exclusive purpose of identifying weapons that could be used to harm the investigating officer on the present occasion.<sup>239</sup> Because this is not the sort of full-blown search that the Fourth Amendment could permit, as it does in a search incident to arrest for example, Chief Justice Warren saw the scales tipping in favor of the government just as they had in *Camara*, and for the same reasons.<sup>240</sup>

Since the decision in *Terry* the Court has moved with near-perfect consistency to use the reasonableness approach in an ever wider range of circumstances.<sup>241</sup> The question of whether it is reasonable to allow official application of CCTs is therefore likely to be considered if not actually answered under the rubric of reasonableness. Although it is not clear when such simple interest balancing is the proper approach,<sup>242</sup> it is at least

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and dangerous individual, regardless of whether he has probable cause to arrest the individual for a crime.”).

236. *Id.* at 26.

237. *Id.* at 26–27.

238. Indeed, the *Terry* doctrine is specifically designed for, and reflects the particular pressures upon, officers who have suspicion regarding criminal activity that falls short of probable cause and who nonetheless must be free to engage in on-the-spot inquiries to dispel that suspicion in order to protect themselves. The Court has elsewhere said that *Terry*-style balancing is inappropriate in traditional search and seizure situations where probable cause, not articulable suspicion, is the applicable standard. *See Dunaway v. New York*, 442 U.S. 200, 212 (1979) (“The narrow intrusions involved in [*Camara*, *Terry*, and their progeny] were judged by a balancing test rather than by the general principle that Fourth Amendment seizures must be supported by the ‘long-prevailing standards’ of probable cause only because these intrusions fell far short of the kind of intrusion associated with an arrest.” (citation omitted)).

239. *Terry*, 392 U.S. at 29–30.

240. *See id.* at 27. The additional extensions of *Terry*, both doing away with the express and structurally-required case-by-case nature of the rule and its further incursion into “ordinary” criminal cases, bear noting but are not analytically germane to the remainder of this discussion.

241. That is to say that, since the decision in *Ybarra v. Illinois*, 444 U.S. 85 (1979), the Court has not found a reasonableness case it didn't like. Every opinion to reach the Court has ultimately granted the government's request to proceed under a reasonableness approach rather than being held to the traditional warrant preference standard.

242. *Compare* Kenneth C. Halcom, *Illegal Predicate Searches and the Good Faith Exception*, 2007 U. ILL. L. REV. 467 (discussing situations in which the balancing approach could or should be used),

arguably more commonly invoked in situations when the government is serving some interest other than its routine executive law enforcement obligation.<sup>243</sup> If there is arguably another legitimate purpose at stake in the use of CCTs, and if the conventional approach to Fourth Amendment interpretation in fact threatens to thwart that legitimate purpose, then balancing may appear to become necessary. This is how CCTs will truly make their way into our lives, because once they carry the stamp of reasonableness, they will become a part of the social and jurisprudential landscape.

The argument on this admissibility question would be fascinating. Lawyers for the government will trot out a series of unquestionable but unprovable claims about how the information they seek to extract (or already extracted) from suspect X, using CCTs, was a part of an ongoing terrorism investigation. The executive contends that terrorism is a special case, separate and perhaps more compelling than “ordinary” criminality and presents the necessary “special need,” and none can (or dare) question the government’s interest in its prevention. The lawyer would then describe for the court that the suspect simply had to wear a light crown of electrodes for a few minutes and look at a few pictures while test administrators collected data. The lawyer would describe how the suspect felt nothing, much less pain, and didn’t even have to speak for the investigator to get what she wanted. Weigh this interest against the nature of the intrusion. Reasonable?

The suspect, on the other hand, cannot describe the nature of the intrusion. He denies the allegations or any involvement in terrorism, but he cannot know what the operators of the CCT saw in his head. No one could know what their brain is doing, what areas are firing or how fast, as they are asked a question. However, the CCT device knows, and it gives the operator informational power over the suspect. The experience gives little physical sensation, and the feeling of being robbed of your thoughts is difficult to convey. Weigh this intrusion against the government’s interest. Still reasonable?

The key is that it is *debatable*. The answer to this debate will change with political influence and the nature of the public’s most recent fear or obsession, but this is unacceptable. It is here where the law must be

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and Nadine Strossen, *The Fourth Amendment in the Balance: Accurately Setting the Scales Through the Least Intrusive Alternative Analysis*, 63 N.Y.U. L. REV. 1173 (1988) (criticizing the use of this balancing test in principle due to its inherent subjectivity, its tendency to deprive constitutional rights of the special protection they deserve, and the likelihood that the test will produce inconsistent results), with Amitai Etzioni, *You’ll Love Those National ID Cards*, CHRISTIAN SCI. MONITOR, Jan. 14, 2002, at 11 (applying a balancing approach and concluding that the USA PATRIOT Act is a reasonable protection of security and contending that these measures will promote public safety and reduce the risk of future terrorist acts).

243. See, e.g., *Camara v. Mun. Court*, 387 U.S. 523 (1967).



absolute, must be resolute, and must not offer up for debate the alienability of our inalienable rights. The reasonableness approach is jurisprudentially challenging because, as intuitive as balancing seems, it offers an addictive way to avoid answering the difficult questions about the Fourth Amendment. It is, for these reasons, a very poor vehicle for limiting the spread and abuse of CCTs.

