FIRST AMENDMENT — TECHNOLOGY — FIFTH CIRCUIT DECLINES TO ENJOIN REGULATION OF ONLINE PUBLICATION OF 3D-PRINTING FILES. — *Defense Distributed v. United States Department of State*, 838 F.3d 451 (5th Cir. 2016).

The First Amendment protects most speech from prior restraint by the government. But technology has begun to test the boundaries of traditional First Amendment doctrine. The development of three-dimensional (3D) printing throws this issue into sharp relief — with a 3D printer, one can "print" a physical object from computer code.[1] If sharing this code is speech, the government might be hampered in regulating the physical objects that are printed. This question is particularly important when the object at issue is an untraceable weapon. Recently, in *Defense Distributed v. United States Department of State*,[2] the Fifth Circuit refused to suspend a regulation restricting publication of computer-aided design (CAD) files that enable the public to print guns or gun parts using just a 3D printer. In denying an injunction, however, the court implicitly endorsed a sweeping interpretation of the First Amendment.[3] Because CAD files do not constitute speech under the First Amendment, their publication need not be measured against its standards.

Defense Distributed is a nonprofit organization committed to promoting Second Amendment rights by "facilitating global access to . . . information . . . related to the 3D printing of arms" and publishing this information online for free.[4] In furtherance of this mission, the organization published a number of gun-related CAD files on its website. One published file enables users to print an AR-15's lower receiver, which is the indispensable, regulated part of the weapon that bears a traceable serial number when conventionally manufactured.[5] Defense Distributed also published a file for the world's first entirely 3D-printable handgun, "The Liberator."[6] In just two days, the Liberator

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[1] Much like desktop printers, 3D printers generate their outputs through an additive process: they layer cross sections of material to build solid objects. The designs for these objects are controlled by computer-aided design files, which are data sets that use source code to define the geometric representation of an object. A computer program compiles the files' source code into object code, and this object code is transmitted to the 3D printer to execute the printing process. 3D printers are now available at stores like Home Depot, and the files for a variety of items are freely available online. Def. Distributed v. U.S. Dep't of State, 838 F.3d 451, 454–55 (5th Cir. 2016).

[2] 838 F.3d 451.

[3] *Id.* at 458.

[4] *Id.* at 454.

[5] *Id.*

[6] *Id.* at 455.

file was downloaded approximately 100,000 times.[7] But this success was short-lived. On May 8, 2013, Defense Distributed received a letter from the State Department alleging that, under the Arms Export Control Act[8] (AECA), the CAD files posted by the organization could not be "exported" abroad — in the form of online publication — without government preapproval.[9] Defense Distributed removed these files, but they remain freely accessible through third-party sites such as The Pirate Bay.[10] After lengthy waits for approval to post further files, Defense Distributed, together with the Second Amendment Foundation, filed suit in the United States District Court for the Western District of Texas.[11] The plaintiffs alleged that the State Department's interpretation of the AECA created an unconstitutional prior restraint on speech, and sought a preliminary injunction enjoining the enforcement of any prepublication approval requirements.[12]

The district court denied the motion. Judge Pitman began by emphasizing that preliminary injunctions are "extraordinary remed[ies],"[13] to be granted only if the court finds: (1) a substantial likelihood of success on the merits; (2) a substantial threat that failure to grant the injunction will cause irreparable injury; (3) that the threatened injury outweighs damage that the injunction may cause the opposing party; and (4) that the injunction will not harm the public interest.[14]

Judge Pitman found the plaintiffs failed to show that the harms of denying the injunction would outweigh those of granting it. He reasoned that while restrictions on First Amendment freedoms "unquestionably constitute[] irreparable injury,"[15] the public interest and balancing prongs "essentially collapse[]" in this case because the government's interest is in national security.[16] But the plaintiffs' argument failed to account for the authority of the President and Congress over foreign policy. This authority, which is "largely immune from judicial inquiry or interference," gave the public interest the upper hand.[17]

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[7] Katie Fleschner McMullen, Comment, *Worlds Collide When 3D Printers Reach the Public: Modeling a Digital Gun Control Law After the Digital Millennium Copyright Act*, 2014 MICH. ST. L. REV. 187, 211.

[8] 22 U.S.C. §§ 2751–2799aa-2 (2012).

