

COMPELLING CODE

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ABSTRACT

Does the First Amendment protect computer code from being compelled by the government? As society becomes more reliant on coded devices—like pacemakers, insulin pumps, and even some baby bassinets—courts will need to grapple with this question. In considering compulsions related to code, this Article concludes that intermediate scrutiny is almost always the appropriate standard of review. Rather than expressing a particular viewpoint, code generally constitutes a functional and neutral script. Given that a machine’s interpretation of code generally results in an objective action, not a subjective belief, the government need only show in most instances that the compulsion furthers a significant government interest. Accordingly, this Article argues that many requests for code compulsions are likely constitutional and will warrant compliance on the part of technology companies.

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I. INTRODUCTION

ON numerous occasions, federal courts across the country have treated computer code as speech within the meaning of the First Amendment.¹ The rationales vary slightly, but overall, these decisions contemplate code for computer programmers in much the same

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1. See, e.g., *Universal City Studios, Inc. v. Corley*, 273 F.3d 429, 449 (2d Cir. 2001); *Junger v. Daley*, 209 F.3d 481, 485 (6th Cir. 2000); *321 Studios v. Metro Goldwyn Mayer Studios, Inc.*, 307 F. Supp. 2d 1085, 1099–1100 (N.D. Cal. 2004); *United States v. Elcom Ltd.*, 203 F. Supp. 2d 1111, 1126–27 (N.D. Cal. 2002); *Bernstein v. U.S. Dep’t of State*, 922 F. Supp. 1426, 1436 (N.D. Cal. 1996).

way that society contemplates modern literature for ordinary readers.² Writing code, the argument goes, requires human choices because there are many ways a code can be written to accomplish a given task.³ These choices revolve around language, syntax, vocabulary, and, in this context, the creation of algorithms to manipulate and transform data.⁴ The element of choice allows for code to be deemed “expressive” and therefore worthy of constitutional protection.⁵

Using this logic, private companies have sought to escape governmental requests to produce code, claiming that such a request amounts to unconstitutional speech compulsion.⁶ For example, in 2016, the FBI obtained a court order requiring Apple to create a special computer code to unlock an iPhone owned by the terrorist who helped orchestrate a mass shooting in San Bernardino.⁷ Apple, however, refused, arguing that because code is speech, code production ordered by the government constitutes compelled speech in violation of the First Amendment.⁸ Though that case was never decided because the government ultimately gained access to the phone without Apple’s aid,⁹ it raised questions about the nature of compelling written code and the extent to which computer code is protected vis-à-vis ordinary speech. In other words, how and when can the government order the production of code, if at all?

This Article considers these issues under the lens of access and public safety, particularly with regard to the medically vulnerable. The government is permitted to compel speech in certain circumstances—namely when a significant governmental interest in prohibiting or requiring certain speech exists and the government’s action is reasonable.¹⁰ This is why the government can require companies to include language on their products, such as warning labels and nutritional information. The health

2. See *Corley*, 273 F.3d at 446.

3. See Apple Inc.’s Reply to Government’s Opposition to Apple Inc.’s Motion to Vacate Order Compelling Apple Inc. to Assist Agents in Search at 23, *In re Search of an Apple iPhone Seized During the Execution of a Search Warrant on a Black Lexus IS300, California License Plate 35KGD203*, No. CM 16-10 (C.D. Cal. Mar. 15, 2016) [hereinafter Apple’s Reply], <https://www.justsecurity.org/wp-content/uploads/2016/03/FBI-Apple-CD-Cal-Apple-Reply.pdf> [https://perma.cc/2H3A-YXSK].

4. *Id.*

5. See *id.*; *Junger*, 209 F.3d at 485.

6. See, e.g., Apple’s Reply, *supra* note 3, at 22–25.

7. See Eric Lichtblau & Katie Benner, *Apple Fights Order to Unlock San Bernardino Gunman’s iPhone*, N.Y. TIMES (Feb. 17, 2016), <https://www.nytimes.com/2016/02/18/technology/apple-timothy-cook-fbi-san-bernardino.html> [https://perma.cc/LZD3-76AV]; Joel Rubin, James Queally & Paresh Dave, *FBI Unlocks San Bernardino Shooter’s iPhone and Ends Legal Battle with Apple, for Now*, L.A. TIMES (Mar. 28, 2016, 10:39 PM), <https://www.latimes.com/local/lanow/la-me-ln-fbi-drops-fight-to-force-apple-to-unlock-san-bernardino-terrorist-iphone-20160328-story.html> [https://perma.cc/WWG2-EPG3].