#### IV. SALVATION THROUGH INTERPRETATION

If the problem sketched above is that the Fourth Amendment as we know it has spawned doctrines that are incapable of protecting us from being undone by CCTs, then there seem to be only two choices. One is to learn to live with CCTs. We could eventually convince ourselves that CCTs are for the greater good. We could be like Winston Smith in *1984*<sup>244</sup> and find a glint of love and happiness amidst Big Brother's web of omnipotent surveillance.<sup>245</sup> But after all, given what losing the sanctity of our mind and our right to be alone with our thoughts will cost, I suspect we will also end up just as Orwell's tragic hero ultimately did: pummeled and tortured and alone, cut off from what we knew and what we once loved.<sup>246</sup>

A rosier option is simply to reinterpret the Fourth Amendment, and to reinvigorate it with a newly understood complement of fundamental principles. Great minds have complained that the Fourth Amendment is unprincipled<sup>247</sup> and unbalanced,<sup>248</sup> but that is because the courts have

244. GEORGE ORWELL, *1984* (New Am. Library 1961) (1949).

245. *Id.* at 137. In contemplating their inevitable discovery, capture, and reprogramming by Big Brother for their love affair, Winston responds to Julie's capitulation to confession under torture: "I don't mean confessing. Confession is not betrayal. What you say or do doesn't matter; only feelings matter. If they could make me stop loving you—that would be the real betrayal."

246. *Id.* at 240. After his relentless torture and mental reprogramming to compel him to follow the ways of Big Brother, Winston Smith, meets again his former lover, Julia:

"I betrayed you," she said baldly.

"I betrayed you," he said.

"Sometimes," she said, "they threaten you with something-something you can't stand up to, can't even think about. And then you say, 'Don't do it to me, do it to somebody else, do it to so-and-so.' And perhaps you might pretend, afterwards, that it was only a trick and that you just said it to make them stop and didn't really mean it. But that isn't true. At the time when it happens you do mean it. You think there's no other way of saving yourself and you're quite ready to save yourself that way. You *want* it to happen to the other person. You don't give a damn what they suffer. All you care about is yourself."

"All you care about is yourself," he echoed. . . .

"And after that, you don't feel the same toward the other person any longer."

*Id.*

247. See generally Akhil Reed Amar, *Fourth Amendment First Principles*, 107 HARV. L. REV. 757 (1996); Craig M. Bradley, *Two Models of the Fourth Amendment*, 83 MICH. L. REV. 1468 (1985); Brian J. Serr, *Great Expectations of Privacy: A New Model for Fourth Amendment Protection*, 73 MINN. L. REV. 583 (1989); "Special Needs" and the Fourth Amendment: *An Exception Poised to Swallow the Warrant Preference Rule*, 32 HARV. C.R.-C.L. L. REV. 529 (1997); David E. Steinberg, *Restoring the Fourth Amendment: The Original Understanding Revisited*, 33 HASTINGS CONST. L. Q. 47 (2005);

been struggling to come to terms with a privacy norm they ultimately cannot believe in.<sup>249</sup> I suggest that there are two complementary methods<sup>250</sup> for interpreting the Constitution, and thus the Fourth Amendment, that could offer broad resolution of this interpretive dilemma and which I use to support the nomination of a new Fourth Amendment norm that I have dubbed “informational property.”<sup>251</sup>

#### A. INTRATEXTUALISM

Prior to seeking meaning in the text and context of the Fourth Amendment, or any other constitutional provision, it is necessary to select a method for conducting the search.<sup>252</sup> The selection of one or more complementary methods provides a starting point in the interpretive process, and allows one to proceed from the initial constitutional premise to a concrete operational legal principle.<sup>253</sup> Of course, the selection of method will also have consequences for the product of the analysis, and therefore deserves separate scrutiny.<sup>254</sup>

Intratextualism is a mode of constitutional interpretation that derives meaning from the text by reading “a word or phrase in a given clause by self-consciously comparing and contrasting it to identical or

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Sundby, *supra* note 7.

248. See generally Kendra H. Chilcoat, *The Automobile Exception Swallows the Rule: Florida v. White*, 90 J. CRIM. L. & CRIMINOLOGY 917, 947 (2000); Frank R. Cooper, *The Un-Balanced Fourth Amendment: A Cultural Study of the Drug War, Racial Profiling and Arvizu*, 47 VILL. L. REV. 851 (2002).

249. See generally Melissa Arbus, *A Legal U-Turn: The Rehnquist Court Changes Direction and Steers Back to the Privacy Norms of the Warren Era*, 89 VA. L. REV. 1729 (2003); Marc J. Blitz, *Video Surveillance and the Constitution of Public Space: Fitting the Fourth Amendment to a World That Tracks Image and Identity*, 82 TEX. L. REV. 1349 (2004); Lawrence Friedman, *Establishing Information Privacy Violations: The New York Experience*, 31 HOFSTRA L. REV. 651 (2003); Alan K. Ku, *Talk Is Cheap, but a Picture Is Worth a Thousand Words: Privacy Rights in the Era of Camera Phone Technology*, 45 SANTA CLARA L. REV. 679 (2005).

