

SHOULD WE MAKE CRIME IMPOSSIBLE?

MICHAEL L. RICH*

INTRODUCTION	796
I. DEFINING IMPOSSIBILITY STRUCTURES	802
II. A FRAMEWORK FOR ASSESSING IMPOSSIBILITY STRUCTURES	804
A. Benefits.....	805
B. Costs	808
1. Interests of the Potential Perpetrator	808
a. Autonomy	809
b. Privacy	816
c. Bodily Integrity and Personhood.....	818
2. Victim Interests	819
3. Third-party Interests	820
4. Societal Interests.....	821
a. Financial Cost.....	821
b. Imperfect Impossibility	823
c. Undermining the Educational Function of the Criminal Justice System	825
d. Preventing Beneficial Criminal Conduct	826
e. Stifling Discussion of Underlying Legal Rules.....	828
III. SHOULD WE MAKE DRUNK DRIVING IMPOSSIBLE?	828
A. Benefits of the DADSS	831
B. Costs of the DADSS.....	833

* Associate Professor of Law, Elon University School of Law. B.A., University of Delaware; J.D., Stanford Law School. The author thanks Edward Cheng for his insightful comments and Heather Sangtinette for her research assistance. I remain indebted to Amy Minardo for her unending assistance and support.

1. Perpetrator Interests	833
a. Autonomy	833
b. Privacy	840
2. Societal Interests.....	842
a. Financial Cost.....	843
b. Imperfect Impossibility	844
c. Undermining the Educational Function of the Criminal Justice System	845
d. Beneficial Criminal Conduct.....	845
e. Stifling Discussion of Underlying Legal Rules.....	846
IV. FUTURE CONSIDERATIONS.....	846

INTRODUCTION

Technology often makes possible what once was impossible.¹ This Article does not deal with that technology. Rather, it discusses the use of technology to make impossible what once was possible. In particular, it discusses what will be called “impossibility structures,”² government mandates that aim to make certain classes of criminal conduct effectively impossible.³

The idea behind impossibility structures—that the government could use technology to make criminal conduct impossible—is not new,⁴ but advances in technology are making such

1. Technology companies often pride themselves on the notion that their technology opens the doors of human possibility. See, e.g., Marcia Hansen, *Technology Rocks: Yes, and You Make the Impossible, Possible*, INTEL: THE INSIDE SCOOP, April 13, 2011, <http://scoop.intel.com/technology-rocks-yes-you-make-impossible-possible-make-the-impossible-possible/> (“Technology helps us make the impossible, possible. Or, another way to state this thought is, ‘The Processor is an Expression of Human Potential.’”).

2. I offer my thanks to Professor Edward Cheng for his suggestion of this term.

3. These impossibility structures are similar to what Professor Edward Cheng calls “Type II structural laws.” See Edward K. Cheng, *Structural Laws and the Puzzle of Regulating Behavior*, 100 NW. U. L. REV. 655, 664 (2006).

4. See Ronald V. Clarke, *Situational Crime Prevention: Its Theoretical Basis and Practical Scope*, 4 CRIME & JUST. 225, 242 (1983) (noting that West Germany made steering column locks compulsory on all new vehicles in an effort to prevent auto theft).

structures increasingly feasible.⁵ Automobiles provide a ready example. Computers are the brains of modern vehicles,⁶ and car manufacturers use those computers to improve safety by, among other things, enabling them to take control of a car in an emergency.⁷ When combined with technology that allows a car to communicate with roadside devices about road conditions,⁸ these computers could also theoretically prevent drivers from violating traffic laws by speeding, running red lights or stop signs, or tailgating. Particularly promising is the Driver Alcohol Detection System for Safety (DADSS), a car-based technology under development by the federal government and car manufacturers that aims to prevent drunk driving.⁹ Time Magazine recently named it one of the best inventions of 2011.¹⁰

Similarly, the possibilities for computer-based impossibility structures are bounded only by the imagination of technologists and legislators.¹¹ Digital music players enforce limits on

5. See JONATHAN ZITTRAIN, *THE FUTURE OF THE INTERNET AND HOW TO STOP IT* 103 (2008) (arguing that the shift toward “tethered appliances” is increasing the “regulability” of the Internet).

6. Although thirty-five years ago a new car might have contained a simple computer to regulate spark plug timing, a new car today is a “computer on wheels” that collects and assesses countless amounts of data and uses that data to control the basic operations of the vehicle. Jim Motavalli, *The Dozens of Computers That Make Modern Cars Go (and Stop)*, N.Y. TIMES, Feb. 5, 2010, at B6.

7. For instance, car manufacturers are developing technology to slow vehicles down to match the speed of surrounding traffic and to apply the brakes to avoid hitting pedestrians. See Terry Gardner, *When your car helps you drive*, L.A. TIMES, June 26, 2011, <http://articles.latimes.com/2011/jun/26/travel/la-tr-futurecar-20110626>.

8. See Elizabeth E. Joh, *Discretionless Policing: Technology and the Fourth Amendment*, 95 CALIF. L. REV. 199, 200–02 (2007).

9. See *infra* Section III.

10. Lev Grossman *et al.*, *The 50 Best Inventions*, TIME, Nov. 28, 2011, available at www.time.com/time/magazine/article/0,9171,2099708,00.html.

11. See, e.g., ZITTRAIN, *supra* note 5, at 108; James Grimmelman, *Regulation by Software*, 114 YALE L.J. 1719, 1729–30 (2005) (describing software as “immediate” in that it constrains conduct prospectively based on the information available at the time of the potential conduct); Joel R. Reidenberg, *Lex Informatica: The Formulation of Information Policy Rules through Technology*, 76 TEX. L. REV. 553, 572 (1998) (“Technological standards [on the Internet] may be designed to prevent actions from taking place without the proper permissions or authority.”); Danny Rosenthal, *Assessing Digital Preemption (and the Future of Law Enforcement?)*, 14 NEW CRIM. L. REV. 576, 579 (2011) (discussing “digital preemption,” “a law enforcement model in which a government or private party programs a digital device (like a cell phone) or application (like an Internet browser) to eliminate opportunities to use that device or application to break the law or engage in other conduct deemed undesirable”).

shared music.¹² The Digital Millennium Copyright Act criminalizes the creation of copyright-avoiding software, thus making it effectively impossible for the average consumer to share copyrighted materials illegally.¹³ Web filters prevent access to websites hosting illegal materials like child pornography.¹⁴ Databases that track consumer purchases could be repurposed to prevent individuals from buying the ingredients for methamphetamine or explosives.¹⁵ The possibilities are practically innumerable. Cell phones, for example, could be programmed to prevent those under a restraining order from harassing their victims.

Meanwhile, advances in medical science, pharmaceuticals, and psychiatry have opened the door to make even the most “traditional” crimes impossible to commit. The beginnings of this possibility are seen in “chemical castration” drugs administered to sexual predators to eradicate their sexual urges and thus remove their motivation to commit sexual offenses.¹⁶ Other drugs exist that may be used to dampen a broader range of anti-social desires.¹⁷ One recent study suggests that some drugs may reduce implicit racism.¹⁸ Although it seems far-fetched to imagine the government distributing such drugs through the public water supply to eradicate urges among the citizenry to engage in criminal conduct, the prospect is at least theoretically possible.

12. ZITTRAIN, *supra* note 5, at 108.

13. See Julie E. Cohen, *Pervasively Distributed Copyright Enforcement*, 95 GEO. L.J. 1, 7–11 (2006).

14. See C.J. Davies, *The hidden censors of the internet*, WIRED UK, May 20, 2009, available at www.wired.co.uk/magazine/archive/2009/06/features/the-hidden-censors-of-the-internet?page=all (discussing the activities of the Internet Watch Foundation); see also Reidenberg, *supra* note 11 at 559–60 (discussing technological means for the “automatic enforcement” of filtering rules on the Internet).

15. See Charles Duhigg, *How Companies Learn Your Secrets*, N.Y. TIMES, Feb. 19, 2012, at MM30 (discussing how corporations monitor and catalogue consumer purchases).

16. See John F. Stinneford, *Incapacitation through Maiming: Chemical Castration, the Eighth Amendment, and the Denial of Human Dignity*, 3 U. ST. THOMAS L.J. 559, 572–76 (2006).

17. See Erica Beecher-Monas & Edgar Garcia-Rill, *Genetic Predictions of Future Dangerousness: Is There a Blueprint for Violence?*, 68 LAW & CONTEMP. PROBS. 301, 321 n.125 (2006) (recognizing the potential for drug therapy to suppress abnormal responses and desires in violent offenders).

18. Sylvia Terbeck et al., *Propranolol reduces implicit negative racial bias*, 222 PSYCHOPHARMACOLOGY 419 (2012), available at <http://www.springerlink.com/content/63v2561264075373>.

At least one commentator has argued, however, that impossibility structures are essentially nothing new and that they are just amplified “structural controls” used by the government to deter undesirable courses of actions by making them more difficult, more likely to be punished, or less rewarding.¹⁹ Such controls are used in a variety of contexts already. Government-mandated “default rules,” for example, encourage socially beneficial behavior in areas such as financial decisionmaking and employment.²⁰ Similarly, “coding” in the architecture of cyberspace permits the government to engage in *ex ante* regulation of online behavior.²¹ Structural controls are used to curb criminal behavior as well. The “Situational Crime Prevention” movement is based on the notion that manipulation of environmental factors can deter crime by making it either less possible or more costly.²² A steering column lock, for instance, deters theft by making the crime more difficult to accomplish.²³ And the police might deter prostitution by closing roads to make it more challenging for “johns” to cruise.²⁴

But the claim that impossibility structures are merely enhanced structural controls glosses over a critical distinction between them.²⁵ Structural controls depend on the traditional notion that criminals are essentially, if not perfectly, rational actors who can be convinced that criminal conduct is a bad idea.²⁶ By making crime more costly, structural controls generally, and Situational Crime Prevention more specifically, seek to convince this rational potential criminal not to break the law or to break it in some less harmful way. But impossibility struc-

19. See Rosenthal, *supra* note 11, at 586–89 (contending that digital impossibility structures are merely a more effective version of other structural controls on criminal activity). For a background on the theoretical foundations of structural controls, see Cheng, *supra* note 3, at 662–67.

20. See Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism Is Not an Oxymoron*, 70 U. CHI. L. REV. 1159, 1159–60 (2003).

21. See LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE 3–8 (1999); Reidenberg, *supra* note 11, at 581.

22. See Ronald V. Clarke, *Situational Crime Prevention*, 19 CRIME & JUST. 91, 91 (1995).

23. See Clarke, *supra* note 4, at 227.

24. See Clarke, *supra* note 22, at 111.

25. See Cheng, *supra* note 3, at 664 (responding to the argument that the distinction between impossibility structures and structural controls is a “false dichotomy”).

26. See RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 164–65 (2d ed. 1977) (arguing that the notion of the criminal as a rational actor has substantial empirical support).

tures do not target a potential criminal's rational decision-making; they aim instead merely to frustrate her efforts. Put another way, whereas structural controls and traditional crime-fighting tell criminals that they "shouldn't" do something, impossibility structures make it so that they simply "can't."²⁷ This distinction matters, because it challenges the assumption that the criminal justice system is about shaping the choices that individuals make freely and punishing those who choose of their own free will to violate the law.²⁸ In essence, impossibility structures seek the same goal as traditional crime fighting—the prevention of crime—but by new means.

Some respond to these new means with a sense of intense discomfort, describing government attempts to prevent criminal conduct in Orwellian language.²⁹ So it was when the National Highway Transportation Safety Administration briefly required in the 1970s that all new cars be equipped with an ignition interlock to make it impossible to drive a car without wearing a seatbelt.³⁰ Public outcry over the interlocks, including claims of "Big Brotherism," led Congress to forbid the Department of Transportation from requiring them.³¹ By contrast, others offer unqualified optimism that impossibility structures are the solution to prevent the substantial harm caused by some crimes.³²

These conflicting, visceral responses suggest the need for a full accounting of the costs and benefits of impossibility structures. Indeed, the impending feasibility of these structures demands that this accounting be provided sooner rather than

27. Cf. Cohen, *supra* note 13, at 26 (arguing that copyright enforcement presents a new model of discipline in that it is meant to be universally restrictive, permanent, and only partially visible).

28. Cf. Richard C. Boldt, *The Construction of Responsibility in the Criminal Law*, 140 U. PA. L. REV. 2245, 2247–55 (1992) (recognizing that chemical dependency has deterministic effects on behavior that undermine the assumption that criminal justice is about shaping individuals' free choices).

29. See, e.g., Sarah Longwell, *Big Brother in the Backseat*, THE HILL, Aug. 31, 2010, http://abionline.org/downloads/083110_ABI_TheHill_BigBrotherInTheBackseat.pdf.

30. See *Geier v. Am. Honda Motor Co.*, 529 U.S. 861, 876 (2000).

31. *Id.*; see also JERRY L. MASHAW & DAVID L. HARFST, *THE STRUGGLE FOR AUTO SAFETY* 134–40 (1990) (describing the debate over seatbelt interlocks).

32. See, e.g., Jan Withers, *DADSS Turning Cars into the Cure for Drunk Driving*, MADD (Aug. 15, 2011), <http://www.madd.org/blog/dadss-turning-cars-into-the.html> (calling an impossibility structure to prevent drunk driving "the vaccine to this horrible disease").

later so that legislators can decide intelligently whether to implement them. Yet the existing discussions of impossibility structures are either incomplete³³ or fail to recognize impossibility structures as a unique phenomenon requiring separate analysis.³⁴ Meanwhile, considerations of structural controls as crime-fighting tools are more fully developed, but generally proceed on the basis of foundational assumptions that avoid or obscure important questions. Some assume that crime prevention is an unalloyed good and thus fail to engage with difficult normative questions raised by structural controls on crime.³⁵ Others approach structural controls with an overriding skepticism about government interference that preempts a discussion of the practicalities of such controls.³⁶ None of these discussions provide legislators (and future scholars) with a starting point for their analysis of specific impossibility structures.

This Article does so by proceeding in four parts. Part I defines more precisely what constitutes an impossibility structure. Part II establishes a framework for analyzing impossibility structures by setting forth the most common arguments that can be raised for and against their use. Part IV applies this framework to the DADSS that aims to make drunk driving impossible. Finally, Part V concludes the discussion by briefly suggesting some les-

33. Danny Rosenthal, for instance, limits his discussion to two issues that arise from impossibility structures that use digital technology, the “overenforcement” objection and the “stasis” objection. See Rosenthal, *supra* note 11, at 578–79; see also Colin Camerer *et al.*, *Regulation for Conservatives: Behavioral Economics and the Case for “Asymmetric Paternalism,”* 151 U. PA. L. REV. 1211, 1253 (2003) (recognizing the potential to prevent drunk driving and concluding, without substantial analysis, that “the benefits are likely to overwhelm the costs”).

34. Christina Mulligan, for instance, conflates impossibility structures with other structural controls. See Christina M. Mulligan, *Perfect Enforcement of Law: When to Limit and When to Use Technology*, 14 RICH. J.L. & TECH. 1, 3 (2008), <http://law.richmond.edu/jolt/v14i4/article13.pdf> (discussing “perfect prevention,” “perfect surveillance,” and “perfect correction” as separate kinds of perfect enforcement, but then failing to consider them separately).

35. See Cheng, *supra* note 3, at 671 (dismissing potential privacy concerns of structural controls on the ground that society should reduce its focus on individual rights in favor of “more community-oriented, social welfare goals”); Neal Kumar Katyal, *Architecture as Crime Control*, 111 YALE L.J. 1039, 1129 (2002) (“My argument presumes that an overriding goal is to get rid of crime . . .”).