8. See Apple’s Reply, *supra* note 3, at 23.

9. See Mitchell Clark, *Here’s How the FBI Managed to Get into the San Bernardino Shooter’s iPhone*, VERGE (Apr. 14, 2021, 3:58 PM), <https://www.theverge.com/2021/4/14/22383957/fbi-san-bernardino-iphone-hack-shooting-investigation> [https://perma.cc/TM94-RWP7].

10. See *Zauderer v. Off. of Disciplinary Couns. of Sup. Ct. of Ohio*, 471 U.S. 626, 638, 651 (1985).

and welfare of the public is, of course, a significant governmental interest that warrants deference in certain situations, even when the constitutional right of free speech is impacted. To the extent that code is in fact speech,¹¹ the reality that code is read by machines controlling significant parts of this country's infrastructure—from medical and communication devices to transportation and beyond—suggests that it should still be highly regulatable or at least compellable, in many circumstances on the basis of the government's significant interest in the public's health and safety.

With this background in mind, this Article will consider when code can reasonably be compelled while still respecting First Amendment principles. Part I discusses the history of speech compulsion in the United States, drawing on examples of when compelled speech has been both permitted and prohibited. In so doing, this Article takes the position that intermediate scrutiny is almost always the appropriate standard for reviewing speech compulsions of computer code. Part II discusses how society's entwinement with technology and dependence on computer-coded devices for health and safety supports the idea that computer code can oftentimes be easily compelled. Part III applies the intermediate scrutiny backdrop to relevant hypotheticals and demonstrate how a significant interest in the public's health and safety has successfully served to satisfy intermediate scrutiny in prior cases. After examining the ways in which many humans are reliant upon coded devices, this Article concludes that the government should be able to order the production of code in accordance with the First Amendment in instances where the public's health and safety are at risk.

II. THE DOCTRINE OF SPEECH COMPULSION

As a general matter, the First Amendment ensures that the government can neither censor public speech nor force speech upon the public.¹² There are, of course, some exceptions to this rule. For instance, the Su-

11. A position that I am not, as a per se matter, convinced is accurate. While computer code certainly communicates something, the idea that it necessarily constitutes speech seems far too broad. Indeed, when a driver turns their steering wheel, they communicate something—a function—to the machine (or car) transporting them, and cause that car to function accordingly. But that communication seems not to constitute speech. Along this line, and as discussed below in Part II, if someone were to hack an automobile, that hacking code would not seem to me to become speech just because code communicated the steering command. See Andy Greenberg, *The Jeep Hackers Are Back to Prove Car Hacking Can Get Much Worse*, WIRE (Aug. 1, 2016, 3:30 PM), <https://www.wired.com/2016/08/jeep-hackers-return-high-speed-steering-acceleration-hacks> [https://perma.cc/NC9P-XEZT]. The existing literature on whether code constitutes speech is extensive, however, and so this piece seeks to add value to the existing conversation by discussing the specific scenario of whether speech can be compelled if, as has often happened, others conclude that computer code is in fact speech (which, under particular circumstances, can certainly be the case). See generally Stuart Minor Benjamin, *Algorithms and Speech*, 161 U. PA. L. REV. 1445 (2013); Tim Wu, *Machine Speech*, 161 U. PA. L. REV. 1495 (2013).

12. See *Wooley v. Maynard*, 430 U.S. 705, 714 (1977) (“A system which secures the right to proselytize religious, political, and ideological causes must also guarantee the concomitant right to decline to foster such concepts. The right to speak and the right to refrain

preme Court has recognized a limited number of speech categories that fall outside the scope of First Amendment protection.¹³ Unprotected communications can indeed be regulated and censored by the government. On the flip side, the government may compel speech, but only under a narrow set of circumstances.

When evaluating whether speech may be compelled, the first step is to determine whether the compulsion relates to the substantive views expressed by that speech.¹⁴ If the government orders someone to publish speech that undermines or contradicts their subjective opinion—or, in technical terms, their “viewpoint”—that speech compulsion is viewpoint-based.¹⁵ Viewpoint-based speech compulsions are subject to strict scrutiny.¹⁶ The following cases are illustrative.