250. Those being intratextualism and organism-perpetuating constitutional consistency.

251. This theory of the Fourth Amendment will be developed in a forthcoming article, but the basic contours necessary for present purposes involve a recognition of the primacy of information in gauging the individual interests protected by the Fourth Amendment, and a grounding of that perceived interest in notions of property entitlement.

252. Richard H. Fallon Jr., *A Constructivist Coherence Theory of Constitutional Interpretation*, 100 HARV. L. REV. 1189, 1232 (1987) [hereinafter, Fallon, *Constitutional Interpretation*]; Richard H. Fallon, Jr., *How to Choose a Constitutional Theory*, 87 CAL. L. REV. 535, 538–39 (1999); Vicki C. Jackson, *Constitutions as “Living Trees”?: Comparative Constitutional Law and Interpretive Metaphors*, 75 FORDHAM L. REV. 921, 925–26 (2006).

253. David Chang, *Selling the Market-Driven Message: Commercial Television, Consumer Sovereignty, and the First Amendment*, 85 MINN. L. REV. 451, 493–94 (2000); Frederick Schauer, *The Occasions of Constitutional Interpretation*, 72 B.U. L. REV. 729, 730 (1992).

254. See Michael C. Dorf, *Create Your Own Constitutional Theory*, 87 CAL. L. REV. 593, 594 (1999); Fallon, *Constitutional Interpretation*, *supra* note 252, at 562; William C. Porth & Robert P. George, *Trimming the Ivy: A Bicentennial Re-Examination of the Establishment Clause*, 90 W. VA. L. REV. 109, 120 (1987).

similar words or phrases elsewhere in the Constitution.”<sup>255</sup> As Professor Akhil Amar describes in his article *Intratextualism*, the intratextualist “interpreter tries to read a contested word or phrase that appears in the Constitution in light of another passage in the Constitution featuring the same (or a very similar) word or phrase.”<sup>256</sup> The basic premise on which intratextualism proceeds is that similarity in the founders’ word choice reflects similarity in the intended meaning of linguistically comparable provisions.<sup>257</sup>

Professor Amar identifies three different species of intratextualist models,<sup>258</sup> and describes them as working on increasing levels of abstraction. The most straightforward type of intratextualism treats the Constitution as a whole as a multivolume dictionary.<sup>259</sup> What Amar calls Intratextualism as Philology simply allows interpreters to look to the meaning given to the ambiguous language when used in other sections of the Constitution, and prefers the contextualized meaning of constitutional phrases over the discrete ordinary meaning of individual words.<sup>260</sup> A slightly more nuanced form of intratextualism, Intratextualism as Pattern Recognition,<sup>261</sup> uses the recurrence of identical or similar language as indicative of “a much deeper thematic connection, a sympathetic vibration evidencing a rich harmony at work.”<sup>262</sup> By “encouraging us to place nonadjoining clauses alongside each other for analysis because they use the same (or very similar) words and phrases . . . we may see important patterns” revealed in the constitutional structure which will ultimately illuminate ambiguous language.<sup>263</sup> Amar’s third intratextual model looks not just at specific words but at recurrent phrasing and assumes that the recurrence of the phrases signals the coextensiveness of the commands.<sup>264</sup> When two similarly-phrased constitutional provisions are involved, they are to be read “in *pari materia*.”<sup>265</sup> “The key to this brand of intratextualism is interpolation: we read the [comparable] commands *as if* a metacommand clause existed telling us to construe parallel commands in parallel fashion.”<sup>266</sup>

It is also important to understand what intratextualism is not. Amar is explicitly seeking to complement the existing panoply of interpretative

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255. Akhil Reed Amar, *Intratextualism*, 112 HARV. L. REV. 747, 748 (1999).

256. *Id.*

257. *See id.*

258. *Id.* at 791.

259. *Id.*

260. *Id.*

261. *Id.* at 792.

262. *Id.* at 793.

263. *Id.*

264. *Id.* at 794–95.

265. *Id.* at 794.

266. *Id.* at 795.

techniques with intratextualism as a way to honor the text as a holistic endeavor.<sup>267</sup> Intratextualism is to be used alongside familiar “clause-bound,” historical, structural, pragmatic, process-based, and ideological methods.<sup>268</sup> In particular, Amar sees important similarities and differences between his intratextualist theory and Professor Charles Black’s structuralist method of constitutional interpretation.<sup>269</sup> While both recognize the importance of the “larger constitutional patterns at work” in the Constitution as guides to determining its meaning,<sup>270</sup> structuralism interprets language through the lens of the interrelated formal government structures created by the text, while intratextualism focuses on the interrelationships within the text itself.<sup>271</sup>

Less explicitly but certainly by virtue of his theoretical reach, Amar is contending against several modes of constitutional interpretation other than those he lists. He is not arguing in favor of basic interpretive holism,<sup>272</sup> which simply suggests that we read the document as a whole and seek to discover how the various provisions fit together.<sup>273</sup> Amar is a holist, but more of a textual holist, seeking to find the “fit” through language specifically. Amar is also not advocating what Professor Vicki Jackson is calling Holistic Interpretation<sup>274</sup> (although he would not likely disagree fundamentally with the derivation of her model). Jackson’s version of holistic interpretation seeks to preserve the link between old provisions of the text and more recent interpretations of and amendments to its meaning.<sup>275</sup> In particular, Jackson adds to Amar’s intratextualist approach by allowing temporally disjointed provisions to

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267. *Id.* at 790.