36. See LESSIG, *supra* note 21, at 5; ZITTRAIN, *supra* note 5, at x; Lee Tien, *Architectural Regulation and the Evolution of Social Norms*, 7 YALE J.L. & TECH. 1, 4 (2005) (arguing that structural regulation “can affect or distort the evolution of the social norms that give life to [individual] rights”).

sons from the DADSS example and highlights issues that are likely to arise in applying the framework to future structures.

I. DEFINING IMPOSSIBILITY STRUCTURES

An impossibility structure is government action aimed at making it effectively impossible for individuals to engage in proscribed conduct. Specifically, impossibility structures possess three characteristics that, in conjunction, distinguish them from more traditional methods of crime prevention.

First, impossibility structures involve government, rather than private, conduct. Private entities frequently seek to protect themselves from crime by making that crime impossible. An individual afraid of burglary or home invasion might install locks on exterior doors or place bars over windows to prevent intruders from entering. Financial institutions put in place substantial security protocols to prevent theft. Corporations guard their data through cybersecurity measures. Impossibility structures differ from these private steps in that the government is the driver for the implementation of the structure.³⁷ The government's involvement is important for three reasons. First, it means that the structure constitutes state action and thus implicates constitutional concerns.³⁸ Second, the involvement of the government heightens concerns about autonomy, privacy, and bodily integrity.³⁹ Third, the government's mandate makes it possible for the impossibility structure to be effective. For instance, it is one thing to hope that every homeowner will put bars on her windows. Though many or even

37. The government's role in the implementation of a structure can be direct or indirect. For instance, imagine that the federal government sought to make it impossible for people to drive over a certain speed. It could implement such a policy directly, through a statute or regulation requiring that each new automobile be equipped with a physical device that prevents it from exceeding a certain top speed. Or it could act indirectly by withholding funding or other benefits from carmakers who failed to equip new vehicles with such a device. In either case, the government's role would qualify the policy as an impossibility structure.

38. See *Nat'l Collegiate Athletic Ass'n v. Tarkanian*, 488 U.S. 179, 191 (1988).

39. Freedom and liberty, after all, are defined in relation to government, rather than private, restraint. See *Lawrence v. Texas*, 539 U.S. 558, 562 (2003) ("Liberty protects the person from unwarranted intrusions into a dwelling or other private places. . . . Liberty presumes an autonomy of self that includes the freedom of thought, belief, expression, and certain intimate conduct."); Isaiah Berlin, *Two Concepts of Liberty*, in *LIBERTY: INCORPORATING FOUR ESSAYS ON LIBERTY* 166, 169–81 (Henry Hardy ed., 2002) (defining negative and positive liberty in terms of the relationship between the individual and the government).

most may do so, some will refuse. But if the government mandates that bars be on the windows of all homes, the compliance rate will be substantially higher.

Second, an impossibility structure seeks to make crime practically impossible rather than merely inadvisable. Many traditional crime-fighting tactics are said to seek to make crime “impossible” by making it so a crime cannot be committed without the perpetrator being apprehended.⁴⁰ For instance, local governments often install cameras at intersections with stoplights to catch those who run the light.⁴¹ In one sense of the word,⁴² these cameras make it “impossible” to run the red light because anyone doing so will inevitably be identified and punished. However, such structures are merely highly effective examples of the traditional deterrence approach to law enforcement.⁴³ Impossibility structures seek to do something else. Rather than focusing on the capture of perpetrators, impossibility structures seek to make it so that the criminal conduct cannot practically be accomplished in the first instance. In the example of the potential red light runner, then, an impossibility structure might entail a government mandate that all motor vehicles be equipped with a device that senses when the vehicle is approaching a red light and automatically applies the brakes. As such, the impossibility structure does not aim to change the potential perpetrator’s decisionmaking process; rather, it targets the conduct, and its effectiveness will be judged by how well it prevents that conduct.

Third, while traditional crime prevention often targets individuals who have been judicially determined to be most likely to offend, impossibility structures require no such finding. For instance, convicted criminals are incarcerated in part to incapacitate them and prevent them from committing additional crimes.⁴⁴ Similarly, courts issue restraining orders that limit an

40. Some scholars have called such structures “perfect enforcement.” See Mulligan, *supra* note 34, at 3.

41. Shelley Feuer Domash, *Revenues Low, Yonkers Dreams of Green from Red Light Cameras*, N.Y. TIMES, May 10, 2009, at WE5.

42. See *Impossible Definition*, MERRIAM-WEBSTER, <http://www.merriam-webster.com/dictionary/impossible> (last visited Jan. 31, 2013) (defining “impossible” to mean both “incapable of being or of occurring” and “extremely undesirable”).

43. See Mark Geistfeld, *Tort Law and Criminal Behavior (Guns)*, 43 ARIZ. L. REV. 311, 315 (2001).

44. *Rita v. United States*, 551 U.S. 338, 347–48 (2007).

individual's movement upon a finding that the individual is likely to cause harm to another. Impossibility structures, on the other hand, apply to all people equally in seeking to prevent them from being capable of engaging in the prohibited conduct.⁴⁵ This is the difference between a court-ordered requirement that one convicted of drunk driving use ignition interlocks and a government mandate to install an interlock in all new vehicles. The former is a traditional crime-control measure because it targets only convicted drunk drivers.⁴⁶ The latter is an impossibility structure because it aims to prevent anyone who drives a car from engaging in the prohibited conduct. This distinction matters because in the context of traditional crime prevention, the prior judicial finding justifies the restriction on individual liberty.⁴⁷ Without that predicate finding, justification for the government action must be found elsewhere.

II. A FRAMEWORK FOR ASSESSING IMPOSSIBILITY STRUCTURES

The following discussion sets forth the potential benefits of impossibility structures as well as the arguments against the adoption of such structures. These considerations are set out in the abstract, but with examples as needed for clarity. Of course, the applicability and force of any consideration will depend on the circumstances of the structure in question.

45. Of course, many crimes can be committed only by certain classes of individuals. For instance, only a felon can violate a statute making it a crime for a felon to possess a firearm, and only one using an electronic device can engage in cyberstalking. Impossibility structures that aim to prevent either crime therefore will disparately impact those individuals who fall into the class capable of committing the offense. Thus, impossibility structures may have a disparate impact on certain individuals, but the structures do not target those individuals based on any finding that the individuals are more likely to commit an offense. Rather, the structures target particularly harmful conduct and impact equally any individual who would happen to be otherwise able to engage in that conduct.

46. According to Mothers Against Drunk Driving, every state has enacted a law permitting a court or administrative agency to order a convicted drunk driver to install an ignition interlock for some period after conviction. *Ignition Interlocks*, MOTHERS AGAINST DRUNK DRIVING, <http://www.madd.org/laws/ignition-interlock.html> (last visited Jan. 31, 2013).

47. See *Morrissey v. Brewer*, 408 U.S. 471, 483 (1972).

A. Benefits

The primary goal and effect of impossibility structures—the prevention of criminal conduct—gives them an intuitive appeal. Crime, after all, involves conduct that is presumed to be morally wrong and harmful. Legislatures, whose job it is to define criminal conduct,⁴⁸ do so based on a judgment that the targeted conduct is sufficiently reprehensible and harmful to society so as to justify the use of the criminal justice system to prevent and punish its commission.⁴⁹ Thus, the harm that any impossibility structure would aim to prevent, being the same harm that is punished by a criminal statute, is a substantial one almost by definition.⁵⁰

In addition to avoiding the harm caused by the crime itself, impossibility structures allow society to avoid the costs of investigating, prosecuting, and punishing the completed criminal conduct. Specifically, by preventing some criminal conduct, an impossibility structure would allow police and prosecutors to focus their limited resources on the investigation and prosecution of crimes that as yet cannot be rendered impossible.⁵¹ The

48. See *United States v. Wiltberger*, 18 U.S. 76, 95 (1820) (“It is the legislature, not the Court, which is to define a crime, and ordain its punishment.”).

49. See William J. Stuntz, *The Pathological Politics of Criminal Law*, 100 MICH. L. REV. 505, 527 (2001) (“Criminal law involves choices about what conduct is bad or harmful enough to deserve punishment.”). Cf. Dru Stevenson, *Effect of the National Security Paradigm on Criminal Law*, 22 STAN. L. & POL’Y REV. 129, 129–31 (2011) (describing the evolution of criminal law from prohibiting only the most morally culpable behavior to “prohibiting harmful conduct in as many situations as possible”). This does not mean that criminal law perfectly tracks the desires and goals of society. The substantial literature on overcriminalization recognizes as much, criticizing the use of criminal law to punish conduct that is insufficiently harmful or morally culpable. See Erik Luna, *The Overcriminalization Phenomenon*, 54 AM. U. L. REV. 703, 716 (2005) (“Overcriminalization, then, is the abuse of the supreme force of a criminal justice system—the implementation of crimes or imposition of sentences without justification.”). The trend toward overcriminalization can be traced to political pressures that drive the expansion of criminal sanctions and prevent their contraction. See Stuntz, *supra*, at 529–57. Concerns that a particular impossibility structure might enforce an overly broad criminal law are addressed *infra* Section II.B.1.a.i.

50. *But see* Luna, *supra* note 49, at 704 (listing examples of statutes that criminalize conduct that is presumably insufficiently harmful to warrant criminalization).

51. See Adam M. Gershowitz & Laura R. Killinger, *The State (Never) Rests: How Excessive Prosecutorial Caseloads Harm Criminal Defendants*, 105 NW. U. L. REV. 261 (2011); David W. Rasmussen & Bruce L. Benson, *Rationalizing Drug Policy under Federalism*, 30 FLA. ST. U. L. REV. 679, 708 (2003) (noting that limited police resources means that a focus on drug crimes diverts resources from the investigation of other offenses).

prevention of some crimes also would reduce the strain on overburdened judicial resources. Similarly, the cost of incarcerating a criminal averages a little under \$24,000 per year.⁵² Individuals who are prevented from committing crimes would not need to be incarcerated, thus reducing incarceration costs and freeing up government resources for other purposes.

Preventing an individual from committing crime also prevents her and those connected to her from suffering the negative effects of incarceration. For the criminal, the costs of incarceration, including lost economic and social opportunities and the collateral legal consequences of conviction, can be devastating.⁵³ Incarceration also places financial and emotional stress on the family of the criminal, leading to problems including the breakup of families and emotional and behavioral issues with children.⁵⁴ Communities also suffer when potentially productive adult members are incarcerated as social ties that permit community growth are severed and orderly social norms are disrupted.⁵⁵ These costs can be avoided if a perpetrator is prevented in the first instance from ever engaging in criminal conduct.

Moreover, impossibility structures avoid the constitutional and policy problems that can arise from the traditional law enforcement process. Perhaps most significantly, impossibility structures affect everyone equally, whereas police and prosecutors must make choices about which instances of criminal con-

52. PEW CENTER ON THE STATES, ONE IN 100: BEHIND BARS IN AMERICA 2008 at 11 (2008), http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/sentencing_and_corrections/one_in_100.pdf.

53. PEW CHARITABLE TRUSTS, COLLATERAL COSTS: INCARCERATION'S EFFECT ON ECONOMIC MOBILITY 11–17 (2010) (detailing the economic impact of incarceration on former inmates), http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Economic_Mobility/Collateral_Costs_FINAL.pdf; Michael Pinard, *Collateral Consequences of Criminal Convictions: Confronting Issues of Race and Dignity*, 85 N.Y.U. L. REV. 457, 491–94 (2010) (detailing the collateral consequences of incarceration on former inmates' housing, employment, entitlement to public assistance, and right to vote).

54. See Kathleen J. Ferraro et al., *Problems of Prisoners' Families: The Hidden Costs of Imprisonment*, 4 J. FAM. ISSUES 575 (1983); John Hagan & Ronit Dinovitzer, *Collateral Consequences of Imprisonment for Children, Communities, and Prisoners*, 26 CRIME & JUST. 121, 122 (1999).

55. See Dorothy E. Roberts, *The Social and Moral Cost of Mass Incarceration in African American Communities*, 56 STAN. L. REV. 1271, 1281–90 (2004); Hagan & Dinovitzer, *supra* note 54, at 122.

duct to investigate and prosecute.⁵⁶ Similarly, prosecutors and judges must decide whom to punish and how much.⁵⁷ These choices can be infected by improper considerations that give rise to constitutional concerns, like race, ethnicity, and gender, or can be influenced by factors that are simply irrelevant, like politics or personal animus. By removing the need for the investigation, prosecution, and punishment of the targeted criminal conduct, impossibility structures eliminate these issues.

In addition, traditional law enforcement necessarily focuses on the investigation of specific offenses and the individuals suspected of involvement in those crimes. As a result, suspects are stopped by the police, and harm to their privacy and autonomy interests results.⁵⁸ Though the imposition of these harms is not unreasonable and does not violate the Fourth Amendment when the police have the appropriate quantum of suspicion that the targeted individual is involved in criminal activity,⁵⁹ such investigations can be avoided altogether by an impossibility structure that prevents the criminal conduct in the first instance. If the crime were never committed, there would be no need for the intrusive investigation. And police inevitably stop innocent individuals without sufficient suspicion, thus resulting in what Professor Colb has termed “targeting harm.”⁶⁰ An impossibility structure avoids this harm as well.

Finally, by preventing criminal conduct, an impossibility structure may create a “virtuous spiral” of societal norms that support and encourage law-abiding behavior.⁶¹ Put another

56. See William J. Stuntz, *The Political Constitution of Criminal Justice*, 119 HARV. L. REV. 780, 790–91 (2006) (recognizing both the “[t]echnical[]” constitutional limits on police and prosecutor discretion and the “practical” fact that their discretion is nearly unlimited).

57. See *McCleskey v. Kemp*, 481 U.S. 279, 297 (1987) (“Because discretion is essential to the criminal justice process, we would demand exceptionally clear proof before we would infer that the discretion has been abused.”); Carissa Byrne Hessick & F. Andrew Hessick, *Recognizing Constitutional Rights at Sentencing*, 99 CALIF. L. REV. 47, 52–56 (2011) (discussing the discretion afforded to judges at sentencing to consider individual facts about the defendant, including religion, age, and charitable activities, and the constitutional limitations on that discretion).

58. See Bernard E. Harcourt & Tracy L. Meares, *Randomization and the Fourth Amendment*, 78 U. CHI. L. REV. 809, 852 (2011).

59. See *Terry v. Ohio*, 392 U.S. 1, 21–22 (1968).

60. Sherry F. Colb, *Innocence, Privacy, and Targeting in Fourth Amendment Jurisprudence*, 96 COLUM. L. REV. 1456, 1485–1502 (1996).

61. Cheng, *supra* note 3, at 665. *But see* Tien, *supra* note 36, at 10 (recognizing that the norms created by structural regulation may not be desirable).

way, if certain criminal conduct is made essentially impossible, some individuals may come to see the conduct as something that is inappropriate and “not done.”⁶² These individuals will then put additional pressure on any remaining outliers to conform their beliefs to mainstream anti-crime norms. In this way, impossibility structures can cause society to self-regulate, thus making the structures themselves less necessary to produce compliance with the law.

B. Costs

The reach of an impossibility structure can be long. Most directly, it impacts the potential perpetrator of the targeted criminal conduct, interfering with her liberty, possibly intruding on her interests in privacy or even her bodily integrity, and likely imposing some financial cost. A structure may interfere with the interests of a potential victim, whose liberty and autonomy may be curtailed by the paternalistic impulses of the government. A structure may also intrude on disparate third-party interests, including the interests of the vendors of products that might be required to include an impossibility structure and the interests that a parent has in making decisions that impact her child’s well-being. And a structure will impact society more broadly, as a structure will change law enforcement practice and cause society to forego potential benefits of criminal conduct. These potential impacts of an impossibility structure are discussed in turn below.