[9] *Def. Distributed*, 838 F.3d at 455. The government warned that the files may have included International Traffic in Arms Regulations–controlled data related to items on the U.S. Munitions List. *Id.*

[10] *Id.* at 456.

[11] Def. Distributed v. U.S. Dep't of State, 121 F. Supp. 3d 680, 687–88 (W.D. Tex. 2015).

[12] *Id.* at 692.

[13] *Id.* at 688 (citing Valley v. Rapides Parish Sch. Bd., 118 F.3d 1047, 1050 (5th Cir 1997)).

[14] *Id.*

[15] *Id.* at 689 (quoting Elrod v. Burns, 427 U.S. 347, 373 (1976) (plurality opinion)).

[16] *Id.*

[17] *Id.* at 689–90 (quoting Haig v. Agee, 453 U.S. 280, 292 (1981)).

The court then "cautio[usly]" turned to the likelihood of success on the merits,[18] finding that while the regulations implementing the AECA do implicate speech, they do not discriminate based on content.[19] Instead, the State Department's regulations were aimed at "secondary effects"[20] to satisfy foreign policy and defense goals. Accordingly, the court concluded that this prior restraint was content-neutral and thus subject to only intermediate scrutiny[21] — a bar that the regulations easily cleared.[22] Finding no substantial likelihood of success on the merits, the district court denied the preliminary injunction.[23]

The Fifth Circuit affirmed. Writing for the panel, Judge Davis[24] noted that although the case would present "a number of novel legal questions,"[25] it was not necessary to reach the question of the plaintiffs' likelihood of success on the merits.[26] Turning to the balance of harm inquiry, Judge Davis considered that, ordinarily, protection of the plaintiffs' constitutional freedoms would be the highest public interest at issue.[27] But the court found that, here, the need to prevent foreign nationals from obtaining files to print untraceable weapons "lies squarely within" the public interest in national defense.[28] The court concluded that the district court did not abuse its discretion in finding that the public's interest in safety outweighed the plaintiffs' interest in asserting their First Amendment rights.[29]

Moreover, the court reasoned that while the plaintiffs' constitutional rights might be temporarily harmed, granting the preliminary injunction would permanently impair the government's national security interest. This injunction would permit Defense Distributed to post as many CAD files as it wished — not only the files currently at issue, but also previously unpublished gun-related files. Thanks to third-party platforms that can repost copies, the files posted in the interim would then remain online "essentially forever."[30] This concern is already borne out by sites that continue to host the restricted files despite the government's enforcement action.[31]

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[18] *Id.* at 690.
[19] *Id.* at 694.
[20] *Id.* at 693 (quoting City of Renton v. Playtime Theatres, Inc., 475 U.S. 41, 47 (1986)).
[21] *Id.* at 693–94.
[22] *Id.*
[23] *Id.* at 686.
[24] Judge Davis was joined by Judge Graves.
[25] *Def. Distributed*, 838 F.3d at 461.
[26] *Id.* at 458.
[27] *Id.*
[28] *Id.*
[29] *Id.* at 460.
[30] *Id.*
[31] *See id.*

Judge Jones dissented. Distancing herself from what she called the "court's failure to treat the issue[] . . . with the seriousness that direct abridgements of free speech demand," Judge Jones reframed the question as one of a prior restraint on speech under the "guise" of controlling arms exports.[32] "Without a proper assessment of the plaintiff's likelihood of success on the merits," she reasoned, "the district court's balancing of harms went awry."[33]

Judge Jones emphasized that the CAD files at issue were neither classified nor contractually restricted, and that their publication was analogous to the online availability of information about scores of other lethal devices.[34] She also noted that, in the history of the AECA, the State Department had never restricted online publication.[35] Judge Jones warned that denying the plaintiffs a preliminary injunction now would encourage the government to silence publishers of similar information.[36] She would have struck down the government's preapproval scheme as an unconstitutional prior restraint on speech.[37] By refusing to make this finding, Judge Jones concluded, the majority sanctioned a "tenuous and aggressive invasion of citizens' rights."[38]

The majority sidestepped the "difficult question[]"[39] of whether CAD files are protected by the First Amendment. But its opinion did assume the answer to an antecedent question: that code in its functional form — here, code that commands a machine to print a weapon — *is* speech implicating the First Amendment. This, however, is an overbroad reading of the amendment. The court would have been on firmer ground had it decided instead that, because they lack the characteristics of speech implicating the First Amendment, CAD files are not speech protected by the Constitution at all. Moreover, leaving the door open to affording these CAD files First Amendment coverage could *Lochner*-ize the amendment, bringing every 3D-printable object within the ambit of the amendment's scrutiny.[40]