268. *Id.*

269. *Id.*

270. *Id.*

271. *Id.* at 790–91.

272. See, e.g., Scott Brewer, *Figuring the Law: Holism and Topological Inference in Legal Interpretation*, 97 *YALE L.J.* 823, 836 (1988); Michael C. Dorf, *Interpretive Holism and the Structural Method, or How Charles Black Might Have Thought About Campaign Finance Reform and Congressional Timidity*, 92 *GEO. L.J.* 833, 835 (2004); Cass R. Sunstein & Adrian Vermeule, *Interpretation and Institutions*, 101 *MICH. L. REV.* 885, 885 (2003); Adrian Vermeule & Ernest A. Young, *Hercules, Herbert, and Amar: The Trouble with Intratextualism*, 113 *HARV. L. REV.* 730, 730 (2000).

273. Holism is “an approach that seeks to take into account the basic structure and values of the Constitution in the interpretation of all of its provisions . . . and it reflects in its understanding of ‘basic’ values those values that are implicit in later enacted amendments and, where they are in conflict with earlier values, to give weight to the later-enacted amendments within the traditions of the interpretive discourse.” Vicki C. Jackson, *Holistic Interpretation: Fitzpatrick v. Bitzer and Our Bifurcated Constitution*, 53 *STAN. L. REV.* 1259, 1281 (2001). Another author describes “holism [a]s the belief that reality should [be] seen in terms of interacting and interdependent ‘wholes’—a living organism . . .—rather than isolated and independent parts.” Erika Luna, *Punishment Theory, Holism, and the Procedural Conception of Restorative Justice*, 2003 *UTAH L. REV.* 205, 273.

274. See Jackson, *supra* note 273, at 1281.

275. *Id.* See also Jackson, *supra* note 154, at 270.

inform one another,<sup>276</sup> and by placing priority on the more recent understandings.<sup>277</sup> Jackson's holistic interpretation is designed to be more responsive to social change and more progressive in honoring advancing notions of equality and justice than the more "traditional" or "conventional" models.<sup>278</sup> Finally, Amar is definitely not advancing the sort of "free-form" method of interpretation defended by Professors Ackerman and Golove and criticized by Professor Tribe in his article *Taking Text and Structure Seriously: Reflections on Free-Form Method in Constitutional Interpretation*.<sup>279</sup> There is no room in the intratextualist framework for interpreting constitutional sections solely by reference to the content of congressional-executive agreement.<sup>280</sup>

In fact, Amar's intratextualism may be seen to fall somewhere along a spectrum of interpretive theories that range from narrow and restrictive to broad, open-ended and even unconstrained. The spectrum may begin at one pole with clause-bound, purely textualist approaches (and a few variations on textualism such as originalism and original meaning). This blends into the "customary" approaches that alternately emphasize either historical or contemporary practices and standards as illustrative of constitutional meaning. From there, the spectrum leads to the myriad holistic approaches, from interpretive holism in general and Professor Black's more specific structuralism, to Amar's intratextualism triptych, through Jackson's holistic interpretation and, eventually on to the free-form model decried by Tribe.

From this menu of varying interpretive fare, intratextualism (and, by extension, holistic constitutional interpretation) provides a very useful model with which to begin shaping a new Fourth Amendment order. It has many of the "conservatizing"<sup>281</sup> benefits of a textualist approach, by beginning with the constitutional language, yet improves on that conventional method by leaving the language in (rather than divorcing it from) its scriptural context. An intratextualist approach may also be easily reconciled with an originalist approach, to the extent that the

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276. See Jackson, *supra* note 273, at 1284–85.

277. *Id.* at 1289–90.

278. Jackson, *supra* note 154, at 278.

279. 108 HARV. L. REV. 1221, 1279–80 (1995) ("Professor Ackerman's general theory is that even constitutional amendment is possible through informal means of higher lawmaking by what he would describe as 'the People.' Under such a theory, the constraining power of text and structure is eroded almost to the vanishing point.").

280. See *id.* at 1278–79.

281. Textualism "focuses . . . on the words Congress has enacted, relying on ordinary usage, dictionary definitions, canons of construction, and harmonization with similar language in other laws or in other provisions of the same statute." James J. Brudney, *Recalibrating Federal Judicial Independence*, 64 OHIO ST. L.J. 149, 175 (2003). "[I]nterpretation should focus 'upon what the text would reasonably be understood to mean, rather than upon what it was intended to mean.'" Caleb Nelson, *What is Textualism?*, 91 VA. L. REV. 347, 352 (2005) (quoting Antonin Scalia, *Response*, in A MATTER OF INTERPRETATION: FEDERAL COURTS AND THE LAW 129, 144 (Amy Gutman ed. 1997)).

various provisions that must be used to inform each other in an intratextualist model can be individually subjected to an analysis that begins with original meaning of language.