1. *Interests of the Potential Perpetrator*

The potential perpetrator of a crime will be most directly affected by an impossibility structure. She is prevented from engaging in the criminal conduct that is the target of the structure and may find that some “adjacent” non-criminal conduct is prevented. Depending on the nature of the structure, she also may find that her interests in privacy and bodily integrity are compromised.

62. See David J. Smith, *Changing Situations and Changing People*, in *ETHICAL AND SOCIAL PERSPECTIVES ON SITUATIONAL CRIME PREVENTION* 147, 165 (Andrew von Hirsch et al. eds., 2000) (noting that decreasing the volume of certain criminal conduct decreases the likelihood that others will learn that such behavior is permissible).

a. Autonomy

By their nature, impossibility structures curtail individual autonomy, and government interference with individual autonomy requires some justification.⁶³ At a minimum, impossibility structures prevent individuals from engaging in criminal conduct,⁶⁴ but their impact may be broader. Unless an impossibility structure is perfectly tailored to prevent only criminal conduct, the structure runs the risk of preventing individuals from engaging in non-criminal conduct as well. Finally, an impossibility structure may do more than prevent conduct; rather, it may require individuals to engage in some additional action in order to allow for differentiation between criminal and non-criminal conduct. Each of these restrictions on individual autonomy gives rise to distinct issues.

(i) The Freedom to Commit Crime?

The most obvious and direct impact of an impossibility structure is on the capacity of individuals to engage in criminal conduct. By foreclosing that avenue of conduct, the structure inhibits individual autonomy. As a legal matter, however, one's freedom to engage in criminal conduct is not entitled to protection, as there is no legal "right to commit crime."⁶⁵ Thus, there almost certainly would be no legal relief for one who

63. Modern political liberalism, for example, holds that government interference with individual autonomy is justified only to prevent harm to others. See Todd E. Pettys, *Sodom's Shadow: The Uncertain Line Between Public and Private Morality*, 61 HASTINGS L.J. 1161, 1191 (2010) (discussing John Stuart Mill's harm principle and its impact on modern political liberalism).

64. Some scholars acknowledge that freedom to engage in some conduct, such as criminal conduct, can be limited even under a robustly liberal system focused on individual autonomy. See, e.g., Kimberly Kessler Ferzan, *Beyond Crime and Commitment: Justifying Liberty Deprivations of the Dangerous and Responsible*, 96 MINN. L. REV. 141, 178 (2011) ("We certainly do not claim that criminals ought to have unfettered ability to commit crime and that any restrictions on that freedom interfere with their autonomy."). The instant analysis uses "autonomy" to describe the individual's broader interest in being permitted to make decisions about her actions and to be able to give effect to those decisions. This of course does not mean that an individual's autonomy interests cannot justifiably be constrained, only that the two questions are distinct.

65. See Daniel R. Dinger, *Should Parents Be Allowed to Record a Child's Telephone Conversations When They Believe the Child Is in Danger?: An Examination of the Federal Wiretap Statute and the Doctrine of Vicarious Consent in the Context of a Criminal Prosecution*, 28 SEATTLE U. L. REV. 955, 1024 n.367 (2005) (collecting cases so holding).

claimed injury from the inability to commit crime due to an impossibility structure.⁶⁶

But in reality societal perspectives on crime detection and prevention are more fine-grained than this monolithic legal rule and vary depending on the crime at issue. Much of society wants the most serious offenses prevented or punished at nearly any cost.⁶⁷ Most notably, the costs often deemed acceptable include infringement on the constitutional rights of the criminal.⁶⁸ At the other end of the spectrum, in some situations there is a prevailing sense that individuals should be given a “sporting chance”⁶⁹ to get away with crime. Thus, there is criticism that some crime-fighting measures, such as speed traps and red-light cameras, are too effective and “unfair.”⁷⁰ As a result, some jurisdictions have outlawed these enforcement tactics.⁷¹

These criticisms suggest two bases for concern about highly effective crime detection methods that carry over to impossibility structures.⁷² First, some criminal statutes target conduct that

66. A criminal might have a right to be free of selective prosecution on a constitutional basis, and thus a “right” to commit the crime at issue to the extent that others are not prosecuted for the same conduct. See Gabriel J. Chin, *Unexplainable on Grounds of Race: Doubts about Yick Wo*, 2008 U. ILL. L. REV. 1359, 1369–70 (2008). Because impossibility structures apply equally to an entire class of criminal conduct, however, they are not susceptible to a selective prosecution challenge.

67. It is this concern that no doubt motivates, at least in part, the popular perception that too many criminals “get off” on technicalities. See Deborah L. Rhode, *Access to Justice: Again, Still*, 73 FORDHAM L. REV. 1013, 1018 (2004).

68. See Mary D. Fan, *The Police Gamesmanship Dilemma in Criminal Procedure*, 44 U.C. DAVIS L. REV. 1407, 1421–22 (2011) (“We have a deep ambivalence when it comes to conceptualizing which strategies are deemed ‘fair’ and what ‘fair’ should mean for police because of a sense that criminals should be brought to justice, not given a ‘sporting chance.’”).

69. *Id.*

70. See JC Reindl, *Lawmakers to Again Consider Cameras at Red Lights*, THE DAY, Jan. 17, 2012, <http://www.theday.com/apps/pbcs.dll/article?AID=/20120117/NWS01/301179943>.

71. See Cheng, *supra* note 3, at 687–88 (discussing reactions to speed traps and California’s “speed trap law”); Joel O. Christensen, *Wrong on Red: The Constitutional Case against Red-Light Cameras*, 32 WASH. U. J.L. & POL’Y 443, 455 (2010) (discussing state laws forbidding red-light cameras and states that have chosen not to renew red-light camera programs).

72. There are also complaints raised about highly effective detection that do not carry over to impossibility structures. For instance, some complain that because it is practically impossible to obey all traffic laws all the time, punishing all violations improperly treats everyone like a “real” criminal. See Clarke, *supra* note 22, at 135 (“People have to be given a sporting chance of getting away with crime, especially the ordinary everyday offenses that all of us might commit.”). By pre-

arguably should not be a target of the criminal justice apparatus.⁷³ These arguments typically arise in two contexts. The first is when the prohibited conduct is simply perceived to result in harm that is insufficiently serious to justify criminal punishment.⁷⁴ The second involves so-called “vice” crimes that are criticized as paternalistic because they prohibit voluntary transactions in which the prohibited conduct causes harm only to the individual who chooses to engage in it.⁷⁵ Though citizens may acquiesce to the criminalization of this conduct on the understanding that the statutes will not be comprehensively enforced, substantial political resistance may arise if the targeted conduct is rendered effectively impossible. Alternatively, if making certain conduct impossible indeed gives rise to self-reinforcing societal norms opposed to that conduct,⁷⁶ the government decisionmaker should be especially certain that impossibility structures target only behavior that society truly condemns. Otherwise, impossibility structures may create citizens who comply unthinkingly with relatively unimportant norms.⁷⁷

Second, impossibility structures exacerbate the overdeterrence that already results from overbroad and imprecise statutes.⁷⁸ Imagine, for example, that a city sets a speed limit on a

venting the criminal conduct in the first instance, however, impossibility structures impose no criminal punishment and thus treat no one like a criminal. Some effective crime detection is also criticized because it detects only some lawbreakers effectively, such as those in a given geographical area, and thus can be applied discriminatorily. Impossibility structures seek to prevent all instances of prohibited conduct and are therefore insulated from this criticism. Finally, speed traps and red-light cameras are frequently criticized for aiming to increase government revenue instead of enhancing public safety. By seeking to eliminate the criminal conduct completely, rather than punish it more efficiently, impossibility structures do not generate revenue and thus cannot be misused in this way.

73. See ZITTRAIN, *supra* note 5, at 110–12 (explaining why some object to perfect enforcement of overreaching laws); Luna, *supra* note 49, at 707 (complaining of people being “treated like criminals for seemingly non-criminal behavior”).

74. See Luna, *supra* note 49, at 704 (cataloguing such non-serious criminal offenses as the coloring of birds and rabbits and the failure to return library books).

75. *Id.* at 705–06.

76. See *supra* notes 61–62 and accompanying text.

77. It is for this reason that one should not divorce concerns about the wisdom of the underlying criminal prohibition from concerns about the technology used to render the criminal conduct impossible. *But see* Mulligan, *supra* note 34, at 13 (arguing against conflating concerns over the substantive criminal prohibition and concerns about the technology used to enforce it).

78. See ZITTRAIN, *supra* note 5, at 111 (noting this concern in the context of copyright law); Samuel W. Buell, *The Upside of Overbreadth*, 83 N.Y.U. L. REV. 1491, 1501 (2008).

given road because most accidents on the road involve cars driven over that speed. Such a speed limit is overbroad in that it imprecisely targets the underlying harm of unsafe driving. Certainly, to the extent that the limit deters some unsafe drivers from exceeding the speed limit, it will reduce injuries. But there will also be cases of people who could safely drive in excess of the posted limit and who are deterred unnecessarily from doing so. In turn, an impossibility structure that prevents *everyone* from exceeding the speed limit on the road will multiply the overdeterrence.

Any amount of overdeterrence can be criticized for being an unnecessary restriction on individual autonomy.⁷⁹ That being said, overdeterrence is often an acceptable cost of having a rule that is easily complied with and enforced, as opposed to a more normative directive that requires case-by-case assessment. But overdeterrence becomes particularly problematic when the overdeterred conduct is entitled to constitutional protection. Thus, impossibility structures that impact such conduct, like speech, may be subject to constitutional challenge on that basis.⁸⁰

(ii) *Prevention of Non-criminal Conduct*

Any technology that seeks to prevent criminal conduct will inevitably also prevent some non-criminal conduct. This overbreadth may occur either by design or by mistake. In the ideal case, the criminal conduct that an impossibility structure seeks to prohibit will be defined by a determinate legal rule, and the structure can be designed to perfectly enforce only that rule.⁸¹ But most criminal prohibitions are not so determinate. They require an assessment of the defendant's mens rea or some attendant factual circumstance that is not amenable to perfect measurement. In such cases, impossibility structures must be designed to be overinclusive, underinclusive, or both. To the extent that a structure is overinclusive, it will prevent some

79. See Stephen McG. Bundy & Einer Elhauge, *Knowledge About Legal Sanctions*, 92 MICH. L. REV. 261, 269–70 (1993).

80. See *United States v. Stevens*, 130 S. Ct. 1577, 1587 (2010).

81. See Harry Surden, *The Variable Determinacy Thesis*, 12 COLUM. SCI. & TECH. L. REV. 1, 74 (2011). A speed limit is an example of such a rule: It draws a bright line and a speed-governing device could be designed to prohibit a vehicle from ever exceeding that speed. Of course, as noted *supra* notes 78–80 and accompanying text, such determinate legal rules are often themselves overbroad in that they imprecisely target the harm they seek to prevent.

non-criminal conduct by design. Moreover, even when a legal prohibition is determinate, the structure that enforces that prohibition, like all technology, will be subject to some rate of standard error in its attempt to distinguish criminal from non-criminal conduct. Similarly, the structure also may be subject to non-standard malfunctions that cause it to prevent clearly non-criminal conduct.⁸²

Once again, such overbreadth is not *per se* fatal to an impossibility structure, as the occasional error may be determined to be an acceptable cost for preventing the targeted criminal conduct. Rather, the extent to which such overbreadth counsels against implementing an impossibility structure depends on the answer to two related questions. First, how often does the impossibility structure prevent non-criminal conduct? The answer to this question is empirical and would include both the extent of designed overbreadth and the rate at which measurement error or malfunction might result in unplanned overbreadth. Second, what is the nature of the non-criminal conduct that may be prevented by the structure? The answer to this question can give rise to both constitutional and policy issues.

With respect to the latter issue, some genres of non-criminal conduct, like speech, the ownership of firearms, and the exercise of religion, are entitled to constitutional protection.⁸³ If an impossibility structure prevents some instances of such lawful conduct, it may be invalidated on constitutional grounds. For instance, the government might mandate the filtering of all Internet traffic to prevent the transmission of child pornography. Though the transmission of child pornography is not entitled to constitutional protection,⁸⁴ any overbreadth in the application of the structure would prevent conduct that is protected by the

82. The only way to nullify this risk of error would be for the legislature to make avoidance of the impossibility structure itself a crime. See Surden, *supra* note 81, at 86–90 (discussing how legal rules with indeterminate boundaries may be made more amenable to computation and thus technological enforcement). For instance, in the case of a tamper-sensing ignition interlock, the legislature could redefine the crime of auto theft to include taking possession of an automobile in contravention of the tamper-sensing technology. Such a circular redefinition merely replaces the concern over error with a concern that the law is now detached from any underlying moral justification. See *supra* notes 73–76 and accompanying text.

83. See U.S. CONST. amends. I, II; see also, e.g., *McDonald v. City of Chicago*, 130 S. Ct. 3020, 3026 (2010) (firearms); *Brandenburg v. Ohio*, 395 U.S. 444, 447 (1969) (speech); *Everson v. Bd. of Educ.*, 330 U.S. 1, 15–16 (1947) (religion).

84. *New York v. Ferber*, 458 U.S. 747, 764 (1982).

First Amendment.⁸⁵ In the usual case, overbreadth of this sort is not fatal if it is not substantial.⁸⁶ Impossibility structures present a unique situation, however. Typically, less substantial overbreadth can be remedied through a case-by-case analysis to determine when a given prohibition may not be applied.⁸⁷ But because they prevent the non-criminal conduct from ever taking place, impossibility structures are true prior restraints, which are strongly disfavored under the First Amendment.⁸⁸

Procedural due process concerns also may arise if an impossibility structure deprives an individual of some constitutionally protected “liberty” or “property” interest.⁸⁹ A broad range of property interests are entitled to due process protection, including welfare benefits, utility services, and professional licenses.⁹⁰ Resolution of due process claims raised by impossibility structures typically occurs on a case-by-case basis and depends on a court’s balance of the factors set out in *Mathews v. Eldridge*: the private interest at stake, the risk of erroneous deprivation of that interest and the value of any additional safeguards, and the Government’s interest, including the burdens of such safeguards.⁹¹ As explained by Professor Citron, automated decisionmaking about protected interests raises significant due process issues because of the difficulty of providing adequate notice and a meaningful opportunity to be heard to affected individuals.⁹² An automated impossibility structure almost certainly suffers from these same difficulties. And impossibility structures may give rise to even greater due process

85. See, e.g., *Stanley v. Georgia*, 394 U.S. 557, 559 (1969) (overturning a state statute that punished the private possession of obscene material).

86. See *Broadrick v. Oklahoma*, 413 U.S. 601, 615 (1973) (holding that “where conduct and not merely speech is involved, we believe that the overbreadth of a statute must not only be real, but substantial as well, judged in relation to the statute’s plainly legitimate sweep” before the statute will be invalidated under the First Amendment).

87. See *id.* at 615–16.

88. *Lovell v. City of Griffin*, 303 U.S. 444, 451–52 (1938). Cf. ZITTRAIN, *supra* note 5, at 115–16 (comparing the post-hoc scrubbing of copyright-infringing material to prior restraints).

89. See, e.g., *Mathews v. Eldridge*, 424 U.S. 319, 332 (1976).

90. See *Town of Castle Rock v. Gonzales*, 545 U.S. 748, 772 (2005) (Souter, J., concurring) (collecting cases).

91. *Mathews*, 424 U.S. at 335.