In *Miami Herald Publishing Co. v. Tornillo*, the Supreme Court considered the constitutionality of a Florida “right to reply” statute.¹⁷ The statute required any newspaper attacking the personal character of a political candidate to provide comparable space for that candidate to respond to the criticisms.¹⁸ It aimed to ensure that diverse views reached the public since newspapers are, as the Court noted, “powerful and influential in [their] capacity to manipulate popular opinion and change the course of events.”¹⁹ Applying what amounted to strict scrutiny,²⁰ the Court struck down the Florida statute.²¹ A strong impetus behind the Court’s decision was the fact that “[a] newspaper is more than a passive receptacle or conduit for news, comment, and advertising,” but rather involves a great deal of choice relating to the “content of the paper.”²² Such choices relate to the editors’ substantive views on exercising their editorial control and

from speaking are complementary components of the broader concept of ‘individual freedom of mind.’”) (quoting *W. Va. State Bd. of Educ. v. Barnette*, 319 U.S. 624, 637 (1943)).

13. See *Chaplinsky v. New Hampshire*, 315 U.S. 568, 571–72 (1942) (“There are certain well-defined and narrowly limited classes of speech, the prevention and punishment of which have never been thought to raise any [c]onstitutional problem. These include the lewd and obscene, the profane, the libelous, and the insulting or ‘fighting’ words—those which by their very utterance inflict injury or tend to incite an immediate breach of the peace.”); see also Nicole Ligon, *Virtual Assault*, 2021 U. ILL. L. REV. 1203, 1214–21 (2022).

14. See *Universal City Studios, Inc. v. Reimerdes*, 111 F. Supp. 2d 294, 328 (S.D.N.Y. 2000), *aff’d sub nom. Universal City Studios, Inc. v. Corley*, 273 F.3d 429 (2d Cir. 2001).

15. Viewpoint discrimination is a form of content-based discrimination. See *Rosenberger v. Rector & Visitors of Univ. of Va.*, 515 U.S. 819, 829 (1995).

16. See *Frudden v. Pilling*, 742 F.3d 1199, 1207 (9th Cir. 2014); see also *Wooley*, 430 U.S. at 715 (striking down a law because it forced an individual “to be an instrument for fostering public adherence to an ideological point of view he finds unacceptable”).

17. See *Miami Herald Publ’g Co. v. Tornillo*, 418 U.S. 241, 244 (1974).

18. See *id.*

19. *Id.* at 249.

20. The Court was not explicit about its application of strict scrutiny, but it did essentially evaluate whether the statute was narrowly tailored in accordance with this level of review. See *id.* at 257 (“[A] newspaper can[not] proceed to infinite expansion of its column space to accommodate the replies that a government agency determines or a statute commands the readers should have available.”); see also Brandon Matsnev, *Code Speak: Constitutional Avoidance on the First Amendment Encryption Question*, 90 TEMP. L. REV. 305, 321 (2018).

21. See *Miami Herald*, 418 U.S. at 258.

22. *Id.*

judgment, including decisions on the “treatment of public issues and public officials.”²³ Compelling speech that directly counters the newspaper’s viewpoints constitutes a viewpoint-based compulsion subject to this higher level of review.

Similarly, in *West Virginia State Board of Education v. Barnette*,²⁴ the Supreme Court ruled that Jehovah’s Witnesses could not be compelled to salute the American flag or recite the Pledge of Allegiance in school in contravention of their beliefs.²⁵ The Court explained, “Those who begin coercive elimination of dissent soon find themselves exterminating dissenters. Compulsory unification of opinion achieves only the unanimity of the graveyard.”²⁶ Justice Jackson further elaborated:

If there is any fixed star in our constitutional constellation, it is that no official, high or petty, can prescribe what shall be orthodox in politics, nationalism, religion, or other matters of opinion or force citizens to confess by word or act their faith therein. If there are any circumstances which permit an exception, they do not now occur to us.²⁷