This should not be read to suggest that intratextualism can be classified together with these inherently retrospective interpretive techniques. Because the very essence of intratextualism is a commitment to construing a given constitutional provision in harmony with other provisions that may be germane to the same matter,<sup>282</sup> it leads to a more expansive range of potential answers to the analytical question than would either textualism or originalism.<sup>283</sup> Whether history and traditional practices, or rather contemporary social customs and evolving social mores are to guide our thinking on constitutional questions is not a matter answered by intratextualism.<sup>284</sup> Instead, as is arguably proper, a legal consideration of the interpretive question may make use of what data seems most relevant and instructive given the specifics of the matter without complicating the holistic interpretive mode. Holistic constitutional interpretation forces those who would articulate a meaning for an ambiguous provision to contend with the legal and social developmental forces that have shaped the meaning given to other relevant portions of the Constitution. Meaning derived by an expanded intratextualist approach is therefore not rooted in the past, but rather leaves room for change and revision with the passage of time because of the perceived interdependent nature of the various constitutional provisions.

A holistic intratextual interpretation of the Fourth Amendment, in the face of the question presented by the use of CCTs, would offer several important clues to solution. In the first instance, we would have to read the specific guarantees of the Amendment in light of the overarching liberty-preserving intentions of the Bill of Rights. Given the political pressures to which the Bill of Rights was a response, intratextualist analysis suggests that the particular restrictions of the Fourth Amendment were but specific ways to preserve fundamental rights from infringement by official forces.<sup>285</sup> This provides a lens through which to view the Fourth Amendment that requires liberal construction of the freedoms preserved therein, and suggests that we must find Fourth

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282. See Amar, *supra* note 255, at 792–93.

283. See *id.* at 788–91. Here Amar states that his theory has characteristics of other preeminent theories but it combines many different aspects of those theories to create a more robust interpretive tool. *Id.*

284. See *id.* at 789 (stating that “intratextualism also seems distinct from standard forms of argument based on history and original intent”).

285. While the Bill of Rights, as passed in 1791, only applied to the federal government by its terms, the Supreme Court’s “incorporation” of (most of) the Bill of Rights into the Fourteenth Amendment’s Due Process Clause makes it unnecessary to distinguish—in a statement like this—federal from state actors.

Amendment meaning that best effectuates, rather than compromises, that robust sense of security sought by the founders. This also gives such a constructive modeling of the Amendment a firm basis in the constitutional text itself.

By virtue of the nature of the threat posed by CCTs, an intratextualist would also turn to the First Amendment for inspiration in coming to grips with Fourth Amendment meaning. To read the First and Fourth Amendments together is to integrate these two pivotal components of the larger body of reserved rights into a more informed whole. The First Amendment describes spheres of intimate cognitive and expressive activity into which the government may not intrude. Again, these are the zones of exclusion which the Constitution as a whole was designed to create, zones where the exclusion of other authority is meant to vest the occupant of the zone with discretion undiminished unless expressly done by operation of the document itself.

I would then argue that the freedom of conscience, or of consciousness, enshrined in the various clauses of the First Amendment, demands the respect and service of the Fourth Amendment. Behaviors or techniques that intrude upon our freedom of thought and freedom of belief, and upon the right to keep those thoughts and beliefs to ourselves, must be discouraged and prevented by the Fourth Amendment in order to promote First Amendment values. This is true even if the particular behavior being evaluated would not violate the applicable First Amendment test. The presence of a larger, well understood First Amendment norm toward protecting cognitive autonomy should inform the interpretive process over rote mechanical applications of specific doctrinal tests. In such an arrangement, where separate constitutional provisions are read in harmony rather than tension with one another, the interpretive process fosters a mutually reinforcing relationship between the provisions wherein neither Amendment is required to satisfy the whole of its liberty-preserving obligation single-handedly.

Finally, it would be improper to discuss a liberty-preserving effect of the Bill of Rights in its entirety, as an indicator of how we should interpret a component of the Bill, without thinking about how the Due Process Clause's specific guarantees might be instructive. For better or worse, the Court has engaged in a "gradual process of inclusion and exclusion" to determine which fundamental rights belong in the Due Process Clause envelope,<sup>286</sup> handpicking over time which of the Bill of

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286. *Duncan v. Louisiana*, 391 U.S. 145, 168 (1968) (Black, J., concurring). In *Duncan*, the Court held that due process requires the states to provide jury trial in serious criminal cases because "trial by jury in criminal cases is fundamental to the American scheme of justice." *Id.* at 148-49 (majority opinion); see also *Miranda v. Arizona*, 384 U.S. 436, 467-79 (1966) (establishing bright-line rules to guard against coerced confessions); *Mapp v. Ohio*, 367 U.S. 643, 655 (1961) (holding that fruits of unreasonable searches or seizures must be excluded at state trial); *Gideon v. Wainwright*, 372 U.S.

Rights will be included within the working definition of liberty.<sup>287</sup> Given the foregoing discussion, it is only necessary to state that, whatever this working definition of liberty might entail, the Fourth Amendment should be read in such a way as to preserve civil liberty from unjustified infringement.

Yet I have come to find it more useful to think about the place that property has in our constitutional order. On equal footing with liberty, both the Fifth and the Fourteenth Amendments protect property against due process violations, and do so in a way that is syntactically identical to liberty.<sup>288</sup> Thus, materialist critiques aside, we can fairly say that the protection of property is as important to American constitutional values as is the preservation of liberty. The intratextualist consequence of this hypothesis is that the Fourth Amendment<sup>289</sup> cannot be read in a liberty-saturated vacuum, but must also embrace originalist and contemporary understandings of the fundamental individual rights that vest on account of and through proprietary interests.

