

3D Printing and the First Amendment

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ABSTRACT

In *Defense Distributed v. United States Department of State*, the parties contested whether three-dimensional (“3D”) printing codes qualified as protected speech under the First Amendment. The majority never addressed this issue, but the dissent discussed how failing to grant injunctions against the government encourages an invasion of citizens’ rights. This article addresses how to treat those 3D printing codes. If the computer-aided design (“CAD”) files that control what a 3D printer creates are treated as communication and speech, it invokes First Amendment protections. If they are not, the government has more regulatory control. The article ultimately concludes that extending full First Amendment protection over codes that control 3D printers would lead to a slippery slope and create public safety concerns. However, instead of issuing an overly broad regulation or banning it altogether, the article proposes that the government could offer a narrow licensing requirement over the actual act of printing weapons instead of the distribution of computer codes.



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I. INTRODUCTION

3D printing is a booming and relatively new industry.¹ Issues surrounding governmental control over 3D printing have entered the spotlight recently with Texas-based company Defense Distributed trying to circulate 3D printing codes for guns nationwide.² This triggers important First Amendment considerations.³ If the codes that control what a 3D printer creates are treated as communication and speech, then they invoke First Amendment privileges and are less capable of being regulated by the government.⁴ If they are not, the government retains more regulatory control.⁵ This is a significant legal issue that will carve the way new technology is treated by the government. Even President Trump is apprehensive of allowing 3D printing of guns, saying it “doesn’t seem to make much sense!”⁶

Defense Distributed is a non-profit organization whose sole purpose is to “promot[e] popular access to arms guaranteed by the United States Constitution.”⁷ The company creates and distributes a computer-aided design (“CAD”) file of their gun, the “Liberator,” allowing anyone with a 3D printer to privately manufacture the gun for

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1. Jamie D., *The 3D Printing Construction Market is Booming*, 3DNATIVES (Jan. 26, 2018), <https://www.3dnatives.com/en/3d-printing-construction-240120184/>.

2. *Def. Distributed v. U.S. Dep’t of State*, 838 F.3d 451, 454 (5th Cir. 2016).

3. Noah Feldman, *The First Amendment Protects Plans for 3-D Guns*, BLOOMBERG (Aug. 1, 2018, 11:47 AM), <https://www.bloomberg.com/view/articles/2018-08-01/3-d-printed-guns-are-protected-by-first-amendment>.

4. *Id.*

5. *Id.*

6. @realDonaldTrump, TWITTER (July 31, 2018, 7:03 AM), <https://twitter.com/realDonaldTrump/status/1024264286418489345>.

7. *Def. Distributed*, 838 F.3d at 454.

themselves—all at no cost.⁸ The Liberator is branded as a single-shot plastic pistol,⁹ but most Liberators are capable of firing a handful of rounds.¹⁰ The Liberator’s CAD files were “downloaded more than 100,000 times” after being posted online for just a few days.¹¹

The federal government has long asserted that the Arms Export Control Act (“AECA”)¹² allows for the restriction of CAD files.¹³ It argues that this statute authorizes the government to prohibit internet publication or distribution of CAD files that code for the creation of guns and weapons via a 3D printer.¹⁴ Defense Distributed founder Cody Wilson believes this legal battle has nothing to do with guns or gun regulations;¹⁵ instead, he believes it is about the right to share data.¹⁶

Some of Wilson’s opposition believe the issue of public safety outweighs concerns of infringing on First Amendment rights.¹⁷ New Jersey Attorney General Gurbir Grewal—one of the 21 attorneys who jointly sued Defense Distributed in order to prohibit their publication of the CAD files—said, “What this case is about is public

8. *Id.* at 454–55.

9. *Id.* at 455.

10. Ryan Whitwam, *US Government Concedes That 3D Printed Guns are Legal*, EXTREMETECH, (July 11, 2018, 3:24 PM), <https://www.extremetech.com/extreme/273221-us-government-concedes-that-3d-printed-guns-are-legal>.

11. *Id.*

12. 22 U.S.C. § 2778 (2014).