92. Danielle Keats Citron, *Technological Due Process*, 85 WASH. U. L. REV. 1249, 1281–83 (2008).

concerns if the government provides no hearing for those erroneously deprived of a protected interest.⁹³ Thus, to the extent that a structure may impact a protected interest, the government must take pains to tailor the structure and any hearing process to accommodate individual due process rights. Such tailoring could include ensuring that structures create a meaningful record of decisionmaking and guaranteeing meaningful opportunities for affected individuals to challenge the technology underlying the structure.⁹⁴

Moreover, an overbroad impossibility structure may cause non-constitutional harms. First, overbreadth unnecessarily interferes with individual autonomy by foreclosing a non-criminal avenue of conduct. Second, overbreadth may prevent conduct that, while not protected by the Constitution, is beneficial to society. For instance, an impossibility structure that seeks to prevent the sale of pirated software may also prevent some valid transactions. Such non-criminal transactions may benefit society, and their prevention is thus cause for concern.⁹⁵ On the other hand, an impossibility structure could risk prohibiting activity that is legal but of little societal value. For example, an impossibility structure that prevents the manufacture of an illegal drug might also prevent the manufacture of similar toxic, but not illegal, chemicals that have no legitimate use. Such overbreadth would be of far less concern.

(iii) *Compelled Action*

An impossibility structure may also compel action on the part of an individual to assess whether she is engaged in criminal activity. For instance, a door intended to prevent trespass by unauthorized individuals might require those seeking to gain entry to speak a passcode to verify their identities. As a general matter, the compulsion of action intrudes on autonomy

93. *Cf. Goldberg v. Kelly*, 397 U.S. 254, 267 (1970) (“The fundamental requisite of due process of law is the opportunity to be heard” (quoting *Grannis v. Ordean*, 234 U.S. 385, 394 (1914))).

94. *See Citron, supra* note 92, at 1305–08.

95. One need not be a strict adherent to free-market principles to recognize that market transactions often serve society’s interests, at least in the aggregate. *See* David Orentlicher, *Diversity: A Fundamental American Principle*, 70 *MO. L. REV.* 777, 796–97 (2005) (describing how the free market can create social benefits).

interests more than the prevention of action,⁹⁶ and the more significant the compulsion, the greater the intrusion. Thus, current alcohol ignition interlocks, which require the driver to provide a breath sample by blowing into a tube before the car will start,⁹⁷ are more intrusive on autonomy than a passive blood alcohol level measurement system.

b. Privacy

Some impossibility structures may also intrude on the potential perpetrator's privacy interests. In many cases, a structure will gather some information in order to determine whether particular attempted conduct would be innocent or criminal.⁹⁸ For instance, technology that seeks to prevent cars from speeding would need to determine a vehicle's speed in order to determine whether a given press on the accelerator would result in the vehicle exceeding the speed limit. The extent to which the collection of such information intrudes on cognizable privacy interests depends on the nature and quantity of information gathered by the technology and how broadly that information is disseminated. Each structure must be assessed on an individual basis, but there are a number of reasons why impossibility structures have the potential to give rise to serious privacy concerns.

First, because impossibility structures must distinguish criminal from non-criminal activity, they will often collect data about conduct that falls just short of, or is very similar to, criminal conduct. In either case, an individual is likely to have a substantial privacy interest in the information collected. Allegations that one attempted to engage in criminal conduct can

96. See Eric Rakowski, *The Sanctity of Human Life*, 103 YALE L.J. 2049, 2089 n.102 (1994) (reviewing RONALD DWORKIN, *LIFE'S DOMINION: AN ARGUMENT ABOUT ABORTION, EUTHANASIA, AND INDIVIDUAL FREEDOM* (1993)) ("Political morality and constitutional law typically make coerced action more difficult to justify than coerced inaction, because requiring somebody to act usually infringes his bodily autonomy and personal freedom more than does compelling him to refrain from acting.").

97. DAVID K. LAMBERT ET AL., *PASSIVE SENSING OF DRIVER INTOXICATION* (2006), <https://delphi.com/pdf/techpapers/2006-01-1321.pdf>; see also Model Specifications for Breath Alcohol Ignition Interlock Devices (BAIIDs), 57 Fed. Reg. 11,772, 11,782 (April 7, 1992).

98. It is possible, of course, for the technology used to effectuate a structure that gathers no information at all. For example, the government could mandate the installation of bars and automatic deadbolts on the windows and doors of all homes in order to prevent burglary. Because such technology does not differentiate between legal and criminal conduct, it gathers no information.

be damaging to one's reputation.⁹⁹ Similarly, an individual may have significant privacy interests in conduct that falls just short of being criminal.¹⁰⁰

Second, even if the information collected by a given impossibility structure does not itself lead to a substantial intrusion on individual privacy, the aggregation of that information with other data may create privacy concerns. As scholars and courts have recognized, discrete pieces of information that, standing alone, reveal little about a person can be aggregated by an interested entity, be it an individual, corporation, or government, to build a comprehensive picture of that person's private life.¹⁰¹ Because this data will often involve private activities and is unlikely to be obtainable elsewhere, the data collected by an impossibility structure will likely be of great interest to those entities like data brokers and fusion centers that aggregate, buy, and sell data to their government and commercial partners.¹⁰²

Third, impossibility structures may be open to piggybacking by other technology.¹⁰³ For example, a speed-governing device that prevents an automobile from exceeding speed limits could

99. It is for this reason that at common law, false claims that an individual engaged in criminal conduct constitute defamation *per se*. See, e.g., *Geraci v. Probst*, 938 N.E.2d 917, 923 (N.Y. 2010) (claim that plaintiff committed misdemeanor was defamation *per se*); *Lynch v. Lyons*, 20 N.E.2d 953, 955 (Mass. 1939) (claim that plaintiff committed a crime is actionable *per se*).

100. For instance, an impossibility structure that seeks to prevent individuals from accessing websites containing child pornography would also learn when an individual visited websites containing other types of pornography. The Constitution protects an individual's right to access obscene materials in "the privacy of one's own home." *Stanley v. Georgia*, 394 U.S. 557, 565 (1969).

101. See *United States v. Maynard*, 615 F.3d 544, 562 (D.C. Cir. 2010), *aff'd sub nom. United States v. Jones*, 132 S. Ct. 945 (2012) ("As with the 'mosaic theory' often invoked by the Government in cases involving national security information, 'What may seem trivial to the uninformed, may appear of great moment to one who has a broad view of the scene.'" (quoting *CIA v. Sims*, 471 U.S. 159, 178 (1985))).

102. See FED. TRADE COMM'N, PROTECTING CONSUMER PRIVACY IN AN ERA OF RAPID CHANGE: A PROPOSED FRAMEWORK FOR BUSINESSES AND POLICYMAKERS 23–25 (2010), <http://www.ftc.gov/os/2010/12/101201privacyreport.pdf> (discussing the "personal data ecosystem" created by widespread collection and dissemination of consumer data); Danielle Keats Citron & Frank Pasquale, *Network Accountability for the Domestic Intelligence Apparatus*, 62 HASTINGS L.J. 1441, 1450–53 (2011) (discussing the role and activities of government "fusion centers"); Anne Klinefelter, *When to Research is to Reveal: The Growing Threat to Attorney and Client Confidentiality from Online Tracking*, 16 VA. J.L. & TECH. 1, 13 (2011) (discussing the activities of data resellers).

103. See ZITTRAIN, *supra* note 5 at 109–10 (discussing the piggybacking of surveillance capabilities in tethered appliances); Cohen, *supra* note 13, at 6 (providing examples of surveillance mechanisms tied to software).

easily house additional technology that gathers information about the vehicle's use that is unnecessary to the core function of the device, such as a GPS device to allow tracking of the car's location or devices that assess driving habits.¹⁰⁴ The utility of such information to other government and industry interests would be substantial,¹⁰⁵ and the pressure to include such surveillance capabilities is therefore certain to be intense.

For all these reasons, impossibility structures create particular dangers to individual privacy. The value of the information that a structure can gather, either as part of its core function or through piggybacking technology, will create substantial pressure to permit the collection and distribution of these data. The protection of individual privacy will require both strict limitations on the gathering and distribution of data and effective enforcement of those limitations.

c. Bodily Integrity and Personhood

An impossibility structure may also intrude on the potential perpetrator's interests in bodily integrity, dignity, and personhood. These intrusions can range from the seemingly insignificant to the obviously troubling. For instance, current blood alcohol level (BAL) ignition interlocks may require the driver to provide a breath sample by placing a tube in her mouth.¹⁰⁶ This intrusion, which is temporary and causes no permanent harm, may be viewed as relatively minor.¹⁰⁷ On the other hand, an impossibility structure requiring that everyone ingest a drug to

104. Becky Yerak, *Devices Map your driving habits, can help save money on insurance premiums*, CHI. TRIB., Sept. 23, 2012, http://articles.chicagotribune.com/2012-09-23/business/ct-biz-0923-telematics--20120923_1_biggest-auto-insurers-insurance-products-claims-costs (describing device that can tell parents when a teen driver has driven past a certain boundary and produces diagnostic reports on driving habits).

105. See Cohen, *supra* note 13, at 32 ("From the perspective of the state, meanwhile, the installation of technologies that generate detailed records of information use also serves other state interests, including censorship and the containment of terrorism.").

106. See Brian Rogers, *Special-probation program for DWI offenders paying dividends*, HOUS. CHRON., July 4, 2011, <http://www.chron.com/news/houston-texas/article/Special-probation-program-for-DWI-offenders-2077467.php>.

107. *But see* Washington v. Harper, 494 U.S. 210, 237 (1990) (Stevens, J., concurring in part and dissenting in part) ("Every violation of a person's bodily integrity is an invasion of his or her liberty.").

suppress anti-social proclivities would likely be viewed as exceedingly intrusive.¹⁰⁸

2. *Victim Interests*

An impossibility structure also might seek to prevent crime by preventing potential victims from engaging in conduct that makes them vulnerable to crime¹⁰⁹ or by requiring them to take some protective action.¹¹⁰ Such structures would give rise to the same issues outlined in the previous section, but would impact the autonomy, privacy, bodily integrity, and financial interests of the potential victim rather than the potential perpetrator of the criminal conduct.¹¹¹ In most cases, these potential victims will be blameless for their vulnerability to crime, or at least less to blame than the potential perpetrator.¹¹² Because the victim bears less blame for the potential crime, the decision to intrude on her interests requires even greater justification than a similar intrusion on the interests of the potential perpetrator.

Moreover, structures that restrict the autonomy of a potential crime victim are classic examples of paternalism in which the government restricts an individual's liberty in the name of protecting her from harm.¹¹³ Paternalism is not inherently undesir-

108. See *Riggins v. Nevada*, 504 U.S. 127, 135 (1992) (“[F]orcing antipsychotic drugs on a convicted prisoner is impermissible absent a finding of overriding justification and a determination of medical appropriateness.”); *Harper*, 494 U.S. at 221–22 (“[R]espondent possesses a significant liberty interest in avoiding the unwanted administration of antipsychotic drugs under the Due Process Clause of the Fourteenth Amendment.”).

109. For instance, the federal government could mandate that e-mail providers block any communication containing a Social Security number with the goal of preventing identity theft through phishing, which is a “type of fraud in which an attacker attempts to trick the victim into providing private information,” DAVID KIM & MICHAEL G. SOLOMON, *FUNDAMENTALS OF INFORMATION SYSTEMS SECURITY* 106 (2012).

110. For example, the government could require that all software publishers include anti-copying measures in their products to prevent theft.

111. See *supra* Part II.B.1.

112. The moral standing of a crime victim (or potential crime victim) is of course complex. See generally Aya Gruber, *Righting Victim Wrongs: Responding to Philosophical Criticisms of the Nonspecific Victim Liability Defense*, 52 *BUFF. L. REV.* 433 (2004) (discussing the moral and philosophical role of the victim in the criminal justice system). Even so, it is uncontroversial to claim that potential crime victims bear less moral responsibility for their vulnerability to crime than do the individuals who exploit that vulnerability through their criminal conduct.

113. See GERALD DWORKIN, *STANFORD ENCYCLOPEDIA OF PHILOSOPHY* (2010), <http://plato.stanford.edu/entries/paternalism> (defining paternalism broadly as

able,¹¹⁴ and the extent to which a paternalistic policy requires additional justification is a normative question outside the scope of this Article. Nonetheless, it is a consideration that may weigh against an impossibility structure that restricts the autonomy of a potential crime victim.

3. *Third-Party Interests*

Impossibility structures also may intrude on the interests of third parties, *i.e.*, individuals or entities that are neither the potential perpetrators nor the potential victims of the targeted criminal conduct. Such intrusions will typically fall into two categories. First, an impossibility structure may require a manufacturer of a product to include some feature in the product that restricts its use. The Department of Transportation's short-lived mandate that all new vehicles include an interlock system to prevent driving without wearing a seatbelt is one example of such a structure.¹¹⁵ While such structures do restrict the liberty of manufacturers, government-mandated safety precautions are common and manufacturer interests are protected by rule-making procedures.¹¹⁶ Moreover, any financial costs of implementing an impossibility structure can and almost certainly will be passed from the manufacturer on to consumers. As a result, the interests of manufacturers generally will carry less weight than the other concerns outlined herein.

Second, an impossibility structure may interfere with the relationship between a third party and a potential criminal or crime victim. The most obvious example of such a relationship is that between a parent and child. Thus, an impossibility structure that prevents minors from placing certain information online in order to prevent cyberstalking would interfere with a parent's right to make decisions about her child's online activi-

"the interference of a state or an individual with another person, against their will, and defended or motivated by a claim that the person interfered with will be better off or protected from harm").

114. *See id.*

115. *See* Geier v. Am. Honda Motor Co., 529 U.S. 861, 876 (2000).

116. *See* Kenneth Culp Davis, *A New Approach to Delegation*, 36 U. CHI. L. REV. 713, 726 (1969) ("The courts should recognize that administrative legislation through the superb rule-making procedure marked out by the Administrative Procedure Act often provides better protection to private interests than congressional enactment of detail.").

ties. This right may be entitled to constitutional protection.¹¹⁷ And even if such a structure survived constitutional scrutiny, it may face substantial political opposition in light of the centrality of the parent-child relationship in American society.¹¹⁸ Other relationships may be impacted as well, such as those between employers and employees, spouses, legal guardians and their wards, and merchants and their customers. Each of these relationships is due a different level of deference by the law and by society. The nature of any impacted relationship and the extent of the impact must be considered in assessing an impossibility structure.

4. *Societal Interests*

The impact of impossibility structures will extend beyond those directly affected by the government mandate. There will be costs that society also must pay. Impossibility structures are not free, and some portion of society will have to pay that financial cost. Structures also will change drastically the rate at which crimes are committed and necessitate some adaptation by the police. Furthermore, by preventing a crime, impossibility structures will prevent punishment of that crime and thus may short-circuit the educational function of the criminal justice system. Finally, structures may prevent those rare instances in which criminal conduct benefits society. These issues are addressed below.

a. *Financial Cost*

Any impossibility structure will come at some financial cost by incorporating the price of developing and implementing the underlying technology. The question of who properly should bear this cost is one of fairness. Typically, in the criminal justice arena, there are two strands of thought. The first strand holds that the institutional costs of crime-fighting, including the costs of policing and prosecuting and the costs of incarceration,

117. See Susan S. Kuo, *A Little Privacy, Please: Should We Punish Parents for Teenage Sex?*, 89 KY. L.J. 135, 169–70 (2000) (discussing constitutional protection of a parent's right to make childrearing decisions).