That case laid the groundwork for the Court’s subsequent ruling in *Wooley v. Maynard*.²⁸ In *Wooley*, the Court ruled in favor of a group of motorists who taped over the state motto on their license plates, which read: “Live Free or Die.”²⁹ They objected to the motto for religious and political reasons, and the Court therefore applied strict scrutiny in evaluating whether the motorists could be compelled to display the motto, which ran counter to their views.³⁰ The Court concluded that the state’s asserted compelling interest—the ability to identify passengers—did not justify the requirement that the license plate motto be displayed. The vehicles in question already had unique combinations of license plate numbers and letters that were not covered up, thereby making them identifiable.³¹ Thus, forcing the motorists to display the motto against their beliefs was not narrowly tailored to achieve the state’s interest.³²

In these cases, the Court applied the strict scrutiny standard because the compelled speech ran counter to the speakers’ viewpoints. However, because code is a technical form of communication, like sheet music or mathematical equations, it simply cannot be the subject of viewpoint discrimination.³³ As a result, a lower level of scrutiny—namely, intermedi-

23. *Id.*

24. 319 U.S. 624 (1943).

25. *See id.* at 642.

26. *Id.* at 641.

27. *Id.* at 642.

28. 430 U.S. 705 (1977).

29. *Id.* at 707, 717.

30. *See id.* at 716 (“We must also determine whether the State’s countervailing interest is *sufficiently compelling* to justify requiring appellees to display the state motto on their license plates.” (emphasis added)).

31. *Id.*

32. *See id.*

33. *See* Anita Balakrishnan, *Does Computer Code Count as Free Speech?*, CNBC (Mar. 1, 2016, 11:29 AM), <https://www.cnbc.com/2016/03/01/apple-question-is-code-free->

ate scrutiny—will almost always be the appropriate standard by which to evaluate code compulsions. Arguments have been waged against this position, like Apple arguing that its code was written to be secure, so the government's request to write new software to open the San Bernardino terrorist's phone would therefore be a contrary viewpoint.³⁴ But realistically, code is not written to express a particular viewpoint; it is written to express a function. It may be expressive like a piece of modern art or, again, sheet music, but it does not necessarily convey a viewpoint that can run in contravention of another. Even if it did, a compelling interest in aiding the public's safety and health would likely sustain a compulsion in the Apple scenario and in many other requests for code compulsion.

Though speech cannot be compelled in a viewpoint-based manner, it can be compelled in a content-neutral manner, so long as the compulsion is "justified without reference to the content of the regulated speech" (i.e., is actually content neutral), is narrowly tailored to serve a significant governmental interest, and "leave[s] open ample alternative channels for communication."³⁵ The Supreme Court has explained that with respect to content-neutral regulations—or here, compulsions—"narrow tailoring" does not require the government to use the least restrictive alternative;³⁶ a content-neutral regulation is not invalid merely because there is another possible alternative available.³⁷ Rather, the government only needs to show that its interest would be achieved less effectively without that regulation.³⁸ Courts rarely invalidate speech regulations found to be content neutral; thus, the outcome of a given case in this context turns almost entirely on whether compulsion is in fact content-based. Assuming that it is almost always impossible to discriminate against code on the basis of viewpoint, the compulsion of code is likely permissible under an intermediate scrutiny review.

One case that illustrates the constitutionality of compelling code through a content-neutral regulation is *Milavetz, Gallop & Milavetz, P.A. v. United States*.³⁹ In this case, the Supreme Court applied a more lenient standard of review to the requirement that some companies include in their advertisements the factually true and neutral statement, "We are a debt relief agency," to provide fulsome information to consumers reading and trying to interpret those ads.⁴⁰ The Court explained that the disclo-

speech.html [<https://perma.cc/K6LD-UVZW>] (opinion of Electronic Frontier Foundation attorney Andrew Crocker).

34. See Apple's Reply, *supra* note 3, at 24.

35. *Ward v. Rock Against Racism*, 491 U.S. 781, 791 (1989). The *Zauderer* test is instead appropriate when discussing commercial speech compulsions. See *infra* text accompanying notes 49–51.

36. *Id.* at 798.

37. See *id.* at 800.

38. See *id.* at 799.

39. 559 U.S. 229 (2010).