13. *Washington v. U.S. Dep’t of State*, 318 F. Supp. 3d 1247, 1251 (W.D. Wash. 2018).

14. *Id.*

15. Stephen Johnson, *Why the First Amendment May Protect 3D-Printed Guns*, BIG THINK (Aug. 2, 2018), <https://bigthink.com/stephen-johnson/is-code-speech-the-case-for-why-3d-printed-guns-are-protected-by-the-first-amendment>.

16. *Id.*; *3D-Printed Gun Blueprint Maker Cody Wilson says “The Debate is Over”*, CBS NEWS (Aug. 1, 2018, 7:45 AM), <https://www.cbsnews.com/news/3d-printed-gun-cody-wilson-says-gun-access-fundamental-human-right/> [hereinafter *Cody Wilson*] (Wilson said, “What I’m doing is legally protected. I’m talking about files . . . I don’t make guns at this location. I have data, I can share the data.”).

17. Johnson, *supra* note 15.

safety. We are trying to keep untraceable guns out of the hands of individuals who cannot own them.”¹⁸ Defense Distributed is not a licensed gun manufacturer, so they do not actually make or sell the weapons themselves.¹⁹ Further, because they are publishing the CAD files online for free,²⁰ the company does not have control over who is using the information. Due to this, gun accessibility has never been made easier than with 3D printers and CAD files. Consequently, Wilson’s opponents are concerned that such easy accessibility could put guns in the hands of those who should not have them.²¹

Wilson’s supporters refute this public safety concern.²² In order to actually manufacture the gun, people would first need to actually own the 3D printers and milling machines, which are quite expensive.²³ They argue that these codes do not practically change gun accessibility because so few people will have the ability to actually utilize them.²⁴ Furthermore, Wilson supporters and Second Amendment advocates argue gunsmithing, or “the design, assembly, repair, and modification of firearms,”²⁵ has been historically unregulated and should be protected by the Second Amendment.²⁶

Supporters of Wilson and Defense Distributed believe the CAD files should be protected by the First Amendment as speech.²⁷ Some First Amendment advocates fear that failing to extend First Amendment protections over the CAD files will give the government too much power.²⁸ Proponents of free speech believe that “[s]peech, whether

18. *Id.*

19. *Cody Wilson, supra* note 16.

20. *Def. Distributed v. U.S. Dep’t of State*, 838 F.3d 451, 454 (5th Cir. 2016).

21. *Johnson, supra* note 15.

22. *Id.*

23. *Whitwam, supra* note 10; *Johnson, supra* note 15.

24. *Johnson, supra* note 15.

25. *What is Gunsmithing?*, LEARN.ORG, https://learn.org/articles/What_is_Gunsmithing.html (last visited Nov. 18, 2018).

26. *Johnson, supra* note 15.

27. *See id.*

28. Mark Richards, *Letter: On 3D Printers and the First Amendment*, NORTHJERSEY (Aug. 6, 2018),

spoken or written, is simply an extension of an individual's thought, so those who would infringe on free speech are really advocating thought control."²⁹ Wilson's supporters argue that allowing the First Amendment to be undermined sets a dangerous precedent for future technological advances as the internet continues to boom.³⁰

Others view this as unregulated manufacturing, which is prohibited by the Gun Control Act.³¹ As previously stated, Defense Distributed's Liberator is made of plastic,³² which poses questions as to its legality in the first place.³³ It is unlawful for a person to manufacture, sell, possess, or receive a firearm that "is not as detectable . . . by walk-through metal detectors calibrated and operated to detect the Security Exemplar" or "when subjected to inspection by the types of x-ray machines commonly used at airports . . ."³⁴ This type of unregulated manufacturing would not be allowed as "[t]he weapons are untraceable, can pass through a metal detector, don't have a serial number and can be made by felons."³⁵ The State Department was also concerned that plastic firearms, which are virtually undetectable, could be used to commit assassinations or terrorism.³⁶

<https://www.northjersey.com/story/opinion/readers/2018/08/06/letter-3-d-printers-and-first-amendment/916823002/>.