The question of whether the First Amendment protects a particular instance of speech asks whether that speech may be regulated. But the question of the amendment's *coverage* asks "whether, as a threshold

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[32] *Id.* at 461 (Jones, J., dissenting).
[33] *Id.* at 463.
[34] *Id.* at 461.
[35] *Id.* at 462.
[36] *Id.* at 476.
[37] *Id.* at 466.
[38] *Id.* at 476.
[39] *Id.* at 461 (majority opinion).
[40] *See* Kyle Langvardt, *The Replicator and the First Amendment*, 25 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 59, 64–65 (2014). *Lochner v. New York*, 198 U.S. 45 (1905), threatened to constitutionalize economic policy by "substituting judicial for democratic decision-making." Langvardt, *supra*, at 114 n.251 (quoting Sorrell v. IMS Health Inc., 564 U.S. 552, 603 (2011) (Breyer, J., dissenting)).

matter, the First Amendment is even implicated at all."[41] Judge Jones's dissent made an explicit case for coverage. She cited the Second Circuit's ruling in *Universal City Studios, Inc. v. Corley*[42] for the proposition that "computer-related files and other technical data are speech protected by the First Amendment."[43] However, although *Corley* and similar cases have been cited to support the broad proposition that all code is speech,[44] those decisions were limited to the particular technologies at issue in those cases: encryption and decryption code.[45] *Corley*, for example, opened in the "spirit" of a "'narrow' holding[]" limited to its facts.[46] Moreover, while *Corley*'s analysis considered attributes common to all code, it concluded only that "code *can* merit First Amendment protection, although the scope of such protection remains to be determined."[47] *Corley*'s modest approach would allow the law on code to "mature on a 'case-by-case' basis."[48] Because existing case law only creates the *possibility* that code may be speech, there is little precedent on the question of First Amendment coverage of 3D-printing files.

The Supreme Court's jurisprudence on First Amendment coverage also offers little guidance. This body of law "does not envision a systematic approach."[49] In *Spence v. Washington*,[50] the Court suggested that speech exists when "a particularized message [is] present, and in the surrounding circumstances the likelihood [is] great that the message would be understood."[51] Though this dictum from *Spence* has been cited as the "test" for First Amendment speech, the Court later modified it, cautioning that "a narrow, succinctly articulable message is not a condition of constitutional protection."[52] To hold otherwise, the Court warned, would leave uncovered abstract or symbolic works of art such as "the unquestionably shielded painting of Jackson

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41 Frederick Schauer, *The Boundaries of the First Amendment: A Preliminary Exploration of Constitutional Salience*, 117 HARV. L. REV. 1765, 1766 (2004).

42 273 F.3d 429 (2d Cir. 2001).

43 *Def. Distributed*, 838 F.3d at 469 (Jones, J., dissenting) (citing *Corley*, 273 F.3d at 445–49).

44 *See id.* In a recent encryption dispute with the FBI, Apple argued it is "well-settled law" that computer code is speech. Apple Inc.'s Motion to Vacate Order Compelling Apple Inc. to Assist Agents in Search, and Opposition to Government's Motion to Compel Assistance at 32, *In re* Search of an Apple iPhone, No. CM 16-10 (C.D. Cal. Mar. 29, 2016), 2016 WL 2771267.

45 *See, e.g.*, *Corley*, 273 F.3d at 437; Junger v. Daley, 209 F.3d 481, 482 (6th Cir. 2000); Bernstein v. U.S. Dep't of Justice, 176 F.3d 1132, 1141 (9th Cir. 1999).

46 *Corley*, 273 F.3d at 445.

47 *Id.* at 449 (emphasis added) (citations omitted).

48 *Id.* at 445 (citing Name.Space, Inc. v. Network Sols., Inc., 202 F.3d 573, 584 n.11 (2d Cir. 2000)).

49 Langvardt, *supra* note 40, at 69. In fact, coverage is a question "rarely addressed, and the answer is too often simply assumed." Schauer, *supra* note 41, at 1767.

50 418 U.S. 405 (1974).

51 *Id.* at 411 (per curiam).