Perhaps we have been even too enamored of generalized liberty concepts when thinking about the Bill of Rights and Due Process. Perhaps the failings of the Fourth Amendment identified in this Article and by those on whose work I rely is a consequence of thinking about it only in terms of liberty—and derivative notions of penumbral privacy<sup>290</sup>—and not in the straightforward terms of property rights and interests. I contend, although I leave for another day to prove, that thinking about the Fourth Amendment in terms of property better solves the doctrinal tensions complicating the Amendment, and better solves the problem of balancing the rights of individuals against the power of government than does thinking about liberty alone. The crux of the thesis is that property rights reflect positive legal entitlements that provide an objective basis for constitutionalizing the outer boundaries of the zones of exclusion which our proprietary interests create. The basic norms of property law which would be necessary to import are 1) the right to exercise dominion and control over the property; 2) the right to

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335, 344–45 (1963) (announcing per se right to appointed counsel).

287. See *Duncan*, 391 U.S. at 168.

288. See U.S. CONST. amends. V, XIV.

289. The Fourth Amendment and its privacy norm have long been associated primarily with liberty interests, both generally and in the context of the Fourteenth Amendment's Due Process Clause.

290. See Donald L. Doernberg, "Can You Hear Me Now?": *Expectations of Privacy, False Friends, and the Perils of Speaking Under the Supreme Court's Fourth Amendment Jurisprudence*, 39 IND. L. REV. 253, 275 (2006) (suggesting that, even before *Katz*, "the Court used something like an expectation-of-privacy approach to allow the introduction of evidence that one might have thought to be constitutionally protected. Since *Katz*, the Court has often used the approach to declare the absence of a reasonable expectation of privacy in circumstances in which a majority of people probably believe that the Fourth Amendment does and should protect them from government prying").



exclude non-permissive occupants or uses of the property; and 3) the right to elective alienation or disposition of the property.

Application of this thesis to CCTs proceeds in an equally concise fashion. We would begin with the unremarkable proposition that we have dominion and control over our bodies,<sup>291</sup> and with the short extrapolation that we also own the products of or emanations from our bodies not voluntarily abandoned.<sup>292</sup> This means that, not only from a normative standpoint but from a positive legal position, we *own* our thoughts and the underlying cognitive processing structure that produces them. This is property over which the individual must exercise complete dominion and control. The locus of production of this capital is a zone of exclusion with boundaries which must be constitutionally policed in part because of the place property interests occupy in the constitutional order.<sup>293</sup> And the collection of our cognitive capital must be done in a fashion that respects the individual's sole and exclusive right to direct the alienation of their cognitive possessions.<sup>294</sup> It is because the Fourth Amendment, as currently understood, would not likely achieve these particular results in the face of widespread use of CCTs that an intratextualist approach, incorporating property interests, offers a superior model of the Amendment than does a more restrictive interpretivist focus on privacy.

## B. ORGANISM-PERPETUATING CONSTITUTIONAL CONSISTENCY

The previous section is meant to suggest that there is great utility in reading organizationally separate constitutional provisions in a reflexive fashion, so as to inform the interpretive analysis with the larger spirit imbuing the document. This is an advantage over any of the de-

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291. See, e.g., Michelle B. Bray, *Personalizing Personalty: Toward a Property Right in Human Bodies*, 69 TEX. L. REV. 209, 241 (1990); Roger F. Friedman, *It's My Body and I'll Die If I Want To: A Property-Based Argument in Support of Assisted Suicide*, 12 J. CONTEMP. HEALTH L. & POL'Y 183, 200-05 (1995); Radhika Rao, *Property, Privacy, and the Human Body*, 80 B.U. L. REV. 359, 367-71 (2000); Anne Reichman Schiff, *Arising from the Dead: Challenges of Posthumous Procreation*, 75 N.C. L. REV. 901, 914-15 n.64 (1997) ("If . . . one owns one's body, then, on the embodiment theory of personhood, the body is quintessentially personal property because it is literally constitutive of one's personhood." (quoting Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957, 966 (1982))).

292. It may be helpful to think of an agricultural analogy for this proposition. Just as a farmer, possessing title to his land, need not possess separate title to the apple tree that grows on his land, nor need she have explicit title to the fruits that the apple trees will seasonally produce, likewise, if we may be presumed to hold some sort of natural title to our bodies, then we must have title to the processes—biological, neurological, and cognitive—that take place within us and to the products of those processes. Again, as with any type of property that can be alienated, voluntary surrender of this property is an available choice for the individual possessing the proprietary interest.

293. One need look no further than the Constitution's venerable Due Process Clauses, contained in the Fifth and Fourteenth Amendments, for a reflection of the central and fundamental importance of property rights in our national system of government.