118. See *Wisconsin v. Yoder*, 406 U.S. 205, 232 (1972) (“The history and culture of Western civilization reflect a strong tradition of parental concern for the nurture and upbringing of their children. This primary role of the parents in the upbringing of their children is now established beyond debate as an enduring American tradition.”).

should be borne by society generally.¹¹⁹ This distribution is fair because these government functions benefit all members of society.¹²⁰ The second holds that a criminal's decision to engage in wrongdoing morally obliges the criminal to pay for the harms that he causes.¹²¹

Impossibility structures seem to fit better in the former context than the latter for both theoretical and practical reasons. First, all of society benefits from the efforts of police to investigate and prevent crime, and so too does society as a whole benefit from impossibility structures that prevent crime from occurring. As such, society as a whole should pay for such structures. Second, identifying the subset of society that bears a particular normative obligation to pay for the structure is unfeasible. Ideally, one could distinguish those who genuinely wish to engage in the prohibited criminal conduct but are prevented from doing so from those who have no desire to do so. The former group's criminal desires could form the moral basis of a requirement that members of the former group bear the cost of the structure.¹²² Traditionally, the law identifies those with a genuine desire to engage in criminal activity by requiring some guilty act before holding someone liable for an attempt.¹²³ In the language of attempt law, one who tries to engage in criminal conduct but is foiled by an impossibility structure would be said to have engaged in a completed at-

119. See *supra* notes 51–52 and accompanying text (discussing the cost shifting and cost savings that could result from an impossibility structure). Some states have attempted to obtain reimbursement for the cost of incarceration from prisoners. See, e.g., S.P. Conboy, *Prison Reimbursement Statutes: The Trend Toward Requiring Inmates to Pay Their Own Way*, 44 *DRAKE L. REV.* 325 (1996); Sara Feldschreiber, *Fee at Last? Work Release Participation Fees and the Takings Clause*, 72 *FORDHAM L. REV.* 207, 207–08 (2003). Despite these efforts, the costs of policing, prosecution, and incarceration tend to be spread across society.

120. See *Union Refrigerator Transit Co. v. Kentucky*, 199 U.S. 194, 203 (1905).

121. See, e.g., S. REP. NO. 104-179, at 12 (1995), reprinted in 1996 U.S.C.C.A.N. 924, 925 (noting that purposes of Mandatory Victims Restitution Act, which would require criminal defendants to pay restitution to the identifiable victims of their crimes, are to “ensure that the loss to crime victims is recognized, and that they receive the restitution they are due” and “to ensure that the offender realizes the damage caused by the offense and pays the debt owed to the victim as well as to society”).

122. For a discussion of moral culpability for attempted crimes, see generally Stephen J. Morse, *Reason, Results, and Criminal Responsibility*, 2004 *U. ILL. L. REV.* 363 (2004).

123. See Ehud Guttel & Doron Teichman, *Criminal Sanctions in Defense of the Innocent*, 110 *MICH. L. REV.* 597, 611–13 (2012) (recognizing the function of the *actus reus* requirement in ensuring that only the “guilty” are punished).

tempt.¹²⁴ Yet the known existence of the structure means that the failed attempt no longer signals the desire to engage in criminal activity and the attendant moral culpability. To see this, imagine an individual who has no desire to break a particular law. In the absence of an impossibility structure preventing that crime, that individual would err on the side of caution and not attempt potentially criminal conduct for fear that she might succeed in committing a crime. But knowing that the structure exists, that individual can now act freely and rely on the structure to prevent conduct that is truly criminal. From the standpoint of the outside observer, this innocent individual is indistinguishable from one who truly desires to engage in criminal conduct. As such, it is not possible to identify the subset of individuals who should pay for the impossibility structure, and it is instead better to spread the cost of the structure broadly.

b. Imperfect Impossibility

Though the goal of an impossibility structure is to make the commission of a crime practically impossible, the reality is that the ingenuity of potential criminals is inexhaustible.¹²⁵ Indeed, for every impossibility structure, there will be those who are able, through luck, skill, or determination, to engage in the criminal conduct.¹²⁶ Moreover, error in the functioning of the structure may make the targeted conduct possible in some small percentage of attempts.¹²⁷ As a result, even where certain conduct is the target of an impossibility structure, that conduct must remain criminal so that those who manage to evade the structure, either intentionally or through chance, can be prosecuted and punished for their anti-social behavior.¹²⁸

124. See JOSHUA DRESSLER, UNDERSTANDING CRIMINAL LAW 379–80 (5th ed. 2009).

125. See Cohen, *supra* note 13, at 41 (recognizing that motivated and savvy criminals can defeat structural enforcement mechanisms); Joseph Marutollo, *No Second Chances: Leandra’s Law and Mandatory Alcohol Ignition Interlocks for First-Time Drunk Driving Offenders*, 30 PACE L. REV. 1090, 1107 (2010) (discussing efforts to avoid current ignition interlocks).

126. See Cheng, *supra* note 3, at 665 (noting that structural mechanisms “confin[e] violations to a small group of determined offenders”).

127. See *infra* note 207 and accompanying text.

128. Professor Cohen has argued that in some circumstances the continued ability of motivated individuals to break the law is necessary to maintain the level of fear of law-breaking that makes the strict societal control of an impossibility structure politically feasible. See Cohen, *supra* note 13, at 41.

The narrowing of offenders to a small group can be beneficial to law enforcement agents, who should be able to achieve higher enforcement rates at a substantially lower cost.¹²⁹ However, as the volume of the targeted criminal conduct decreases, police may shift resources to criminal violations that are not targets of impossibility structures.¹³⁰ If that resource-shifting is too extreme, the result could be that police no longer seek to enforce the targeted criminal conduct. In turn, those individuals who are able to avoid the impossibility structure will be able to offend with little risk of punishment. And because the criminals who avoid the impossibility structure are likely to be the most committed to the criminal conduct, at the end of the day a structure may have the perilous result of allowing the most dangerous criminals to avoid punishment.

Making one kind of criminal conduct effectively impossible also raises the possibility of displacement, by which the perpetrator who is frustrated in committing one offense instead commits another.¹³¹ Many different kinds of displacement are possible, and the most commonly criticized is victim displacement, by which the same crime occurs against a different target.¹³² But because they target an entire class of criminal conduct and thus do not leave some victims more vulnerable than others, impossibility structures are unlikely to result in victim displacement.¹³³ Rather, a structure is more likely to cause two other kinds of displacement: tactical displacement, by which the same crime is committed by a different method, and crime-type displacement, by which the frustrated perpetrator com-

129. *Id.*

130. Indeed, that police could shift resources to other areas is one of the potential benefits of an impossibility structure. *See supra* notes 50–51 and accompanying text.

131. *See* Robert A. Mikos, “Eggshell” Victims, Private Precautions, and the Societal Benefits of Shifting Crime, 105 MICH. L. REV. 307, 313–15 (2006).

132. *See id.* at 316–18 (discussing criticism of victim displacement).

133. The prototypical example of victim displacement occurs when only some individuals use a steering wheel lock to prevent auto theft. *Id.* at 314. The lock alerts potential thieves that the targeted car will be hard to steal and instead redirects her to an easier target. *Id.* Critics argue that this displacement results in negative social utility: The end result is the same—a car is stolen—and the cost of the lock has been incurred. *See id.* at 317. But the widespread use of a precaution can have a socially-beneficial “halo” effect of deterring the entire class of criminal conduct. *Id.* at 314. An impossibility structure has a similar, but stronger, impact: It does not deter the class of criminal conduct, but prevents it entirely.

mits a different crime.¹³⁴ Either type is troubling in that it undermines the benefits of the structure, but the extent of displacement is a matter of significant debate among social scientists.¹³⁵ The amount of displacement caused by a structure is likely to depend on numerous factors, such as the nature of the targeted criminal conduct and the social characteristics of likely offenders.¹³⁶

c. *Undermining the Educational Function
of the Criminal Justice System*

One of the goals of the criminal justice system is moral education.¹³⁷ Through punishment, criminals are taught directly what society considers right and wrong.¹³⁸ Meanwhile, the imposition of punishment communicates the values of the society to others.¹³⁹ But this educational function cannot be served if crimes are not committed and criminals are not punished.¹⁴⁰ To put it another way, when individuals are simply prevented from being able to commit crime, they and the rest of society never have the opportunity to learn the underlying lesson that the conduct is wrong.¹⁴¹ Of course, to the extent that any impossibility structure

134. See Adam Bouloukos & Graham Ferrell, *On the Displacement of Repeat Victimization*, in RATIONAL CHOICE AND SITUATIONAL CRIME PREVENTION 219, 225 (Graeme Newman et al. eds., 1997).

135. See Mikos, *supra* note 131, at 318–20.

136. See Marcus Felson & Ronald V. Clarke, *The Ethics of Situational Crime Prevention*, in RATIONAL CHOICE AND SITUATIONAL CRIME PREVENTION, *supra* note 134, at 200–02.

137. Richard A. Bierschbach, *Allocution and the Purposes of Victim Participation under the CVRA*, 19 FED. SENT'G REP. 44, 45 (2006).

138. *Id.* at 45–46.

139. Mary Sigler, *Private Prisons, Public Functions, and the Meaning of Punishment*, 38 FLA. ST. U. L. REV. 149, 165–66 (2010).

140. See Cheng, *supra* note 3, at 667 (“[I]mposing structural controls may also potentially destroy social norms by absolving individuals of the responsibility to police themselves.”).

141. Moral education must be distinguished from the tendency of an impossibility structure to create self-reinforcing norms opposed to the targeted conduct, which is one of the potential benefits of such a structure. See *supra* notes 60–61 and accompanying text. The latter benefit is a function of social pressure in that people generally wish to conform their behavior to that of their peers. See Knud S. Larsen, *The Asch Conformity Experiment: Replication and Transhistorical Comparisons*, 5 J. SOC. BEHAV. & PERSONALITY 163, 163 (1990) (verifying that individuals tend to conform when under pressure of a majority). Though mere pressure to conform can resolve into a moral message, the pressure is not at its core a moral pressure. See John C.P. Goldberg & Benjamin C. Zipursky, *Torts as Wrongs*, 88 TEX. L. REV.

is imperfect and some individuals still can commit the criminal conduct in question, the opportunity exists for moral education through the punishment of the remaining offenders. Somewhat ironically then, the more effective an impossibility structure is at preventing criminal conduct, the more it undermines the criminal law's function of teaching that the underlying criminal activity is not just prohibited, but wrong.¹⁴²

d. Preventing Beneficial Criminal Conduct

In some limited situations, criminal conduct can be beneficial to society, and the prevention of crime in those situations could produce a net harm. For instance, one may exceed the speed limit in order to rush an injured person to the hospital or a captain may enter an embargoed port in a storm.¹⁴³ Such cases typically result in either a discretionary decision not to prosecute or an application of the necessity defense.¹⁴⁴ Yet, if an impossibility structure prevents the criminal conduct in question, society will suffer the greater harm that the conduct might otherwise have avoided. This concern suggests that any impossibility structure contains some sort of exception for anticipated emergency situations, but the existence of any exception to an impossibility structure opens the door to abuse of that exception.

Criminal conduct also can benefit society when it is used as a tool to advocate for social advancement. Opponents of the Vietnam War burned their draft cards in violation of federal law.¹⁴⁵ Civil-rights activists staged sit-ins in alleged violation of trespass

917, 948–49 (2010) (noting that “[t]here is a big difference between uttering a rule of conduct as a moral rule and uttering a rule of conduct as a legal rule” because of the different norms underlying moral and legal imperatives). As a result, the fact that an impossibility structure may create self-reinforcing norms that benefit society does not entirely replace the work done by the criminal law in teaching society’s morality.

142. This concern may carry less weight when the crime underlying the impossibility structure is *malum prohibitum* rather than *malum in se*, as the goal of moral education is less pronounced. *But see* Stuart P. Green, *Why It’s a Crime to Tear the Tag off a Mattress: Overcriminalization and the Moral Content of Regulatory Offenses*, 46 EMORY L.J. 1533 (1997) (criticizing the distinction between *mala prohibita* and *mala in se* offenses).

143. *See* Shaun P. Martin, *The Radical Necessity Defense*, 73 U. CIN. L. REV. 1527, 1527–28 nn.4, 8 (2005) (collecting cases).

144. *See* WAYNE R. LAFAVE, CRIMINAL LAW 476–86 (3d ed. 2000).

145. *United States v. O’Brien*, 391 U.S. 367, 369 (1968).

laws.¹⁴⁶ More recently, members of the “Occupy” movement have trespassed as part of their protest.¹⁴⁷ The fact that these actions constitute violations of criminal statutes can be a critical part of the symbolic message of the protestors’ actions.¹⁴⁸ And technological and business innovations can also spring from criminal conduct or conduct whose legality is at least uncertain.¹⁴⁹ Perfectly preventing criminal conduct can foreclose avenues of positive social change and technological advancement.

Similarly, criminal conduct may be the most, or only, effective means to challenge an unjust law.¹⁵⁰ Virginia’s anti-miscegenation law was overturned through a challenge to the convictions of Mildred and Richard Loving for violating the statute.¹⁵¹ Texas’s prohibition on flag burning was invalidated only after Gregory Lee Johnson was convicted under the law.¹⁵² And the Supreme Court invalidated Texas’s criminalization of private, homosexual conduct only after John Geddes Lawrence and Tyrone Garner challenged their convictions for engaging in such conduct.¹⁵³ By rendering violation of the underlying criminal statute effectively impossible, an impossibility structure may thus undermine the ability of those who believe the statute unjust to protest it effectively. Because of the importance to society of having a just criminal code, impossibility structures should not erect substantial barriers to political protest.

146. *Lombard v. Louisiana*, 373 U.S. 267, 268 (1963).

147. See, e.g., Joseph Ax, *Eight Occupy Wall Street members guilty of trespass*, REUTERS, June 18, 2012, <http://www.reuters.com/article/2012/06/18/us-usa-crime-occupytrial-idUSBRE85H1RG20120618>.

148. See James M. McGoldrick, Jr., *Symbolic Speech: A Message from Mind to Mind*, 61 OKLA. L. REV. 1, 19–20 (2008) (arguing that the illegality of burning a draft card was a necessary part of the “force of [the] protest”).

149. See ZITTRAIN, *supra* note 5 at 119–22.

150. See Martin Luther King, Jr., Letter from a Birmingham Jail (Apr. 16, 1963), available at http://www.africa.upenn.edu/Articles_Gen/Letter_Birmingham.html (arguing that in some circumstances it is necessary to disobey unjust laws in the cause of social reform). I am not arguing, of course, that all or most laws that might be the target of an impossibility structure are unjust or are unjust to the extent of the segregation laws that were the subject of Reverend King’s protest. Nonetheless, the consideration of any impossibility structure must recognize the potential that the law defining the targeted criminal conduct is unjust or may be determined to be unjust at some point in the future.

151. *Loving v. Virginia*, 388 U.S. 1, 2 (1967).

152. *Texas v. Johnson*, 491 U.S. 397 (1989).