52 Hurley v. Irish-Am. Gay, Lesbian & Bisexual Grp. of Bos., Inc., 515 U.S. 557, 569 (1995).

Pollock, music of Arnold Schöenberg, or Jabberwocky verse of Lewis Carroll."[53]

Elsewhere, in *Sorrell v. IMS Health Inc.*,[54] the Court ruled that "information is speech,"[55] a holding it later extended in *Brown v. Entertainment Merchants Ass'n*,[56] where the Court found that video games are speech. But the information at issue in *Sorrell* — prescription drug data — was in plain language rather than functional code.[57] And although handling a digital medium, *Brown* relied on the video game's use of "familiar literary devices[,] such as characters, dialogue, plot, and music" to support its characterization of video games as speech.[58] These qualities are absent in the nonliterary case of CAD files. There is no controlling precedent that squarely accounts for the idiosyncrasies of the files implicated in *Defense Distributed*.

In the absence of controlling law, the Fifth Circuit was free to distinguish CAD files from speech covered by the First Amendment's protections. In their executable form, CAD files are purely functional and devoid of the communicative and expressive qualities characteristic of speech. This functionality is in contrast with the *Corley* line of cases, which relied on the fact that source code in decryption software "convey[s] information capable of comprehension and assessment by a human being."[59] That is, although the code had a "functional," "nonspeech component,"[60] "a programmer might communicate through code . . . to another programmer"[61] to "convey information and ideas about cryptography."[62] CAD files are different: although they constitute "language," it is not a language "meant to be read and understood by humans."[63] Instead, "the degree of possible or probable 'direct' human interface with these files is obviously sharply limited. . . . Most users are unlikely ever to read the file's source code, and they would struggle if they tried."[64] Even CAD regulation's critics have acknowledged that a printed version of these CAD files — possibly hundreds of pages — would be "effectively useless."[65] Instead, this source code is "merely a means of commanding a computer to perform a func-

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[53] *Id.*
[54] 564 U.S. 552 (2011).
[55] *Id.* at 570.
[56] 564 U.S. 786 (2011).
[57] *Sorrell*, 564 U.S. at 570.
[58] *Brown*, 564 U.S. at 790.
[59] Universal City Studios, Inc. v. Corley, 273 F.3d 429, 448 (2d Cir. 2001).
[60] *Id.* at 451.
[61] *Id.* at 449.
[62] Junger v. Daley, 209 F.3d 481, 484 (6th Cir. 2000).
[63] Bernstein v. U.S. Dep't of Justice, 176 F.3d 1132, 1140 (9th Cir. 1999).
[64] Langvardt, *supra* note 40, at 88.
[65] Josh Blackman, *The 1st Amendment, 2nd Amendment, and 3D Printed Guns*, 81 TENN. L. REV. 479, 534 (2014).

tion"[66] — in this case, to create a gun or gun part. And, as was the case in *Commodity Futures Trading Commission v. Vartuli*,[67] these inherently functional files implicate none of the reasons for which speech is thought to require protection.[68]

Critics have argued that, regardless of the files' expressive deficiencies, they constitute speech because they contain information — period. That the government wants to regulate CAD files because they threaten national security, though these files are unclassified, should only weigh more heavily in favor of First Amendment protection.[69] The view that information is speech is well supported by *Sorrell*, but — as applied to this case — it overlooks a fundamental distinction between the information in *Sorrell* and that contained in Defense Distributed's CAD files. In *Sorrell*, the information communicated fact,[70] not function: *Sorrell*'s data on drug dispensing practices *said* something, it didn't just *do* something. By contrast, CAD files are instructions that make a computer *do* something. These files do not carry the value "to conduct human affairs"[71] implicated in *Sorrell*.

It is possible, however, to read even the functional feature of these CAD files as informative — the files' source code defines the dimensions of an object to be printed. This source code, therefore, may *say* something about an object. But this argument requires an unnaturally formalist view of the First Amendment that threatens to make almost everything into speech. The source code in CAD files does not say something about any object; it says something about itself — in the same way that a padlock, to use Professor Orin Kerr's example, communicates information about the padlock itself.[72] The padlock might "tell" someone who wants to copy it what goes into making a padlock, but that doesn't mean it's covered speech. Unless we call the everyday padlock speech, the code in CAD files should not be speech, either.[73]

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[66] Karn v. U.S. Dep't of State, 925 F. Supp. 1, 9 n.19 (D.D.C. 1996). Copyright law reflects this treatment of function; functions performed by computer code are not entitled to copyright protection. *See* Sony Comput. Entm't, Inc. v. Connectix Corp., 203 F.3d 596, 602 (9th Cir. 2000) (citing 17 U.S.C. § 102(b) (2000)).