29. *Id.*

30. *Id.*

31. *3D Guns: Free Speech and the First Amendment Are in Danger, Too*, MIAMI HERALD (Aug. 7, 2018, 12:41 PM), <https://www.miamiherald.com/opinion/editorials/article216234980.html> [hereinafter *Free Speech and the First Amendment Are in Danger*].

32. *Def. Distributed v. U.S. Dep't of State*, 838 F.3d 451, 455 (5th Cir. 2016).

33. *See is a Firearm Illegal if it is Made of Plastic?*, BUREAU OF ALCOHOL, TOBACCO, FIREARMS & EXPLOSIVES (Sept. 23, 2016), <https://www.atf.gov/firearms/qa/firearm-illegal-if-it-made-plastic>.

34. 18 U.S.C. § 922(p) (2005).

35. *Free Speech and the First Amendment Are in Danger*, *supra* note 31.

35. *Def. Distributed*, 838 F.3d at 455.

36. *Washington v. United States Dep't of State*, 318 F. Supp. 3d 1247, 1252 (W.D. Wash. 2018).

The government and Defense Distributed have a long and complicated legal history dating back to 2013.³⁷ The U.S. State Department sent Defense Distributed a letter in May of 2013, ordering them to remove the CAD files from public access immediately.³⁸ Defense Distributed complied and then filed suit in federal court, claiming it had a right to publish that information without prior restraint under the First Amendment.³⁹ The district court denied relief, which was then affirmed on appeal.⁴⁰ The parties finally settled on June 29, 2018, agreeing to allow Defense Distributed to circulate the CAD files that code for the creation of the single-fire weapon.⁴¹ Shortly after, eight states plus the District of Columbia filed suit against the State Department, Defense Distributed, and others, seeking injunctive and declaratory relief from the government's decision.⁴² A federal court granted a preliminary injunction on July 27, 2018.⁴³ In doing so, the court held that the plaintiffs demonstrated a likelihood of irreparable harm if the injunction was not granted because the balance of hardships and public interest weighed in favor of the injunction.⁴⁴

This article will focus on an issue that has not yet been addressed by the court. In 2016, the parties contested whether 3D printing codes qualified as protected speech under the First Amendment.⁴⁵ The majority never addressed this issue, but the dissent discussed how not upholding First Amendment privileges encourages an “aggressive

37. *Def. Distributed*, 838 F.3d at 462.

38. *Id.*

39. *Id.*

40. *Id.* at 461.

41. *Washington*, 318 F. Supp. 3d at 1253.

42. *Id.* at 1247, 1254.

43. *Id.* at 1264.

44. *Id.*

45. *Def. Distributed v. U.S. Dep't of State*, 838 F.3d 451, 461 (5th Cir. 2016).

invasion of citizens' rights.”⁴⁶ The 2018 court echoed these concerns, but that court also ultimately failed to address it in any detail.⁴⁷

In order to determine whether the CAD codes qualify for First Amendment protections, two main sub-issues must be determined.⁴⁸ These include (1) whether the computer codes count as speech under the First Amendment and (2) whether such codes should still be protected under the First Amendment after balancing public safety concerns.⁴⁹ Another consideration that must be addressed is whether such a restriction would be content-based.⁵⁰ This means it would ban or regulate by targeting speech based on its content, so the government would have to prove that there was a compelling state interest and that the law used the least restrictive means possible.⁵¹

Many scholars are worried about the slippery slope of infringing on innovators' First Amendment rights by not protecting the CAD files under free speech.⁵² The inverse of this concern, however, is the potential danger of letting 3D printing go entirely unregulated. If First Amendment protections are fully extended over CAD files, then it is difficult for the government to exercise regulatory control over them.⁵³ Today's technology is only advanced enough to allow Defense Distributed to code for a semi-plastic, single-shot pistol. When technology inevitably advances, greater public harm could result absent any governmental control if courts are not careful to leave room for flexibility in the future.

46. *Id.* at 476.

47. *Washington*, 318 F. Supp. 3d at 1263.

48. *See* Feldman, *supra* note 3.

49. *Id.*

50. *Def. Distributed*, 838 F.3d at 468–69.

51. *Id.* at 468.