153. *Lawrence v. Texas*, 539 U.S. 558 (2003).

e. *Stifling Discussion of Underlying Legal Rules*

The enactment of new criminal laws occurs in public through the legislative process and with the possibility of public input and protest. Similarly, the traditional enforcement of criminal laws is a relatively public affair, as the charging, trial, and punishment processes provide the opportunity for further public comment and agitation should they be perceived as unjust. The public nature of these processes ensures, at least to some extent, that criminal laws conform to prevailing social norms.¹⁵⁴

By preventing the vast majority of the criminal conduct targeted by a statutory law from ever taking place, however, an impossibility structure hides the enforcement of the law from public view. Rather than a public trial, during which the justice of the underlying criminal law can be debated, the structure simply removes one course of action from the universe otherwise available to the individual. As such, the individual may not know to complain of her restricted choices. And even to the extent that the individual recognizes that there is something they can no longer do, she may not know that the government is responsible for its absence.¹⁵⁵ Those who might perceive the foreclosing of this option to be unjust or otherwise not to reflect prevailing social norms may not know to complain of it or to bring those complaints to the government. As a consequence, criminal laws enforced through impossibility structures may never evolve along with the underlying social norms they are meant to embody.¹⁵⁶

III. SHOULD WE MAKE DRUNK DRIVING IMPOSSIBLE?

In 2008, the National Highway Traffic Safety Administration (NHTSA) began a five-year, \$10 million joint program with the auto industry with the goal of developing vehicle-based technology to prevent drunk driving.¹⁵⁷ The technology, called the

154. See Tien, *supra* note 36, at 9.

155. *Id.* at 17.

156. *Id.* at 10; Cohen, *supra* note 13, at 42. For a detailed examination of how impossibility structures might prevent changes to the underlying criminal prohibition, see Rosenthal, *supra* note 11, at 597–605.

157. See Press Release, Driver Alcohol Detection Sys. for Safety, Ambitious Drunk Driving Prevention Research Program Moves Forward (Nov. 1, 2011), available at <http://www.dadss.org/node/92>.

Driver Alcohol Detection System for Safety (DADSS), would measure the driver's blood alcohol level (BAL) using either distant spectrometry of the driver's breath or touch-based spectrometry of the driver's tissue.¹⁵⁸ A drivable test vehicle incorporating the technology is expected in two years, with "subsequent voluntary installation in production vehicles in the next 8 to 10 years."¹⁵⁹

The development of the DADSS presents a marked shift in strategy in the fight against drunk driving.¹⁶⁰ Over the past thirty years, a combination of traditional crime-fighting techniques and a public-relations blitz has contributed to a marked decline in the number of deaths that are caused by drunk driving.¹⁶¹ Legislatures have passed increasingly harsh penalties for repeat offenders.¹⁶² Government agencies and independent groups have spent large sums of money on education.¹⁶³ Police have engaged in high-visibility enforcement efforts, such as sobriety checkpoints.¹⁶⁴ Courts have sought to prevent recidivism by creative punishments, such as vehicle forfeiture and the mandated use of ignition interlocks.¹⁶⁵ Though varied, these efforts push the standard crime-control buttons of general deterrence, specific deterrence, and incapacitation.¹⁶⁶ Yet, the benefits of these approaches tapered off in the mid-1990s,¹⁶⁷ and drunk drivers continue to kill thousands of people each year.¹⁶⁸

158. *Id.*

159. *Id.*

160. See *Mitigating the injuries and consequences of alcohol impaired driving: the case for research and development of in-vehicle detection systems*, at 3, DADSS (2007), available at <http://www.dadss.org/node/40> [hereinafter Blue DADSS Alcohol Position Paper].

161. See Linda C. Fentiman, *Rethinking Addiction: Drugs, Deterrence, and the Neuroscience Revolution*, 14 U. PA. J.L. & SOC. CHANGE 233, 263 (2011); Tina Wescott Cafaro, *You Drink, You Drive, You Lose: Or Do You?*, 42 GONZ. L. REV. 1, 1–2 (2006).

162. See Cafaro, *supra* note 161, at 2; John A. Copacino, *Suspicionless Criminal Seizures after Michigan Department of State Police v. Sitz*, 31 AM. CRIM. L. REV. 215, 217 n.10 (1994).

163. See, e.g., Kyle Nagel, *Millions spent to curb drunk driving*, MIDDLETOWN JOURNAL, May 25, 2012, <http://www.middletownjournal.com/news/news/local/millions-spent-to-curb-drunk-driving-1/nPWWh/>.

164. See *Michigan Dept. of State Police v. Sitz*, 496 U.S. 444, 451 n.* (1990) (describing police "experiments" with sobriety checkpoints); Cafaro, *supra* note 161, at 23.

165. Cafaro, *supra* note 161, at 9.

166. See DADSS Alcohol Position Paper, *supra* note 160, at 1–2.

167. *Id.* at 2.

168 NATL. HWY. TRAFFIC SAFETY ADMIN., TRAFFIC SAFETY FACTS: ALCOHOL-IMPAIRED DRIVING 1 (2010) [hereinafter TRAFFIC SAFETY FACTS].

Given the high costs of drunk driving and its stubborn persistence, a new approach was perceived to be necessary, and technology to prevent the criminal conduct altogether is an obvious next step.¹⁶⁹ Traditional ignition interlocks, which require a driver to provide a clean breath sample before allowing her vehicle to start, are staples of punishment schemes for convicted drunk drivers and have proven effective in reducing recidivism.¹⁷⁰ But current interlocks are not politically palatable because they are intrusive, requiring the driver to breathe into a tube every time the driver wishes to start her vehicle.¹⁷¹ Thus, the promise of the DADSS is to harness the effectiveness of traditional ignition interlocks in a system that will not “impede sober drivers from starting their vehicles” and is “small, reliable, durable, repeatable, maintenance free, and relatively inexpensive.”¹⁷²

Because the DADSS is still under development and the precise contours of the finished product are unknown, this discussion proceeds on a few assumptions. First, that the product will measure the driver’s BAL using one of the two technologies under development: distant spectroscopy to measure alcohol in the driver’s breath or touch spectroscopy to measure alcohol through the driver’s skin.¹⁷³ Second, that the final technology will be reasonably, but not perfectly, “small, reliable, durable, repeatable, maintenance free, and [] inexpensive.” Specifically, it will be assumed that the DADSS will meet performance specifications requiring that the system be precise to 0.0003% BAL in the range near the legal BAL limit.¹⁷⁴ Third, that the federal government or the states mandate its installation in all new motor vehicles. Though the DADSS program hopes that

169. See DADSS Alcohol Position Paper, *supra* note 160, at 3 (noting interest in three states, Canada, Sweden, and Finland, for requiring ignition interlocks in all vehicles).

170. See *id.* at 3; Press Release, Ctrs. for Disease Control & Prevention, Ignition Interlocks Reduce Alcohol-Impaired Driving (Feb. 22, 2011), available at http://www.cdc.gov/media/releases/2011/p0222_ignitioninterlocks.html.

171. DADSS Alcohol Position Paper, *supra* note 160, at 4.

172. DRIVER ALCOHOL DETECTION SYSTEM FOR SAFETY, <http://www.dadss.org> (last visited Jan. 31, 2013).

173. See *supra* note 158 and accompanying text.

174. See Susan A. Ferguson, *The Driver Alcohol Detection System for Safety (DADSS) Project: A Cooperative Research Effort Between Industry and Government*, 7, DADSS, (June 17, 2009), available at www.dadss.org/sites/default/files/ESV_06_17_09.pdf; Bud Zaouk, *Driver Alcohol Detection System for Safety (DADSS): A Cooperative Research Effort between Industry and Government*, at 20 (Apr. 12, 2010) (on file with author).

installation in vehicles will be “voluntary,”¹⁷⁵ that seems unlikely; the public has proven to be resistant to ignition lock technology in the past,¹⁷⁶ and interest groups have begun to align against the DADSS.¹⁷⁷

A. *Benefits of the DADSS*

Preventing people with a BAL above the legal limit from driving would provide substantial benefits to society. The most obvious is that it would prevent many of the direct harms that drunk driving currently causes. In 2009, motor vehicle accidents involving a drunk driver killed more than 10,000 people, almost one-third of all motor vehicle deaths.¹⁷⁸ Accidents involving drunk drivers result in tens of billions of dollars annually in direct monetary costs and additional billions in lost quality of life.¹⁷⁹ Moreover, governments spend billions of dollars on efforts to prevent drunk driving, including educational campaigns and targeted enforcement tactics, such as sobriety checkpoints.¹⁸⁰ The costs of investigating drunk driving also are enormous, as police made more than 1.4 million drunk driving arrests in 2010.¹⁸¹ And as the punishments for drunk driving have become more severe, the costs of incarcerating those convicted of drunk driving have increased.¹⁸² These enforcement costs would be decimated by an effective DADSS.

175. See Press Release, Driver Alcohol Detection Sys. for Safety, *supra* note 157.

176. See *supra* notes 30–31 and accompanying text (describing opposition to mandatory ignition interlocks keyed to whether the driver is wearing her seatbelt).

177. See INTERLOCK FACTS, <http://www.interlockfacts.com> (last visited Jan. 31, 2013) (a website created by the American Beverage Institute opposed to what it called “a little known effort to build ignition interlocks into all cars as original equipment”).

178. See TRAFFIC SAFETY FACTS, *supra* note 168.

179. NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., IMPAIRED DRIVING IN THE UNITED STATES (2002), <http://www.nhtsa.gov/people/injury/alcohol/impaired-drivingusa/us.pdf>.

180. See NAT’L CTR. ON ADDICTION & SUBSTANCE ABUSE AT COLUMBIA UNIV., SHOVELING UP: THE IMPACT OF SUBSTANCE ABUSE ON STATE BUDGETS 11 (2001) (identifying \$915 million spent by states on highway safety and local law enforcement related to drunk driving in 1998).

181. FED. BUREAU OF INVESTIGATION, CRIME IN THE UNITED STATES tbl. 29 (2011), <http://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2010/crime-in-the-u.s.-2010/tables/10tbl29.xls>.

182. See Patrick Marley, *Drunk driving overhaul OK’d by Senate makes 4th time a felony*, MILWAUKEE J. SENTINEL, Nov. 6, 2009, at A1 (reporting that bill enhancing punishment for repeat offenders would cost between \$15.1 and \$27.9 million annually, largely in incarceration costs).

Drunk driving convictions also have considerable collateral consequences on those convicted and their families. A drunk driving arrest, even for a first-time offender, can cost over \$10,000 in legal fees and other expenses.¹⁸³ And as states have begun to impose mandatory jail time for repeat offenders, more drunk drivers have faced the consequences of imprisonment, including the loss of employment, injury to their economic prospects, social stigma, and harm to their familial relationships.¹⁸⁴ Again, these consequences can be largely avoided by the installation of an effective DADSS in every vehicle.

By removing the need for traditional law enforcement techniques, such as traffic stops based on individualized suspicion, in the drunk driving arena, the DADSS would remedy any concerns that those techniques raise.¹⁸⁵ Moreover, the DADSS would make sobriety checkpoints, the most visible law enforcement effort targeting drunk drivers, unnecessary. These checkpoints are subject to criticism on the ground that they permit police to target low-income or high-crime neighborhoods and thus disproportionately target the poor or ethnic or racial minorities.¹⁸⁶ By impacting all drivers equally, regardless of race or class, the DADSS would undercut these critiques. Checkpoints also are vastly, though not unconstitutionally, overinclusive in that they require the police to briefly stop a large number of innocent drivers to catch those who are intoxicated.¹⁸⁷ These drivers suffer intrusions, albeit “minimal” ones, on their privacy and liberty interests.¹⁸⁸ The DADSS would make such intrusions unnecessary.

Finally, by preventing drunk driving, the DADSS could reinforce anti-drunk driving norms. The creation of such norms has long been a focus of both private and government anti-drunk-driving advocates, and these educational efforts have borne

183. ILLINOIS DUI FACT BOOK 2012, at 22, www.cyberdriveillinois.com/publications/pdf_publications/dsd_a118.pdf.

184. See *supra* notes 53–55 and accompanying text.

185. See *supra* notes 56–60 and accompanying text.

186. See Sherry F. Colb, *Profiling with Apologies*, 1 OHIO ST. J. CRIM. L. 611, 622 (2004); Harcourt & Meares, *supra* note 58, at 871.

187. See *Michigan Dep’t of State Police v. Sitz*, 496 U.S. 444, 455 (1990) (noting expert testimony that checkpoints generally result in the arrest of one percent of drivers stopped).

188. *Id.* at 452.

substantial fruit.¹⁸⁹ Preventing drunk driving may further bolster these norms, particularly with respect to the wrongfulness of driving with a BAL just above the legal limit.¹⁹⁰

B. Costs of the DADSS

Unlike impossibility structures that could have an impact on potential victims or on third parties,¹⁹¹ the DADSS will impinge almost exclusively on the interests of the potential drunk driver.¹⁹² The class of potential perpetrators is vast, however, and eventually would include every individual in the country who drives. Moreover, like any impossibility structure, the DADSS would impact society's interests.

1. Perpetrator Interests

The primary impact of the DADSS will be on the autonomy and privacy interests of drivers.¹⁹³ These interests are discussed in turn.

a. Autonomy

The primary function of the DADSS is to prevent unlawful conduct, that is, to keep drivers from operating their vehicles with a BAL exceeding the legal limit. In addition, the DADSS

189. See Nady el-Guebaly, *Don't drink and drive: the successful message of Mothers Against Drunk Driving (MADD)*, 4 *WORLD PSYCHIATRY* 35–36 (2005); Dan M. Kahn, *Gentle Nudges vs. Hard Shoves: Solving the Sticky Norms Problem*, 67 *U. CHI. L. REV.* 607, 634 (2000).

190. See *infra* notes 206–210 and accompanying text (discussing concerns that drunk driving statutes may be overbroad).

191. See *supra* Parts II.B.2, II.B.3.

192. Drunk driving, after all, is a conduct crime of which there are no true victims who could have their rights infringed upon absent an actual accident. And although a government mandate that the DADSS be installed in all new vehicles will require third-party auto manufacturers to include the system in their products, the cost of doing so will be passed on to consumers.

193. The proposed DADSS technologies do not intrude in any meaningful way on the bodily integrity of the driver. First, the passive spectrometry of the driver's exhaled breath involves no intrusion at all. Second, touch spectrometry, which measures the reflection of infrared light off the driver's skin, requires minimal intrusion by the light into the driver's body. Though courts have found violations of bodily integrity to be of constitutional magnitude when the State exposes individuals to dangerous levels of radiations and lied about it, see *Heinrich ex rel. Heinrich v. Sweet*, 62 F. Supp. 2d 282, 313 (D. Mass. 1999) (collecting cases), the DADSS technology is easily distinguishable as the infrared light is non-dangerous and the exposure is brief.

will inevitably prevent some individuals from engaging in legal conduct, namely, from driving when they have a BAL below the legal limit.

(i) *The Freedom to Drive Drunk?*

As explained previously, there are essentially three conditions under which an impossibility structure raises concerns relating to an individual's liberty interest in engaging in the targeted conduct: (1) the criminal conduct is insufficiently serious to justify a criminal sanction; (2) the criminal prohibition is paternalistic; and (3) the regulated conduct is constitutionally protected.¹⁹⁴ In the case of drunk driving, the latter two conditions are not met. Though it often harms the intoxicated driver,¹⁹⁵ drunk driving is punished primarily because of the enormous harm it inflicts on others.¹⁹⁶ Thus, criminal prohibitions on drunk driving are not paternalistic.¹⁹⁷ In addition, driving is not an activity entitled to direct constitutional protection.¹⁹⁸

The question remains, then, of whether drunk driving is a sufficiently serious offense to justify criminal punishment. Considering the harm caused by drunk driving as a whole, the answer is certainly in the affirmative.¹⁹⁹ But all drunk driving is not the same. Those with a BAL well in excess of the legal limit cause substantially more fatalities than those with a BAL just over the limit.²⁰⁰ Studies have concluded that often legal, or at least less severely punished,²⁰¹ activities like cell phone use and text messaging while driving²⁰² are more dangerous than

194. See *supra* Part II.B.1.a.i.

195. See TRAFFIC SAFETY FACTS, *supra* note 168, at 1.

196. Douglas R. Richmond, *Drunk in the Serbonian Bog: Intoxicated Drivers' Deaths as Insurance Accidents*, 32 SEATTLE U. L. REV. 83, 121 (2008).