40. See *id.* at 233, 250–52. In 2005, the Bankruptcy Abuse and Prevention and Consumer Protection Act amended federal bankruptcy code, requiring "qualified professionals to include certain disclosures in their advertisements." *Id.* at 233 (citing 11 U.S.C. § 528(a)).

sures were “intended to combat the problem of inherently misleading commercial advertisements,” and that they “entail[ed] only an accurate statement identifying the advertiser’s legal status and the character of the assistance provided.”⁴¹ The Court further explained that providing such information did not prevent the debt relief agencies “from conveying any additional information” in their advertisements that could provide context to their services.⁴² In other words, the agencies’ channels of communication to consumers were not impacted.⁴³ The Court found that the speech compulsion at issue was “reasonably related”⁴⁴ to the government’s interest in preventing consumer deception and upheld the compulsion as constitutionally consistent with the First Amendment.⁴⁵

Even when code unfavorably butts up against a message that a company wishes to send, the government has been able to compel it where public information on health and safety drives the compulsion and the speech itself expresses facts (as opposed to opinion).⁴⁶ For example, cigarette companies are, of course, disinclined to include warning labels on their own products about the negative impact of smoking cigarettes⁴⁷—even more so than a debt relief company would be disinclined to explicitly state its legal status. Studies have shown that the public is less likely to purchase a product harmful to their health, like a cigarette, when forced to confront a warning label that explains the product’s negative health impacts.⁴⁸ And yet, the government has been successful at requiring warning labels on cigarettes because mandatory disclosures of “purely factual and uncontroversial information” about products and services have been subject to less exacting First Amendment scrutiny.⁴⁹ As the Supreme Court explained in *Zauderer v. Office of Disciplinary Counsel of Supreme Court of Ohio*, this is because the “constitutionally protected interest in *not* providing any particular factual information in . . . advertising is minimal.”⁵⁰ Warning labels are not comprised of subjective opinions; they require companies to provide factual statements

41. *Id.* at 250.

42. *Id.*

43. This was not the case in *Miami Herald*, for example, which had only a limited amount of space in its newspaper publications, such that forcing the presentation of opposing viewpoints ate up some of that channel of communication. *See* *Miami Herald Publ’g Co. v. Tornillo*, 418 U.S. 241, 256–57 (1974).

44. The level of scrutiny here is even lower than standard intermediate scrutiny because of the commercial speech context. *See* *Milavetz*, 559 U.S. at 249–50.

45. *See id.* at 252–53.

46. *See generally* Jennifer M. Keighley, *Can You Handle the Truth? Compelled Commercial Speech and the First Amendment*, 15 U. PA. J. CONST. L. 539 (2012).

47. *See* D. Hammond, G.T. Fong, A. McNeill, R. Borland & K.M. Cummings, *Effectiveness of Cigarette Warning Labels in Informing Smokers About the Risks of Smoking: Findings from the International Tobacco Control (ITC) Four Country Survey*, 15 TOBACCO CONTROL 19, 24 (2006), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2593056/pdf/iii19.pdf> [<https://perma.cc/DYK6-R2TU>].

48. *See id.* at 22.

49. *See* *Zauderer v. Off. of Disciplinary Couns. of Sup. Ct. of Ohio*, 471 U.S. 626, 651 (1985).

50. *Id.*

that are accurate and not contrary to the company's opinion-oriented viewpoints or beliefs, even if their impact on the company may not be neutral. The government cannot force a company to express an opinion it disagrees with, but undisputed⁵¹ facts cannot be the basis for viewpoint discrimination.

The technical nature of computer code undermines any argument that code constitutes subjective viewpoint discrimination. Even if there are different ways to accomplish a coded task, a machine's interpretation of code results in an objective action, not a subjective belief. In the same way that warning labels provide information to consumers, computer code provides information, not opinions, to computers.

III. PUBLIC SAFETY IN A CODE-CONTROLLED SOCIETY

Because the compulsion of code is content neutral and intermediate scrutiny is the appropriate standard for reviewing content-neutral speech compulsions, compelling code should be a reasonably easy task when necessary. The government's interest in compelling code will, in numerous circumstances, easily rise to the level of "significant," given the importance of code today to the functionality of much of society's infrastructure. Code has infiltrated many of the public's most important sectors, like communication and transportation. Recent years have revealed that medical and safety devices are particularly vulnerable to malware attacks, and future requests for code compulsions are likely to fall within this space.