52. Amy Swearer, *How 3D Guns Became a Free Speech Issue*, HILL (Aug. 17, 2018, 8:30 AM), <https://thehill.com/opinion/civil-rights/400623-how-3d-guns-became-a-free-speech-issue>; *Free Speech and the First Amendment Are in Danger*, *supra* note 31; Feldman, *supra* note 3; Richards, *supra* note 28.

53. Feldman, *supra* note 3.

II. CAD FILES AS SPEECH UNDER THE FIRST AMENDMENT

The First Amendment protects content that qualifies as “speech.”⁵⁴ In order to define the First Amendment’s scope to this issue, it must first be decided whether data counts as speech. 3D printers use CAD files, which are files that contain information on how to create images.⁵⁵ The CAD files provide the 3D printer the codes necessary to create the product and effectively instruct the printers what to produce.⁵⁶ Since the data files are in alphanumeric symbols, some may assume this should not qualify as speech.⁵⁷

Courts have long debated whether data qualifies as speech under the First Amendment, but in a handful of cases, lower courts have held that it does. The dissent in *Defense Distributed* cites the Second Circuit’s opinion in *Universal City Studios, Inc. v. Corley*, which held that a computer software program qualified as speech for First Amendment protections.⁵⁸ The court wrote, “Computer programs are not exempted from the category of First Amendment speech simply because their instructions require use of a computer. A recipe is no less ‘speech’ because it calls for the use of an oven.”⁵⁹ In 1996, the Ninth Circuit also reached the conclusion that codes can count as speech in *Bernstein v. U.S. Dep’t of State*.⁶⁰ In *Bernstein*, a cryptographer was attempting to distribute program source codes that other people could use to create a product.⁶¹ This is similar to *Defense Distributed*, as they were both distributing codes to create products, not creating and distributing the products themselves.

54. DANIEL A. FARBER, *THE FIRST AMENDMENT* 23 (2d ed. 2002).

55. Margaret Rouse, *CAD File Format*, WHATIS (July 2010), <https://whatis.techtarget.com/fileformat/CAD-AutoCAD-drawing-database-file>.

56. *Id.*

57. Jane Bambauer, *Is Data Speech?*, 66 STAN. L. REV. 57, 59 (2014).

58. *Def. Distributed v. U.S. Dep’t of State*, 838 F.3d 451, 469 (5th Cir. 2016) (Jones, J., dissenting);

Universal City Studios, Inc. v. Corley, 273 F.3d 429, 445–49 (2d Cir. 2001).

59. *Universal City Studios*, 273 F.3d at 447.

60. *Bernstein v. U.S. Dep’t of State*, 945 F. Supp. 1279, 1286 (N.D. Cal. 1996).

61. *Id.* at 1283.

Information is not always speech. For example, cell phones communicate with cell towers constantly, but regulating this exchange of information does not trigger First Amendment concerns.⁶² Data can be created without any intended audience or need for review or interpretation; it does not always have a speaker or a listener.⁶³ In determining whether data should qualify as speech, it is important to consider whether the files are designed to communicate a one-way message to the computer, or whether they are designed with the intent to facilitate an exchange of information.⁶⁴

The Supreme Court considered this issue in *Sorrell v. IMS Health Inc.*⁶⁵ Big pharmaceutical companies were using data about prescriptions to customize their advertising to certain doctors.⁶⁶ Vermont passed a law prohibiting this practice, a law which IMS Health argued violated the First Amendment.⁶⁷ The Court found the Vermont law to be unconstitutional and suggested it would be a restriction of speech to restrict this transfer of data between willing parties.⁶⁸ Justice Kennedy wrote, “Facts, after all, are the beginning point for much of the speech that is most essential to advance human knowledge and to conduct human affairs.”⁶⁹ There is thus a strong argument that prescriber-identifying information is speech for First Amendment purposes.”⁷⁰ While the Court ended up resolving the case on narrower grounds and did not delve deeply into First Amendment concerns, it is clear that Justice Kennedy and his majority were

62. Bambauer, *supra* note 57, at 59–60.

63. *Id.* at 59.