294. These are rights that pertain to property in general, and no less so when the property at issue happens to be information generated by or regarding an individual's cognitive functions.

contextualized methods of deriving constitutional meaning, but it still has a limitation which I would like to transcend. If employed strictly according to its logic, intratextualist understandings of the Fourth Amendment would be circumscribed by doctrinal developments in the area of intratextualist comparison. To continue the example used above, the universe of First Amendment rights that should be read to motivate the regulation of law enforcement actors under the Fourth Amendment would be limited to those techniques which, if employed against an individual, would also violate the First Amendment.<sup>295</sup>

This is an artificial limitation which creates constitutional redundancy in what is otherwise a rather progressive interpretive model. While it might produce somewhat expansive results when the *form* of the government behavior would implicate one area of constitutional regulation but not another, and where the *consequences* of the government behavior would implicate both, intratextualist responses to constitutional interpretive moments force two or more related provisions to overlap perfectly and thus deny the necessity and utility of having both. This is the sort of hybridizing of rights which has been suggested on occasion but never validated as a legitimate approach to interpreting constitutional rights.<sup>296</sup>

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295. Although it may sound unlikely, such a situation is not hard to imagine. In fact, there have been several cases that raise just such a tandem First-and-Fourth Amendment challenge. In *Zurcher v. Stanford Daily*, 436 U.S. 547 (1978), the newspaper that was the subject of the challenged search argued that the officers' activity was invalid under the Fourth Amendment because it intruded on the freedom of the press guaranteed in the First. *Id.* at 552. In some ways, this was an intratextualist argument in that it relied on First Amendment principles of prior restraint to justify regulation of search and seizure activity. The newspaper argued that, because of the First Amendment connection, the searching officers should have been held to a standard more stringent than probable cause before being granted judicial authorization in the form of a search warrant. *Id.* at 563–64. In what might be described as an intratextualist response, the Court denied relief, but not because it found the First Amendment interests at stake irrelevant to the Fourth Amendment question presented, but because it found that a judicial determination of probable cause properly balances those First Amendment interests with the competing executive interest in law enforcement effectiveness. *Id.* at 567. In essence, the Court was comfortable concluding that the newspaper's freedom to publish was not infringed by officers searching the news office based on a valid warrant. This is the natural but problematic conclusion we should expect from a narrow intratextualist approach.

296. See Justice Scalia's effort to explain the outcome in *Employment Division v. Smith*, 494 U.S. 872 (1990). There, the Justice suggested:

The only decisions in which we have held that the First Amendment bars application of a neutral, generally applicable law to religiously motivated action have involved not the Free Exercise Clause alone, but the Free Exercise Clause in conjunction with other constitutional protections, such as freedom of speech and of the press or the right of parents to direct the education of their children. Some of our cases prohibiting compelled expression, decided exclusively upon free speech grounds, have also involved freedom of religion. And it is easy to envision a case in which a challenge on freedom of association grounds would likewise be reinforced by Free Exercise Clause concerns. The present case [*Smith*] does not present such a hybrid situation, but a free exercise claim unconnected with any communicative activity or parental right.

*Id.* at 881–82 (citations and footnote omitted). Subsequent critiques of this hybridized First Amendment theory have identified numerous analytical and interpretive problems posed by Scalia's

I seek to promulgate a new version of holistic constitutional interpretation that avoids the limiting effects of strict intratextualism. Organism-perpetuating constitutional consistency is a proposal to reconceive of the constitution not as a written instrument but as a living being.<sup>297</sup> Of course, this is a figurative rather than literal approach, but it allows us to employ intuitive and developing biological understandings of living systems and a model of constitutional health that simplifies constitutional quandaries, and which avoids the internal limitations of intratextualism. Under an organism-perpetuating model, Fourth Amendment standards can be informed by First Amendment values, but will not be limited to application in instances where the First Amendment would do the job.

To build on the biological analogy, organism-perpetuating constitutional interpretation takes organic health and the universality of the survival instinct as its starting points. In simplest terms, organic health is a state of vitality and robustness, free of disease or defect in the physical body.<sup>298</sup> Organism-perpetuating constitutional models would therefore seek to preserve and promote that vitality, and eschew the introduction of any disease or defect that is destructive to the body. Biological health tends to maximize survival, and survival is the strongest genetic incentive, so we should likewise understand the Constitution to promote action in accordance with its best health prospects and to ensure

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approach. See *Church of the Lukumi Babalu Aye, Inc. v. City of Hialeah*, 508 U.S. 520, 567 (1993) (Souter, J., concurring in part and concurring in the judgment) (“And the distinction *Smith* draws strikes me as ultimately untenable. If a hybrid claim is simply one in which another constitutional right is implicated, then the hybrid exception would probably be so vast as to swallow the *Smith* rule, and, indeed, the hybrid exception would cover the situation exemplified by *Smith*, since free speech and associational rights are certainly implicated in the peyote ritual. But if a hybrid claim is one in which a litigant would actually obtain an exemption from a formally neutral, generally applicable law under another constitutional provision, then there would have been no reason for the Court in what *Smith* calls the hybrid cases to have mentioned the Free Exercise Clause at all.”); *Kissinger v. Bd. of Trs. of Ohio State University*, 5 F.3d 177, 180 (6th Cir. 1993) (describing the hybrid rights distinction as “completely illogical”). See also William P. Marshall, *In Defense of Smith and Free Exercise Revisionism*, 58 U. CHI. L. REV. 1109, 1111, 1120–22 (1990) (describing *Smith* as “contrary to the deep logic of the First Amendment” and identifying serious flaws in the Court’s treatment of precedent). Intratextualism, despite its promise, suffers from the same infirmity in that it limits the coordinated effect of collaboratively-construed constitutional provisions to circumstances where one provision would suffice to do the job. This manner of constitutional interpretation is generally to be avoided.