Researchers have discovered code vulnerabilities in pacemakers,⁵² defibrillators,⁵³ insulin pumps,⁵⁴ baby bassinets,⁵⁵ and ATMs⁵⁶ that make it possible for hackers to take control of such devices in ways unintended by the original user. The functions that hackers' code can perform in such instances are potentially dangerous and harmful to the public's health and safety. For example, former Vice President Dick Cheney and his cardiologist explained in a 2013 interview that they decided to modify Cheney's pacemaker in light of credible concerns that someone might try to

51. This is key here.

52. Lisa Rapaport, *Pacemakers, Defibrillators are Potentially Hackable*, REUTERS (Feb. 20, 2018, 3:18 PM), <https://www.reuters.com/article/us-health-heart-pacemaker-cyber/pacemakers-defibrillators-are-potentially-hackable-idUSKCN1G42TB> [<https://perma.cc/GH3X-A3XL>].

53. *Id.*

54. Lily Hay Newman, *These Hackers Made an App That Kills to Prove a Point*, WIRED (July 16, 2019, 2:13 PM), <https://www.wired.com/story/medtronic-insulin-pump-hack-app> [<https://perma.cc/F3J6-YLP5>].

55. Lily Hay Newman, *Hackers Made the Snoo Smart Bassinet Shake and Play Loud Sounds*, WIRED (Apr. 16, 2020, 7:00 AM), <https://www.wired.com/story/snoo-smart-bassinet-vulnerabilities-shaking-loud-noise> [<https://perma.cc/ZG5N-HXRD>].

56. Andy Greenberg, *NFC Flaws Let Researchers Hack ATMs by Waving a Phone*, WIRED (June 24, 2021, 2:32 PM), <https://www.wired.com/story/atm-hack-nfc-bugs-point-of-sale> [<https://perma.cc/A3UK-W9UK>].

assassinate Cheney by intentionally disrupting his device.⁵⁷ While the modification in this instance was simple and merely involved turning off the pacemaker's Wi-Fi,⁵⁸ it raises the question of whether a company—for example, the company making the pacemaker itself—could ever be required upon government order to write code in order to address vulnerabilities that make its device susceptible to hacking.

Similarly, research hackers demonstrated in 2020 that they could hack into the Snoo—a technologically advanced bassinet designed for babies under six months of age that gently rocks in response to babies' cries in an effort⁵⁹ to help soothe them to sleep.⁶⁰ Through hacking, researchers used computer code to cause the Snoo to perform functions outside of its original programming.⁶¹ These functions included making the bassinet physically shake at unsafe speeds by connecting to, and tampering with, its motor, and ramping up the volume of the bassinet's speaker to play white noise at loud levels.⁶² When confronted with these security vulnerabilities, the makers of the Snoo fixed their system.⁶³ But if they had not, would the government have been able to compel them to produce code before continuing to sell their product?

IV. ANALYZING CODE COMPULSIONS

Unlike compelled warning labels, which convey objective facts,⁶⁴ compelled code conveys functions. But because code is purely functional, it—like fact-based warning labels—cannot be the subject of viewpoint discrimination. Against this backdrop, a content-neutral government order to produce code would be subject to intermediate scrutiny.⁶⁵ To pass intermediate scrutiny, the request need only further a significant government interest by means substantially related to that interest.⁶⁶

In both of the above hacking examples, the interest in public safety

57. Carl Franzen, *Dick Cheney Had the Wireless Disabled on His Pacemaker to Avoid Risk of Terrorist Tampering*, VERGE (Oct. 21, 2013, 6:54 PM), <https://www.theverge.com/2013/10/21/4863872/dick-cheney-pacemaker-wireless-disabled-2007> [<https://perma.cc/6USQ-ZSXB>]; Andrea Peterson, *Yes, Terrorists Could Have Hacked Dick Cheney's Heart*, WASH. POST (Oct. 21, 2013, 8:58 AM), <https://www.washingtonpost.com/news/the-switch/wp/2013/10/21/yes-terrorists-could-have-hacked-dick-cheney-heart> [<https://perma.cc/GNL8-L6XN>].

58. See Peterson, *supra* note 57.

59. Try as it did, the Snoo never actually soothed my own son when I used it during his first five months of his life.

60. See Newman, *supra* note 55.

61. See *id.*

62. See *id.*

63. See *id.*

64. Such cases are subject to the *Zauderer* standard.

65. See Erwin Chemerinsky, *Content Neutrality as a Central Problem of Freedom of Speech: Problems in the Supreme Court's Application*, 74 S. CAL. L. REV. 49, 55 (2000).