197. See Dworkin, *supra* note 113.

198. For a discussion of the due process protections afforded to an individual's interest in driving, see *infra* Part III.B.1.A.ii.(a).

199. See *supra* notes 160–168 and accompanying text.

200. Specifically, drivers with a BAL over the legal limit of 0.08 grams/deciliter were involved in nearly 10,000 traffic fatalities in 2010, and of those, more than 6,000 involved drivers with a BAL higher than 0.15 g/dL. TRAFFIC SAFETY FACTS, *supra* note 168, at 5.

201. See Steven Grossman, *Hot Crimes: A Study in Excess*, 45 CREIGHTON L. REV. 33, 58 (2011).

202. See Michael Austin, *Texting While Driving: How Dangerous Is It?*, CAR & DRIVER, June 2009, http://www.caranddriver.com/features/09q2/texting_while_driving_how_dangerous_is_it_feature (finding that text messaging can be more

“barely drunk” driving. Moreover, even though drunk driving is known to be dangerous, substantial segments of the population admit to drinking and then driving.²⁰³ As a result, it is unsurprising that juries exhibit sympathy for those accused of drunk driving, particularly in the close cases where the driver’s BAL barely exceeds the legal limit.²⁰⁴

These observations suggest that although there is unlikely to be concern about the DADSS to the extent that it prevents “severe” drunk driving, there may be political pushback resulting from its ban on even borderline offending.²⁰⁵ Indeed, it is plausible that if political pressures caused legislatures to criminalize conduct that most of society does not view as wrongful,²⁰⁶ then when it comes to distinguishing illegal drunk driving from legal driving after consuming some alcohol, discussion of implementing the DADSS provides an opportunity to realign the criminal law with societal views.

(ii) *Prevention of Non-criminal Conduct*

The DADSS promises to be accurate, reliable, and precise, and this discussion assumes that any adopted technology will accomplish these goals to at least a reasonable degree. But no DADSS, and no technology generally, can ever be perfectly accurate, reliable, and precise. To put it another way, all technology makes mistakes. And when the DADSS technology makes a mistake, the result may be that an individual with a BAL below the legal limit is prevented from driving.

In particular, the DADSS can make two main types of mistakes. First, the DADSS may make errors in the measurement of the driver’s BAL within the acceptance tolerance of the system. Such errors could result either in an “expected false positive,” where the DADSS wrongly concludes that an individ-

dangerous than drunk driving); Radley Balko, *Targeting the Social Drinker Is Just MADD*, L.A. TIMES, Dec. 9, 2002, at A12 (reporting on a British study finding that cell phone use while driving causes greater impairment than a BAL of 0.08 g/dL).

203. JAMES B. JACOBS, DRUNK DRIVING: AN AMERICAN DILEMMA 43–44 (1989).

204. See Adam M. Gershowitz, *12 Unnecessary Men: The Case for Eliminating Jury Trials in Drunk Driving Cases*, 2011 U. ILL. L. REV. 961, 979, 982 (2011).

205. This concern lurks behind the claims of the American Beverage Institute that the DADSS program will make it impossible to “enjoy a glass of wine with dinner” or “a beer at a ballgame.” *A New Prohibition*, INTERLOCK FACTS, <http://interlockfacts.com/> (last visited Jan. 31, 2013).

206. See Stuntz, *supra* note 49, at 557–59.

ual's BAL is above the legal limit and prevents her from driving, or an "expected false negative," where the DADSS wrongly determines that an individual's BAL is below the legal limit and allows her to drive.²⁰⁷ An expected false positive prevents non-criminal conduct in that a "barely sober," but legal, driver is prevented from driving.²⁰⁸ A DADSS can be calibrated to reduce or eliminate the risk of either expected false negatives or expected false positives by shifting the point at which the DADSS prevents operation of the vehicle up or down. Such adjustment comes at a cost, however, as reducing expected false negatives increases the number of expected false positives, and vice versa.²⁰⁹

Second, the DADSS may err outside of specified tolerances or simply break down and stop functioning according to its specifications.²¹⁰ Such breakdowns would result in either "erroneous false positives," by which the DADSS forbids legitimate use of the vehicle, or "erroneous false negatives," by which the DADSS allows criminal operation of the vehicle. Assuming that the DADSS system would be developed to detect its own malfunctions, whether a breakdown will result in erroneous false positive or erroneous false negatives is a design decision.

The possibility of false positives that prevent individuals from engaging in legal conduct gives rise to two distinct issues. First, there may be procedural due process concerns that arise from the temporary suspension of one's ability to drive. Second, even if constitutional issues are addressed, policy reasons may dictate design decisions in how the DADSS handles potential errors.

207. For instance, if the DADSS is manufactured to be accurate to within 0.001 gram per deciliter, it may allow an individual with a BAL up to 0.081 g/dL to drive or prevent an individual with a BAL as low as 0.079 g/dL from doing so.

208. On the other hand, an expected false negative permits a "barely drunk" person to operate their vehicle.

209. Thus, a DADSS accurate to the program specification of 0.0003 grams per deciliter could be set to prevent operation of a vehicle whenever the BAL of the driver is measured at 0.0797 or above. This calibration would eliminate all expected false negatives, but would increase the number of expected false positives.

210. Both measurement errors outside of accepted tolerances and complete breakdowns of the system are inevitable, even if the DADSS is extremely reliable. And even exceedingly rare errors will cause substantial practical problems given the number of vehicles on the road at any given time and the number of trips that those vehicles take each day. See *Interlocks Fail*, INTERLOCK FACTS, <http://interlockfacts.com/interlocks-in-all-cars/interlocks-fail/> (last visited Jan. 31, 2013).

(a) Procedural Due Process

Once an individual has been issued a driver's license, she has a constitutionally protected property interest in that license and is entitled to due process before the government interferes with that interest.²¹¹ The nature of the required due process, however, will depend on the balancing of the *Eldridge* factors.²¹² The Supreme Court's decisions in *Dixon v. Love*²¹³ and *Mackey v. Montrym*²¹⁴ are instructive. In each case, an individual whose driver's license was suspended without a predeprivation hearing claimed that such a hearing was required by due process.²¹⁵ The Court recognized that an individual's interest in being able to drive is substantial, in part, because the government cannot make a driver whole for the inconvenience and hardship that may result from erroneous deprivation.²¹⁶ Nonetheless, the relative brevity of the prehearing deprivation, the administrative costs of providing a predeprivation hearing, and the government's interests in deterring unsafe driving and removing unsafe drivers from the road weighed against requiring such a hearing.²¹⁷

These latter factors suggest even more strongly that a predeprivation hearing is not required by due process in the case of the DADSS. In *Love*, the anticipated prehearing deprivation was twenty days long;²¹⁸ here, the deprivation would last only as long as the DADSS error. Even in the worst-case scenario, that would only be as long as required for the DADSS to be repaired. Moreover, requiring a predeprivation hearing, which would presumably need to occur after the DADSS measures a BAL above the legal limit but before the DADSS prevents the driver from driving, would render the system useless. And finally, unlike the suspension in *Montrym*, which merely helped deter drunk driving,²¹⁹ the government's interest in preventing drunk driving entirely is even stronger.

211. *Dixon v. Love*, 431 U.S. 105, 112 (1977); *Bell v. Burson*, 402 U.S. 535, 539 (1971).

212. See *supra* note 91 and accompanying text.

213. 431 U.S. at 105.

214. 443 U.S. 1 (1979).

215. *Love*, 431 U.S. at 111; *Montrym*, 443 U.S. at 8.

216. *Love*, 431 U.S. at 113; *Montrym*, 443 U.S. at 11–12.

217. *Love*, 431 U.S. at 113–15; *Montrym*, 443 U.S. at 13, 17–18.

218. 431 U.S. at 109–10.

219. 443 U.S. at 18.

The only remaining *Eldridge* factor is the accuracy of the proposed process relative to the provided process.²²⁰ As explained, the accuracy of the DADSS will depend on the accepted error rate for the system and the rate at which it breaks down. Meanwhile, a predeprivation hearing would involve an assessment of any data provided by the DADSS and the functionality of the DADSS itself. By reviewing both how the DADSS works generally and the operation of the specific system in question, such a hearing would provide greater accuracy. But given that the DADSS cannot effectively prevent drunk driving if a predeprivation hearing is required, this increase in accuracy is unlikely to lead a court to require a predeprivation hearing.

Though this analysis suggests that a *predeprivation* hearing is not required by due process, the substance of an individual's interest in driving may argue for some *postdeprivation* hearing.²²¹ While such a hearing could not undo an erroneous deprivation, it could provide a means by which an injured individual could obtain some remedy for it.²²² A postdeprivation remedy is appropriate where, as here, predeprivation process would be impossible.²²³ To ensure that such a remedy could be provided effectively and efficiently, the DADSS should be designed to create a record of its operation that could be used in later hearings.²²⁴

220. *Id.* at 13.

221. In both *Love* and *Montrym*, the statutory schemes at issue permitted some postsuspension hearing. *Love*, 431 U.S. at 109–10; *Montrym*, 443 U.S. at 7.

222. See, e.g., Fla. Prepaid Postsecondary Educ. Expense Bd. v. Coll. Sav. Bank, 527 U.S. 627, 643 (1999) (recognizing that due process could be satisfied by procedures to provide an adequate remedy for the interference with a protected property interest); *Parratt v. Taylor*, 451 U.S. 527, 543–44 (1981) (finding that prisoner's possible action for recovery of damages against state actors satisfied due process with respect to his loss of property).

223. See *Zinermon v. Burch*, 494 U.S. 113, 128–30 (1990) ("*Parratt* and *Hudson [v. Palmer]*, 468 U.S. 517 (1984)) represent a special case of the general *Mathews v. Eldridge* analysis, in which postdeprivation tort remedies are all the process that is due, simply because they are the only remedies the State could be expected to provide."). A postdeprivation remedy also would provide an opportunity to identify and fix recurring problems in the operation of the DADSS. See Citron, *supra* note 92, at 1285–86 (recognizing the importance of correct technological processes to enhance the accuracy of future results).

224. See Citron, *supra* note 92, at 1308.

(b) Policy

As explained above, the DADSS may cause two different kinds of false positives. The “expected false positives” are those that prevent a “barely sober” driver from driving due to an inaccurate BAL measurement within design specifications. On the other hand, “erroneous false positives” are those that result from DADSS malfunctions and may impact drivers with any legal BAL, or no detectable BAL at all. Although in each case the false positive unnecessarily intrudes on individual autonomy, each kind of false positive gives rise to different issues.

With respect to barely sober drivers, their autonomy interests must be placed in the context of their threat to public safety. Though such individuals do not necessarily break the law by operating a motor vehicle, alcohol negatively impacts one’s ability to drive safely even at legally permissible levels.²²⁵ As such, though the barely legal driver’s interest in being permitted to continue to drive may be the same, the weight that society ascribes to that interest is understandably diminished.

A more compelling case can be made for a person who is prevented from driving due to an erroneous false positive.²²⁶ Such a person is most likely sober and could be prevented from engaging in extremely important life activities, such as going to work, buying groceries, or visiting the doctor. Thus, from society’s standpoint, the infringement on the autonomy rights of such an individual is most severe.

These observations suggest four recommendations regarding the design and calibration of the DADSS. First, stringent precision requirements for any implemented DADSS technology would make instances of expected false positives and expected false negatives relatively rare. Second, stringent reliability requirements would reduce the frequency at which DADSS units malfunction and create erroneous false positives and false

225. Indeed, BAL is correlated with involvement in a fatal automobile accident even at levels below the legal limit. See TRAFFIC SAFETY FACTS, *supra* note 168, at 5.

226. Though there are scant data on the percentage of all drivers who have some alcohol in their system at a given time, current studies suggest that only 2.2% of drivers on weekend nights had a BAL above the legal limit in 2007. RICHARD COMPTON & AMY BERNING, RESULTS OF THE 2007 NATIONAL ROADSIDE SURVEY OF ALCOHOL AND DRUG USE BY DRIVERS 1 (2009), <http://www.nhtsa.gov/DOT/NHTSA/Traffic%20Injury%20Control/Articles/Associated%20Files/811175.pdf>. Even assuming that drivers with legal BALs take to the roads many times more frequently than drunk drivers, the majority of drivers are completely sober.

negatives.²²⁷ Third, the DADSS should be calibrated to have a cut-off slightly below the legal limit. Doing so would maximize expected false positives and minimize false negatives. Put another way, it would keep the greatest numbers of drunk drivers off the road while intruding on the autonomy interests only of those legal drivers who are most likely to create a risk to public safety.²²⁸ Fourth, inspection and testing of the DADSS unit should be part of a vehicle's annual inspection so as to further reduce the risk of malfunctions.²²⁹

b. Privacy

To ascertain whether a driver's BAL exceeds the legal limit, the DADSS must at the very least collect data about the driver's BAL. One such datum would show that the driver was or was not legally drunk on a particular occasion and sought to drive. An accumulation of such data over an extended period of time could provide a picture of the driver's drinking and driving habits, even if those habits never result in illegal activity.²³⁰ This

227. Given the number of cars on the road and the frequency with which people drive, however, any imprecision or unreliability is likely to result in a substantial number of expected erroneous results.

228. This suggestion that on the margins preventing a small amount of legal conduct is better than permitting a small amount of illegal conduct stands in sharp contrast to Blackstone's adage that it is better to let ten guilty people go free than to convict one innocent person. See generally Alexander Volokh, *n Guilty Men*, 146 U. PA. L. REV. 173 (1997) (discussing the origins and various permutations of the notion that it is better to free guilty people than imprison innocent ones). This contrast serves to highlight the difference between criminal punishment, with its numerous deleterious direct and collateral results, and the perfect prevention of criminal conduct.

229. One design idea might be to include some sort of emergency override of the DADSS unit. The override could permit the driver to operate the vehicle while alerting local law enforcement of the override. Law enforcement could then respond to ensure that the driver is not intoxicated. Though facially attractive, this solution would be unsatisfactory for the sober driver, create substantial work for law enforcement, and undermine the entire DADSS system. First, a sober driver who engages the override would likely face an uncomfortable and time consuming encounter as police attempted to ascertain whether the driver was in fact sober, thus creating a new inconvenience perhaps worse than the original one. Second, given the impact that alcohol has on decisionmaking, the emergency override no doubt would be overused by individuals who are not sober, thus leading to a substantial number of drunk drivers who are not removed from the roads. These drivers would require police intervention and create substantial risk to public safety.

230. For instance, an individual who regularly starts her car during the lunch hour with a measurable, but legal, amount of alcohol in her system would be re-

information certainly would be of interest to private parties, such as the driver's insurance company who may view her as a greater insurance risk based on her habits²³¹ or advertisers who may wish to target her for products like headache medicines and breath fresheners.²³² Yet, the driver has a privacy interest in this information about her non-public behaviors that is recognized both constitutionally²³³ and by statute.²³⁴ Moreover, if information about alcohol consumption and driving is combined with other data, even more conclusions could be drawn about the driver. In other words, alcohol consumption can be a crucial piece in the mosaic of information that the government or private industry can collect on an individual to create a complete picture of that person's private life.²³⁵ Finally, the DADSS provides an opportunity for piggybacking other technology in the vehicle, such as an accelerometer or GPS tracking device, that could collect data unrelated to the driver's BAL level. Any of the information obtained by the DADSS or piggybacking technologies could then be shared remotely with the DADSS manufacturer, police, or other government agency, and ultimately with any interested party.²³⁶

These privacy concerns counsel for strict controls in the design of the DADSS and tight regulations on the use of any collected data. Setting forth the precise contours of these restrictions is both premature and beyond the scope of this Article. A few ob-

vealed to be one who enjoys a drink or two at lunch. This could be evidence of any number of things, including alcoholism, an active social calendar, or an apathetic attitude toward her employment.