[67] 228 F.3d 94 (2d Cir. 2000).

[68] *Vartuli* lists these reasons as "the pursuit of truth, the accommodation among interests, the achievement of social stability, the exposure and deterrence of abuses of authority, personal autonomy and personality development, or the functioning of a democracy." *Id.* at 111 (citing Kent Greenawalt, *Free Speech Justifications*, 89 COLUM. L. REV. 119 (1989)); *see also* Kyle Langvardt, *The Doctrinal Toll of "Information as Speech,"* 47 LOY. U. CHI. L.J. 761, 814 (2016).

[69] *See, e.g.*, Noah Feldman, *If Printing Guns Is Legal, so Is Distributing the Plans*, BLOOMBERG VIEW (Sept. 21, 2016, 1:42 PM), https://www.bloomberg.com/view/articles/2016-09-21/if-printing-guns-is-legal-so-is-distributing-the-plans [https://perma.cc/327H-KXMN].

[70] Sorrell v. IMS Health Inc., 564 U.S. 552, 570 (2011).

[71] *Id.*

[72] Orin S. Kerr, *Are We Overprotecting Code? Thoughts on First-Generation Internet Law*, 57 WASH. & LEE L. REV. 1287, 1291 (2000).

[73] *Id.* at 1292.

Yes, a CAD file is not quite a physical padlock — or a gun. But this difference is just a formality: CAD files are an embodiment of a physical, 3D-printable object communicated in source code. In their executable form, CAD files work as instructions to a machine to print a physical embodiment of that object. The transformation from code to tangible object requires little to no human expertise or intervention, as it is meant purely "to induce action without the intercession of the mind."[74] Thus, the law should treat CAD source code's informative quality as equal to that of the ordinary tangible object it prints. If an ordinary tangible object is speech, CAD files for 3D printable guns are speech, too. But if an ordinary tangible object is speech, what isn't?

3D printing has the potential to "revolutionize the way we make almost everything."[75] This revolution is already happening: using CAD files written in source code, 3D printers have manufactured medical prosthetics, car parts, DNA, drugs, and even entire houses.[76] If CAD files were to fall within the coverage of the First Amendment, the government's ability to regulate the content, safety, and use of these files would be sharply limited. Because these files define the specifications of tangible objects, the government would thus also be limited in its ability to regulate the physical world — from houses to bioweapons. As Professor Kyle Langvardt has noted, this broad reading would *Lochner*-ize the First Amendment,[77] making it a "vehicle for constitutionalizing . . . policy question[s] of purely legislative dimensions."[78] This awesome expansion of the First Amendment counsels that CAD files should be treated true to their function — which is neither expressive nor communicative — rather than their form.

Restricting code that enables the easy creation of untraceable weapons is good policy — and the First Amendment should not stand in the way. The mere fact that these weapons can be expressed digitally in code should not justify application of the "full arsenal of First Amendment rules, principles, standards, distinctions, presumptions, tools, factors, and three-part tests."[79] And the stakes are high: holding otherwise could expand free speech into a sweeping "freedom to manufacture."[80]

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[74] Commodity Futures Trading Comm'n v. Vartuli, 228 F.3d 94, 111 (2d Cir. 2000).

[75] President Barack Obama, State of the Union Address (Feb. 12, 2013), *in* 157 CONG. REC. H444, H445 (daily ed. Feb. 12, 2013), https://www.congress.gov/crec/2013/02/12/CREC-2013-02-12-pt1-PgH443-2.pdf [https://perma.cc/W5WQ-VUUL].

[76] Langvardt, *supra* note 40, at 63.

[77] *See id* at 114 & n.151.

[78] Jed Rubenfeld, *The First Amendment's Purpose*, 53 STAN. L. REV. 767, 771 (2001) (arguing that the First Amendment could potentially be *Lochner*-ized). Langvardt extended this argument to 3D printing. *See* Langvardt, *supra* note 40, at 112.

[79] Schauer, *supra* note 41, at 1769.

[80] Langvardt, *supra* note 40, at 59.