66. Though in the context of the Equal Protection Clause, *Craig v. Boren*, 429 U.S. 190 (1976) established the intermediate scrutiny standard: “must serve important governmental objectives and must be substantially related to achievement of those objectives.” *Id.* at 198.

should rise to the level of “significant” to satisfy intermediate scrutiny.⁶⁷ Indeed, in numerous cases, public safety has served as an interest sufficient to sustain content-neutral ordinances. For example, in *Watkins v. City of Arlington*,⁶⁸ the District Court for the Northern District of Texas granted summary judgment to the government when a gun rights advocacy group challenged an ordinance that prohibited pedestrians from soliciting, selling, or distributing materials to occupants of motor vehicles stopped at traffic lights.⁶⁹ In so ruling, the court explained that the city had a “significant [public] interest in pedestrian and traffic safety,”⁷⁰ which was supported by evidence revealing numerous deaths and injuries to pedestrians at intersections over a recent five-year period.⁷¹

In another recent case, *Catharsis on the Mall, LLC v. Jewell*,⁷² a D.C. District Court rejected the application of a political activist organization that sought to challenge bonfire size restrictions after it had been denied a permit for a fire burning ceremony on the National Mall.⁷³ Finding the restrictions to be content neutral and applicable to all groups regardless of their messaging, the court applied intermediate scrutiny.⁷⁴ The court considered testimony from firefighters regarding the safety of building a fire on the relevant turf in concluding that permitting a fire burn of the scale and magnitude that the petitioners were seeking would pose real physical dangers to visitors of the National Mall.⁷⁵

In much the same vein, if mechanical devices have been tampered with so as to cause physical harm to medically vulnerable persons with, say, a pacemaker, or a vulnerable infant in a bassinet, legitimate public safety concerns would satisfy the “significant interest” hurdle for intermediate scrutiny. Code can be compelled under such circumstances, at least in amounts necessary, to ensure that individuals and groups of people, especially society’s most vulnerable, can engage in their lives safely. To hold otherwise would risk placing people whose bodies or well-being are dependent on technology in unfair and often unavoidable danger.

With regard to compelling code to hack into smartphones for the sake of obtaining information, one could perhaps argue that the “significant interest” element of the intermediate scrutiny test is a closer call. Apple certainly should not be required to serve as an arm of the government that substitutes for the government’s own investigative or detective work as a general matter. It would not, for example, seem a significant interest

67. I say “should” instead of “would” because a court would likely want to see evidence of the possible reoccurrence of such hacks, the number of people potentially placed at risk, and the actuality that such a hack might occur to confirm that the standard is objectively met.

68. 123 F. Supp. 3d 856 (N.D. Tex. 2015).

69. *See id.* at 861.

70. *Id.* at 867.

71. *See id.* at 868.

72. 217 F. Supp. 3d 154 (D.D.C. 2016) (mem. op.).

73. *See id.* at 156.

74. *See id.* at 160, 163.

75. *See id.* at 158, 161.

to allow the government to order a telephone company to hack into a phone merely to obtain information about a user's adulterous affair or embarrassing online purchases. Such information bears no significant relationship to the public's imminent health and safety. But where a terrorist, such as one of the San Bernardino shooters, likely has information on their device relating to dangerous accomplices or potential future attacks, the calculus is different. Public safety becomes a significant concern and could serve as a basis for compelling the code necessary to respond to such dangers and risks.

V. CONCLUSION

Computer code conveys objective functions that, while communicative, cannot be the basis of content or viewpoint-based discrimination. As a result, an order to compel computer code will generally be content neutral and therefore reviewed pursuant to the intermediate scrutiny standard. This lower level of scrutiny makes compelling code a reasonably simple task for the government when the public's health and safety are at risk without producing the relevant code. Otherwise, people whose bodies are reliant on technological devices, such as pacemakers, insulin pumps, or even baby bassinets, would be at an unnecessary risk of danger. This appropriate standard of intermediate scrutiny reflects that, on balance, the burden on a company like Apple to produce code is minimal compared to the burden of failing to remedy glitches, hacks, or roadblocks in important technological devices.