64. *Washington v. U.S. Dep’t of State*, 318 F. Supp. 3d 1247, 1263 (W.D. Wash. 2018).

65. *Sorrell v. IMS Health Inc.*, 131 S. Ct. 2653 (2011).

66. *Id.* at 2660–61.

67. *Id.*

68. *Id.* at 2656–57.

69. *Id.* at 2667.

70. *Id.*

concerned about creating a slippery slope after holding that data requires speech protection.⁷¹

While courts have reached varying conclusions, it is likely they would view CAD files as speech. The files give the printer specific instructions on how to create something. These files have an intended message, an intended audience (the 3D printer), and are transmitting the data to the printer in order to facilitate the production of an object. In theory, this is the essence of communication. If the CAD files qualify as speech, which they likely would, they would be entitled to some First Amendment protections. This could cause an issue with government regulation.

III. GOVERNMENT REGULATION UNDER THE FIRST AMENDMENT

Under the First Amendment, courts apply strict scrutiny to government regulations based on the content of speech.⁷² However, when the government is regulating speech that is unrelated to content, less judicial scrutiny is necessary.⁷³ Content-based regulations that are related to the speaker or manufacturer's viewpoints are extremely disfavored and have been held to be unconstitutional.⁷⁴ Content-based regulations based on subject matter or other characteristics are less clear.⁷⁵

In *Department of Chicago v. Mosley*, the Court stated, “above all else, the First Amendment means that government has no power to restrict expression because of its message, its ideas, its subject matter, or its content.”⁷⁶ This is a very broad approach to the meaning of content-based discrimination.⁷⁷ It can be argued that prohibiting the

71. Bambauer, *supra* note 57, at 71.

72. FARBER, *supra* note 54, at 23.

73. *Id.*

74. *Id.*

75. *Id.*

76. *Police Dep't of Chicago v. Mosley*, 408 U.S. 92, 95 (1972).

77. FARBER, *supra* note 54, at 23.

distribution and manufacturing of Defense Distributed's CAD files is content-based discrimination because it is discriminating against either Defense Distributer founder Cody Wilson's specific viewpoint and product or discriminating against firearm content. The latter argument could raise Second Amendment concerns.

Even if it is held to be content-based discrimination, courts have found similar prohibitions to be constitutional if they address public safety concerns. For example, in *United States v. The Progressive, Inc.*, the government sought an injunction under the Atomic Energy Act⁷⁸ in order to prohibit *The Progressive* magazine from publishing an article detailing how to make a hydrogen bomb.⁷⁹ The magazine said their purpose in publishing the article⁸⁰ was to "alert the people of this country to the false illusion of security created by the government's futile efforts at secrecy."⁸¹ The magazine argued that they should be allowed to publish the piece because they gathered the information from publicly available information, and there was no imminent threat because no individual could realistically obtain the required experts, facilities, and equipment to make it.⁸²

The government contested whether the information was acquired from a public domain source and argued that the publication could still aid enemies, regardless of whether they could assemble all of the necessary components.⁸³ The Secretary of State and the Secretary of Defense supported the government in claiming that the article would irreparably harm the security of the United States.⁸⁴ The district judge, upholding a prior restraint and granting the injunction against the magazine, wrote, "A mistake in ruling

78. 42 U.S.C. §§ 2011–2296 (1992); *see* 42 U.S.C. § 2280 (1992) (specifically regulating enforcement of the Act).

79. *United States v. Progressive, Inc.*, 467 F. Supp. 990, 990 (W.D. Wis. 1979).

80. *Id.* (the article was titled "The H-Bomb Secret; How We Got It, Why We're Telling It.").

81. *Id.* at 994.

82. *Id.* at 993.

83. *Id.*

84. *Id.* at 995.

against the United States could pave the way for thermonuclear annihilation for us all. In that event, our right to life is extinguished and the right to publish becomes moot.”⁸⁵ After weighing the substantial harm that would be caused to the public, the court concluded that the case should fall within the narrow exception to the rule against prior restraints.⁸⁶

The Progressive can be compared to Defense Distributed’s case with 3D printing. There is a strong possibility that the data will cause significant threats to public safety. Because of the public policy concern, there should be some form of regulation prohibiting the public distribution of CAD files that allow for the creation of 3D-printed firearms.

