COPYRIGHT'S DOMINION

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Copyright law is under attack. Scholars and activists have long argued that American copyright law is a shambolic mess—vague, unpredictable, and startlingly overbroad. But amidst the swirling chaos, one core principle has remained intact: the idea that copyright attaches only to intangible goods. In theory, copyright resides in an intangible work of authorship, not a physical artifact. It is the intellectual creation, rather than the material copy, that gives rise to copyright protection. Copyright law thus rests on a stark distinction between the intellectual property of authors and the personal property of consumers—in short, between the intangible work and the physical copy.

This Article argues that the conventional wisdom is radically blinkered. It shows that, contrary to popular belief, courts increasingly struggle to separate the intangible work from its physical form. In reality, the supposed divide between the work and the copy is far less rigid, and decidedly more contested, than scholars have recognized. Judges and commentators often confuse the physical object—a biological substance, a written-down recipe, a computer program, a physical building, a living garden, a copy of a work of visual art—for the intangible work itself. The result is a thickly tangled, sometimes messy, and deeply incoherent body of law.

This Article synthesizes history, theory, and current doctrine to critically analyze these trends. It traces the roots of the intangible/physical dichotomy. It explores how twentieth-century courts navigated this distinction and demonstrates that modern courts remain sharply divided over how to define the intangible work. These disagreements reflect confusion about the kinds of objects that could be eligible for copyright protection. In the end, I argue that this confusion raises fundamental questions about the limits of our copyright system. By grappling with these questions, this Article seeks to advance a new analytical paradigm for thinking about the trajectory, coherence, and breadth of copyright law.

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INTRODUCTION

American copyright law is notoriously convoluted. Once a modest regime of limited reach, copyright law now governs a vast and ever-growing universe of creative content: literature, art, music, cinema, software, architecture, and more.[1] But this totalizing regime, though formidable, is limited in one important respect—copyrights attach only to intangible goods.[2] As the Supreme Court has famously proclaimed,

[1] The Copyright Act, codified in Title 17 of the United States Code, specifies various categories of copyrightable subject matter in section 102. *See* 17 U.S.C. § 102(a).

[2] *See, e.g.*, Ager v. Murray, 105 U.S. 126, 129–30 (1881) (describing copyright as an "incorporeal right . . . to multiply copies of the [work]"); Bobbs-Merrill Co. v. Straus, 210 U.S. 339, 347 (1908) (noting that copyright is "a property in notion, and has no corporeal, tangible substance") (quoting Millar v. Taylor (1769) 98 Eng. Rep 201, 251 (KB))); Loc. Trademarks, Inc. v. Price, 170 F.2d 715, 718 (5th Cir. 1948) ("A copyright is an intangible, incorporeal right in the nature of a privilege or franchise and is independent of any material substance such as

copyright is an "incorporeal right [that] subsists wholly separate from and independent of" any material object.[3] Copyright vests in a work of authorship: the intellectual creation of an author.[4] And although that creation must be fixed in some physical form to qualify for copyright protection,[5] it is the intangible work itself—rather than its physical embodiment—that is the subject of the copyright grant.[6] Copyright resides in an ethereal creation, not a physical artifact.[7] The idea flows from the intuition that there is something of a cleavage between the intangible and the physical.

Copyright law thus draws a line between "the intellectual property of creators and the personal property of consumers"—in short, between the intangible work and the physical copy.[8] Consider a recent example. In 2022, a crypto organization by the name of Spice DAO paid millions of dollars for a single copy of a rare artbook, which the organization sought to adapt into an animated series.[9] But trouble loomed. As the organization soon learned, only the copyright holder—the owner of the underlying, intangible work—could legally authorize an adaptation.[10] Spice DAO, having merely purchased a physical *copy*, possessed no legal authority to create an adaptation of the underlying, intellectual *work*.[11] In other words, the organization failed to grasp a crucial twist:

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the manuscript or plate used for printing."); Werckmeister v. Am. Lithographic Co., 142 F. 827, 830 (C.C.S.D.N.Y. 1905), *aff'd*, 148 F. 1022 (2d Cir. 1906) ("The author of a painting . . . owns a material piece of personal property, consisting of the canvas and the paint upon it. He also owns an incorporeal right connected with it; that is, the right to make a copy of it."); United States v. Smith, 686 F.2d 234, 239 (5th Cir. 1982) (noting that "a copyright is nothing more than an incorporeal, intangible right"); Matthew Bender & Co. v. W. Publ'g Co., 158 F.3d 693, 702 (2d Cir. 1998) (explaining that copyright law rests on a distinction between works and the copies in which they are fixed).

3 Stevens v. Gladding, 58 U.S. 447, 453 (1854).

4 The Copyright Act recognizes "a fundamental distinction between the 'original work' which is the product of 'authorship' and the multitude of material objects in which it can be embodied. Thus, in the sense of the [Copyright Act], a 'book' is not a work of authorship, but is a particular kind of 'copy.'" H.R. Rep. No. 94-1476, at 53.

5 *See infra* Section I.B.

6 17 U.S.C. § 202 ("Ownership of a copyright . . . is distinct from ownership of any material object in which the work is embodied."); *see also* Stephens v. Cady, 55 U.S. 528, 531 (1852) (holding that the copyright is "detached from the manuscript, or any other physical existence").