297. This is somewhat different than the assertion that the Constitution should be understood as a “living document,” which implies that its meaning can and should change over time, just as living beings do throughout their life cycle. In keeping with the “living document” argument, organism-perpetuating constitutional consistency recognizes that change is an unavoidable consequence of the passage of time. However, in contrast to “a living document” rubric, organism-perpetuating constitutional consistency seeks to describe that gradual change as a function of the need to regulate and coordinate internal processes that characterize living beings.

298. Health is defined as “the condition of being sound in body, mind, or spirit; *especially*: freedom from physical disease or pain.” THE AMERICAN HERITAGE DICTIONARY OF THE ENGLISH LANGUAGE (4th ed. 2000).

its own survival.

Organism-perpetuating models thus reject the utility if not the very validity of construing constitutional provisions as operating in tension with one another. Just as biological health is impaired when collaborative systems become antagonistic to each other,<sup>299</sup> so too is the health of the Constitution impaired when coexisting coordinate legal provisions are applied in an antagonistic fashion. In concrete terms, organism-perpetuating models prevent an interpretation of the Constitution that causes one process (i.e. provision) of the organism (i.e. the Constitution) to impair the full and optimal functioning of another.

An interpretation of the Fourth Amendment that permits the government to employ CCTs is the flesh-eating virus of the Constitution because it leads to the necrosis of First, Fourth, Fifth, and Fourteenth Amendment values. The conflicts between the use of CCTs and these legal interests already having been sketched, the point now is to appreciate how such an interpretation derogates from the overall health of the Constitution by impairing the functioning of other aspects of the constitutional body. Organism-perpetuating models, recognizing as constitutionally significant the drive to survive and to promote well coordinated, orderly internal regulation of processes, demand and produce a more healthful result.

Organism-perpetuating consistency is an interpretive model capable of parallel application to larger organic aggregations than the Constitution. While thinking about the founding charter as a living being, where orderly reconciliation of internal processes is necessary, we may simultaneously conceive of American society as a highly diversified organic being that demands harmony among its governing processes. One of those governing processes is obviously the law; it is an institutional model for regulating interpersonal and intercommunity relationships. Another of those governing processes is our socialization or acculturation to shared social norms; as described in Part II, one of those shared social norms is belief in the existence of a zone of cognitive exclusion to which everyone is entitled. With these two social organizing concepts, organism-perpetuating constitutional consistency would seek to harmonize and avoid any interpretive outcomes that create hostility between the two legitimate forces. The point is that the law should not be assumed to operate in a contentious fashion in relation to that which our

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299. A very simplistic, non-medically savvy example is diabetes. For purposes of the analogy, the disease can be described as a non-cooperative relationship between the endocrine system's production of insulin and the metabolic dependency on glucose as an energy source. Failure of the endocrine system to produce optimal levels of blood glucose are incompatible with the body's effort to regulate energy production and is, as is well documented, destructive to the overall health of the organism. So too may one constitutional provision be interpreted in a manner that interferes with the optimal functioning of another and with the optimal functioning of society.

social intuitive judgment knows to be true.

Either application of the organic model, at the constitutional level or social organizational level, suggests that a principle other than privacy should be woven into Fourth Amendment analysis. For precisely the same reasons as explored using an intratextualist approach, the property-based notion of Fourth Amendment freedom strikes a better balance with the remainder of the organic constitution. Thinking about the Fourth Amendment in terms of property makes more, rather than less, robust the values and interests we have come to associate with the First, Fourth, Fifth, and Fourteenth Amendments because such an approach makes it easier to preserve the various zones (or single multi-faceted zone) of exclusion they each help to create.

#### CONCLUSION

The preceding arguments are offered to suggest three things. First, a time is coming when the internal environment of the mind will no longer be logistically capable of absolute protection from unwanted invasion. Instead, on the horizon is the development of additional and enhanced CCTs that promise to intrude upon our zone of cognitive autonomy and prevent exercise of our right to exclude others from our thoughts and thought processes. Second, I mean to suggest that the arrival of such technologies may signal nothing less than a shift in our very nature, both in our individual subjective identities and in our political existence as members of a self-proclaimed liberal democracy. Because CCTs have the capacity to intrude upon and then interfere with the natural operation of our cognitive explorations and the internal monologue that gives us a voice for the “I” who thinks and therefore is, the development of CCTs are exerting dangerous evolutionary pressure on preexisting legal and social norms. Indeed, the scope of Fourth Amendment protections provided for in cases like *Katz*, *Camara* (and *Terry*), *Riley*, and *Kyllo* is dangerously ill-adapted to respond to the harms threatened by CCT development. Finally, I mean to suggest that a robust and sustainable understanding of the Constitution, and of constitutional freedoms, requires that the law resist that evolutionary pressure and that it strive to preserve as unfettered those idiosyncratic cognitive processes that define our character and give us a sense of self that is distinct and discreet from the larger community. Employing a model of the Fourth Amendment that serves these aims not only makes for a more realized individual, and a freer society, but it also promotes the health, vitality, and longevity of our constitutional system by reconciling all internal forces with one another and fostering a harmonized whole.