In addition, the unmonitored and unregulated use of 3D printers to manufacture and distribute weapons would likely be considered content-neutral. Such regulations are usually upheld, while content-based regulations rarely survive judicial scrutiny.⁸⁷ Defining content neutrality is difficult, but courts have been more likely to uphold laws that have eliminated connection with specific content.⁸⁸

Banning 3D manufacturing of weapons across the board would also likely be held content-neutral. This would not be a government regulation that discriminates against Defense Distributed or Cody Wilson alone; it would apply to all manufacturers of 3D printers and CAD files detailing how to make weapons. By removing specific links to Defense Distributed’s *Liberator*, the government could make a regulation that is content-neutral and therefore avoid strict scrutiny.

85. *Id.* at 996.

86. *Id.*

87. FARBER, *supra* note 54, at 27.

88. *Id.*

IV. BALANCING FIRST AMENDMENT PROTECTIONS AND PUBLIC SAFETY CONCERNS

Government regulation has been upheld, even in areas that are somewhat protected by the First Amendment, as long as the regulation is narrowly tailored to the government interest.⁸⁹ The Supreme Court stated in *United States v. O'Brien* that

government regulation is sufficiently justified if it is within the constitutional power of the Government; if it furthers an important or substantial government interest if the governmental interest is unrelated to the suppression of free expression; and if the incidental restriction on alleged First Amendment freedoms is no greater than is essential to the furtherance of that interest.⁹⁰

The Supreme Court later took this analysis from *O'Brien* and refined it into a succinct three-part test: (1) the regulation must be justified “without reference to the content of the regulated speech”; (2) it must be “narrowly tailored to serve a significant governmental interest”; and (3) it must leave open “ample alternative channels for communication of the information.”⁹¹

Government regulation against Defense Distributed’s CAD files would survive this test. The regulation satisfies the first prong because it is without reference to specific content.⁹² As long as the regulation is general and removes any specific links tying it to one specific product or viewpoint, it should be viewed as content-neutral. It could easily satisfy the second prong as there are significant governmental interests in protecting public safety. For example, the regulation could be narrowly tailored to only apply to manufacturers of 3D printers that intend to use CAD files to make weapons. Lastly, it

89. *Id.*

90. *United States v. O'Brien*, 391 U.S. 367, 377 (1968).

91. *Ward v. Rock Against Racism*, 491 U.S. 781, 791 (1989).

92. *See supra* Part III.

satisfies the third prong because there are many available options for the communication of how to make or acquire weapons.

Courts have held strong presumptions in favor of the First Amendment and free access to information.⁹³ However, this is not always the case when there is an issue dealing with public safety.⁹⁴ In the case at hand, there is a grave public safety concern since the CAD files could get into individuals' hands that should not have guns.

V. CONCLUSION

Affording no First Amendment privileges to data could hinder technological innovation and dissuade creativity.⁹⁵ Having no First Amendment protections or clear ruling on this issue, in the words of the court, could “chill the free exchange of ideas.”⁹⁶ However, allowing the government to have some sort of regulatory control over the manufacturing of 3D printed guns could be better for the public in the long term. This article proposes a middle ground. The CAD files behind the 3D printers should qualify as speech and invoke First Amendment privileges, but the government should be allowed to have some narrow regulatory control over the act of printing weapons instead of the distribution of codes. Perhaps the government could regulate how the guns are printed and distributed after they are printed or require that 3D gun manufacturers hold gunsmith licenses. This would fix the threat of public harm that would come from allowing anyone with internet to have open access to an unregulated printable gun, while also preserving the integrity of the First Amendment as it relates to technology and data. This is better for society as it encourages creative invention without fear of broad government intervention.

93. Bambauer, *supra* note 57, at 59–60, 69.

94. *See, e.g., id.* at 68–69.

95. *Id.* at 60.

96. *Def. Distributed v. United States Dep’t of State*, 838 F.3d 451, 476 (5th Cir. 2016) (Jones, J., dissenting).