231. See Jennifer B. Wriggins, *Automobile Injuries as Injuries with Remedies: Driving, Insurance, Torts, and Changing the "Choice Architecture" of Auto Insurance Pricing*, 44 LOY. L.A. L. REV. 69, 86–89 (2010) (discussing data collection by insurance companies to provide personalized rates based on car usage and risk factors).

232. See Paul M. Schwartz & Daniel J. Solove, *The PII Problem: Privacy and a New Concept of Personally Identifiable Information*, 86 N.Y.U. L. REV. 1814, 1850–54 (2011).

233. See *C.N. v. Ridgewood Bd. of Educ.*, 430 F.3d 159, 180 (3d Cir. 2005) (recognizing that information about drug and alcohol use is "intimate and private") (internal quotation omitted).

234. See Marisa Anne Pagnattaro, *What Do You Do When You Are Not at Work?: Limiting the Use of Off-Duty Conduct as the Basis for Adverse Employment Decisions*, 6 U. PA. J. LAB. & EMP. L. 625, 641–46 (2004) (discussing statutory protections for the off-duty use of "lawful products" such as alcohol).

235. See *supra* note 100.

236. See Elizabeth E. Joh, *Discretionless Policing: Technology and the Fourth Amendment*, 95 CALIF. L. REV. 199, 200–02 (2007) (discussing technologies that communicate driving and mechanical data from cars to police).

servations are in order, however. First, though a DADSS that creates no record of past BAL measurements would provide the greatest protection of driver privacy, documentation of the DADSS's performance is necessary to ensure its proper function and to allow for a remedy should the DADSS erroneously prohibit vehicle operation.²³⁷ Second, consideration of piggybacking any data-gathering technology on the DADSS must involve a separate analysis of the privacy concerns at stake, including a consideration of the governmental purposes for obtaining the targeted information. Third, given the potential utility of DADSS data to private industry, legislators and privacy advocates should expect substantial political pressure to be brought to bear to allow its distribution.²³⁸ Fourth, any claims about the potential to anonymize collected DADSS must be viewed skeptically in light of recent experiences showing the difficulty in adequately "scrubbing" data of personal identifiers.²³⁹

2. Societal Interests

Though its effects will likely be felt most directly by potential drunk drivers, the DADSS also promises to impact society more broadly. First, development and manufacture of the DADSS is not free, and this society or some portion thereof must pay those costs. Second, the DADSS cannot prevent all drunk driving, and the impact of the system on efforts to apprehend and punish those remaining offenders must be considered. Third, the DADSS may undercut the ability of the criminal justice system to convey anti-drunk-driving norms. Fourth, without some accommodation, the DADSS may prevent some instances where drunk driving produces a net social benefit and thus where society would be harmed from its use.

237. See *supra* note 224 and accompanying text.

238. Dorothy J. Glancy, *Privacy on the Open Road*, 30 OHIO N.U. L. REV. 295, 313 (2004) (recognizing the likely demand for information collected by automobile-bound data collection technology). This pressure has been felt already in other areas in which government and private industry see sharing information about individuals to be mutually beneficial. Mark Baard, *Watchdogs Push for RFID Laws*, WIRED, Apr. 5, 2004, http://www.wired.com/news/politics/privacy/0,62922-0.html?tw=wn_technology_security_3 (detailing opposition from government and private industry to restrictions on the use of Radio Frequency Identification (RFID) tags to gather consumer data).

239. See Paul Ohm, *Broken Promises of Privacy: Responding to the Surprising Failure of Anonymization*, 57 UCLA L. REV. 1701, 1716–27 (2010).

a. Financial Cost

Requiring the installation of the DADSS in all new vehicles will give rise to two sets of financial costs: the cost of developing the technology and the cost of installing the technology in all new vehicles. Originally, the federal government allocated \$10 million over five years to develop the DADSS in partnership with the auto industry, and Congress is currently considering an additional grant of \$5 million in funding.²⁴⁰ Meanwhile, the cost of the units installed in vehicles will presumably be passed along to consumers. That cost is currently unknown, but given that traditional interlocks can cost over a thousand dollars per year,²⁴¹ it is likely to be significant.

As explained previously, a broad allocation of an impossibility structure's cost is both just and practical.²⁴² Thus, the federal government's funding of the development of the DADSS technology is appropriate. Passing the costs of the actual DADSS on to the purchasers of new vehicles is not ideal, however. Though those who drive are the only ones capable of driving drunk, only a minority of drivers actually do so.²⁴³ As a result, passing the costs on to drivers generally does a poor job of burdening only the morally culpable. Moreover, all of society would reap the benefits of the eradication of drunk driving.²⁴⁴ For these

240. See Christine Negroni, *A Lift for Alcohol Sniffers in Cars*, N.Y. TIMES WHEELS BLOG (Nov. 6, 2011) <http://query.nytimes.com/gst/fullpage.html?res=9D03E6D7143CF935A35752C1A9679D8B63&smid=pl-share>; MOTHERS AGAINST DRUNK DRIVING, *MADD Applauds Senate for Increased Alcohol Detection Research Funding*, MADD.COM (Sept. 23, 2011), <http://www.madd.org/media-center/press-releases/2011/madd-applauds-senate-for.html>.

241. NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., *IGNITION INTERLOCKS—WHAT YOU NEED TO KNOW 4* (2009), http://www.nhtsa.gov/staticfiles/nti/impaired_driving/pdf/811246.pdf.

242. See *supra* notes 119–21 and accompanying text.

243. See CTR. FOR DISEASE CONTROL & PREVENTION, *VITAL SIGNS: ALCOHOL-IMPAIRED DRIVING AMONG ADULT—UNITED STATES 2010*, at 1352 (2011) (finding that 1.8% of drivers reported an incident of alcohol-impaired driving in past thirty days); NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., *NATIONAL SURVEY OF DRINKING AND DRIVING ATTITUDES AND BEHAVIORS: 2008*, at 5, 19 (2010) (finding that 20% of respondents reported driving within two hours of consuming an alcoholic drink in the past year (2007) and 30% of these respondents reported driving when they thought they were over the legal limit).

244. In this way, the DADSS differs from automobile safety measures like seat belts and air bags that generally protect and benefit only those inside the vehicle and thus should properly be paid for by the car's owner.

reasons, should the government mandate the inclusion of the DADSS in new vehicles, it should pay the cost of the structure.

b. Imperfect Impossibility

Drunk drivers have proven themselves to be highly motivated and adept at avoiding the current generation of ignition interlocks.²⁴⁵ Though DADSS technology differs substantially from current ignition interlock technology, it seems certain that the most technologically savvy and dedicated drunk drivers will continue to find ways to drive drunk even if DADSS technology is installed in all vehicles. Moreover, some “false negatives,” by which a DADSS allows an individual to drive with a BAL in excess of legal limits, are inevitable.²⁴⁶ Thus, some drunk driving will still occur, and many of those doing it are likely to be dedicated and repeat offenders who will present a particularly serious risk of harm. Consequently, the DADSS program must not result in law enforcement ignoring the problem of drunk driving. Rather, the emphasis should move from high-visibility efforts aimed at deterring the public at-large, like sobriety checkpoints, to strategies aimed at deterring, detecting, and incapacitating dedicated offenders.

The potential also exists that the DADSS will cause some crime displacement, with the most likely result being crime-type displacement.²⁴⁷ Specifically, individuals who wish to get intoxicated may choose a drug other than alcohol so that their ability to drive will not be restricted. Although such displacement may occur in some circumstances, the illegality and relative unavailability of most other intoxicants as compared to alcohol is likely to prevent the less committed drunk drivers from seeking them out. The likely result, then, is that police will see some increase in the number of individuals driving while impaired through the use of other substances, but that increase should pale in comparison to the decline in drunk driving. That being said, those who are dedicated to driving while impaired may choose to drive while under the influence

245. See Marutollo, *supra* note 125.

246. See *supra* notes 207–09 and accompanying text.

247. See *supra* notes 131–36 and accompanying text (defining types of crime displacement). Tactical displacement is not at issue because there is only one way to commit drunk driving and the DADSS would aim to render that means of committing the criminal conduct effectively impossible.

of substances that interfere with their driving capabilities to a greater extent than alcohol. Such individuals will be more dangerous than the average drunk driver, thus reinforcing the need for police to focus their efforts on strategies aimed at dedicated offenders.

*c. Undermining the Educational Function
of the Criminal Justice System*

By making it practically impossible to drive drunk, the DADSS may interfere with the ability of the criminal justice system to teach society, through the punishment of offenders, that drunk driving is wrong. The extent to which the DADSS might undermine the educational function of the criminal justice system in this regard must not be overstated, however. First, the DADSS cannot prevent all instances of individuals driving with a BAL over the legal limit. The punishment of these offenders will provide the opportunity to reinforce this message. Second, the DADSS will only prevent one sub-class of the larger moral wrong of reckless driving. Examples of similar illegal behavior abound, including driving while impaired by other substances or by alcohol at a level below the firm legal limits enforced by the DADSS, will remain open for punishment and thus education.²⁴⁸

d. Beneficial Criminal Conduct

There may be cases where drunk driving is necessary to avoid some greater societal harm. For instance, a husband may be in a position where his BAL is over the legal limit but he is the only one available to drive his pregnant wife to the hospital to deliver their child. The harm of the husband driving in this instance—the increased risk of an accident—may be less than the harm if the husband is prevented from driving—the potential harm to his wife and child. Though such an example counsels in favor for some sort of emergency bypass for the DADSS, there are reasons to be cautious about creating such a loophole.

First, the frequency with which these situations will arise must be weighed against the likelihood that such a bypass will be

248. See, e.g., N.C. GEN. STAT. § 20-138.1(a) (2012) (defining “Impaired driving” to include either driving with a BAL at or above 0.08 or driving “[w]hile under the influence of an impairing substance”).

abused. Occasions of true necessity to drive while technically over the legal BAL limit, where no other options are available, are no doubt exceedingly rare. Abuse of such a bypass also seems likely, even if such abuse were deterred by causing the bypass to trigger immediate police investigation. Individuals whose perceptions and judgment are impaired by alcohol are not the best candidates for a rational weighing of the costs and necessity of using the bypass, after all. And requiring police involvement whenever the bypass is used may undo many of the investigatory cost-savings of the DADSS.²⁴⁹ Second, creating an exceptionless DADSS would have its own benefit of deterring drinking by those, like the husband with the pregnant wife, who might be called to drive in an emergency.²⁵⁰ These arguments are not conclusive, but they must be factored into the decision of whether to allow drivers to bypass the DADSS.

e. Stifling Discussion of Underlying Legal Rules

The prohibition on drunk driving is not the sort of law that seems open to attack on grounds that it is fundamentally unjust in the same way as anti-miscegenation laws or limits on freedom of expression. That being said, there are those who argue that drunk driving laws are bad policy or unjust and preventing these individuals from engaging in drunk driving removes an avenue by which they can challenge the law.²⁵¹

IV. FUTURE CONSIDERATIONS

Preventing drunk driving is a low hanging fruit when it comes to making criminal conduct impossible. The crime requires technology for its completion and is essentially defined by a technological measurement. Thus, adapting automotive technology to incorporate the measurement of the driver's BAL is intuitive, if not technologically simple. Moreover, the harms

249. Though the investigation would be simplified by the existence of the BAL data from the DADSS, it would not be without complication, as the police would need to evaluate whatever claim of emergency that the driver raises.

250. See Camerer et al., *supra* note 33, at 1253 (noting that behavioral economics shows that even a small risk of loss causes people to alter their behavior to be more risk averse).

251. See Radley Balko, *Abolish Drunk Driving Laws*, REASON, (Oct. 11, 2010, 12:00 PM), <http://reason.com/archives/2010/10/11/abolish-drunk-driving-laws>; see also Part II.B.4.d. (discussing the costs of preventing beneficial criminal conduct generally).

resulting from drunk driving are severe and widespread, making the DADSS more politically feasible than other potential impossibility structures. Nevertheless, as the discussion above reveals, even such a straightforward impossibility structure gives rise to a tangle of constitutional, legal, and policy issues. These issues likely will only multiply as the targets of impossibility structures migrate outward from this natural origin of technology-related crimes.

Predicting the future is a fool's errand, of course, but a few areas seem ripe for the introduction of impossibility structures. The first would be other offenses involving the operation of automobiles, such as speeding, running a red light, or failing to wear a seat belt, that can result in death and serious bodily harm. From a technological standpoint, these should be easy to make impossible, and much of the technology needed to do so is already under development.²⁵² From a political standpoint, however, these offenses suffer from a perceived lack of seriousness. Moreover, the criminalization of the failure to wear a seat belt is a classic paternalistic offense. As a result, structures like red-light cameras which aim to curtail these offenses have met with staunch resistance. It seems likely that impossibility structures targeting similar offenses would meet similar or greater resistance in light of their greater efficacy.

Crimes that take place over the Internet, such as cyberbullying and cyberstalking, hacking, distributing child pornography, and theft of intellectual property, may also be amenable to impossibility structures in that they require technology for their commission. Although such crimes are disparate in how they are committed, and thus how they might be rendered impossible, they give rise to some common concerns. Most pressing is the risk that any overbreadth in the impossibility structure might interfere with an individual's First Amendment rights.²⁵³ Moreover, it is difficult to imagine an automated system could distinguish licit from illicit activities without risking substantial overbreadth. Finally, the technologies that might be

252. See Frank Douma & Jordan Deckenbach, *The Challenge of ITS for the Law of Privacy*, 2009 U. ILL. J.L. TECH & POL'Y 295, 296–98 (2009) (describing intelligent transportation systems technology currently available or under development).

253. See Naomi Harlin Goodno, *How Public Schools Can Constitutionally Halt Cyberbullying: A Model Cyberbullying Policy that Considers First Amendment, Due Process, and Fourth Amendment Challenges*, 46 WAKE FOREST L. REV. 641, 656–66 (2011).

used to render such crimes impossible would likely be able to collect private data, thus raising substantial privacy concerns. Should these hurdles be cleared, however, many of these crimes are perceived as sufficiently serious to justify impositions on individual autonomy.²⁵⁴

Finally, beyond the assessment of impossibility structures individually, it is important to consider the systemic risk that increased reliance on such structures may bring. As society becomes comfortable with the government imposing structures that narrowly target criminal activity for impossibility, we may become more open to less carefully proscribed prohibitions. Thus, for instance, if the DADSS program is effective at curtailing drunk driving with only a minimal perceived intrusion on the autonomy and privacy of innocent drivers, society may be less careful in assessing a program that seeks to prohibit speeding or one that leaves the realm of traffic offenses. This concern counsels in favor of vigilant oversight of proposed impossibility structures by policy makers, citizen groups, and academics to ensure that any such structures are narrowly proscribed and that their contours are closely policed to avoid the creation of a society all too tolerant of intrusion on their individual rights.

254. The exception might be certain instances of theft of intellectual property. See I. Trotter Hardy, *Criminal Copyright Infringement*, 11 WM. & MARY BILL RTS. J. 305, 329–30 (2002) (discussing societal ambiguity surrounding some technical “theft” of intellectual property).