7 *Smith*, 686 F.2d at 240 (observing that "a 'copyright' . . . does not implicate any tangible embodiment of the work").

8 Aaron Perzanowski & Jason Schultz, *Reconciling Intellectual and Personal Property*, 90 Notre Dame L. Rev. 1211, 1211 (2015) ("Copyright law sets up an inevitable tension between the intellectual property of creators and the personal property of consumers—in other words, between copyrights and copies.").

9 *See* text accompanying *infra* notes 42–46.

10 *See* text accompanying *infra* notes 42–46.

11 17 U.S.C. § 202.

Ownership of a tangible copy is distinct from ownership of the intangible creation.[12]

This familiar distinction has deep roots in American legal thought. Scholars have long recognized that copyright extends only to intangible works, no matter "the nature of the material objects in which they are embodied."[13] In the traditional telling, copyright law traffics in "abstractions that [are unmoored from] the physical world."[14] Scholars widely agree that copyright is best conceptualized as "an incorporeal right attached to a physical manifestation."[15] Some commentators similarly liken the relationship between the work and the object to the relationship "between the body and the soul."[16] The standard paradigm turns on a stark distinction between the intangible work and its earthly guise.

This Article argues that the dominant story is far less stable, and decidedly more contested, than doctrine and dogma would suggest. The prevailing wisdom holds that the intellectual creation is distinct from the physical copy. This tidy narrative is not altogether false, but it is incomplete. In reality, courts increasingly struggle to sever the copyrighted work from its physical embodiment. Across a range of doctrinal domains—from DNA sequences[17] and architectural designs[18] to software programs,[19] culinary dishes,[20] works involving living subject matter,[21] and works of visual art[22]—courts and commentators tend to conflate the intangible work with its real-world cloak. The physical bleeds into the intangible. Although the distinction between the work and the physical object has been essentialized as rigid, uniform, and predictable, it proves to be embarassingly slippery in practice.

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12 *Id.*

13 Thomas F. Cotter, *Transformative Use and Cognizable Harm*, 12 VAND. J. ENT. & TECH. L. 701, 715 n.75 (2010); *see also* EATON S. DRONE, A TREATISE ON THE LAW OF PROPERTY IN INTELLECTUAL PRODUCTIONS IN GREAT BRITAIN AND THE UNITED STATES 98 (1879); Jane C. Ginsburg, *Conflicts of Copyright Ownership Between Authors and Owners of Original Artworks: An Essay in Comparative and International Private Law*, 17 COLUM. J.L. & ARTS 395, 395 (1993); L. Ray Patterson & Christopher M. Thomas, *Personal Use in Copyright Law: An Unrecognized Constitutional Right*, 50 J. COPYRIGHT SOC'Y U.S. 475, 477 (2003); Melville B. Nimmer, *National Security Secrets v. Free Speech: The Issues Left Undecided in the* Ellsberg *Case*, 26 STAN. L. REV. 311, 319 (1974).

14 David Fagundes, *Crystals in the Public Domain*, 50 B.C. L. REV. 139, 170 (2009).

15 Patterson & Thomas, *supra* note 13, at 477.

16 CRAIG JOYCE, MARSHALL LEAFFER, PETER JASZI & TYLER OCHOA, COPYRIGHT LAW 293 (7th ed. 2006).

17 *See infra* Section II.A.

18 *See infra* Section II.B.

19 *See infra* Section II.C.

20 *See infra* Section II.D.

21 *See infra* Section II.E.

22 *See infra* Section II.F.

These findings suggest that modern courts possess no real sense of what constitutes an intangible work and what doesn't. Although the cases surveyed here implicate different circumstances and arise out of different contexts, they all hint at a common problem: In important areas of copyright law, we can't tell what is eligible for copyright protection, and we can't figure out what should be. This confusion is not an aberration. As this Article shows, the remarkable uncertainty that pervades copyright's eligibility doctrine is a predictable consequence of how both courts and scholars conceive of copyright's boundaries. The result is a thickly tangled, sometimes messy, and deeply incoherent body of law.

This Article presents the first comprehensive study of the intangible/physical distinction. It makes three key contributions. First, it offers a descriptive account of judicial efforts to define the intangible work.[23] To be sure, courts often declare that the intellectual work is legally distinct from the material copy.[24] But that kind of sloganeering is little help in the real world. As it turns out, courts and scholars frequently disagree over how to classify objects that cannot be slotted into neat, well-defined categories. As a result, the supposed dichotomy between the work and the object has grown increasingly tortured. This Article uncovers these tensions and maps their incarnations across different areas of copyright law.

Second, the Article situates these patterns within a broader historical and intellectual context.[25] It finds, somewhat counterintuitively, that courts have *always* struggled to draw a line between the copyrighted work and the physical copy.[26] Today, the idea that the intangible creation is severable from the tangible asset might seem self-evident. Yet it was not always so. For much of American history, the legal concept of the "work"—an intellectual creation that stands apart from its tangible instantiation—lay dormant.[27] It wasn't until the late nineteenth century that the notion of the "work" had begun to crystalize as a legal construct.[28] And even after Congress amended the Copyright

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23 *See infra* Part II.

24 *See* sources cited *infra* note 40; *see also* Security-First Nat'l Bank of L.A. v. Republic Pictures Corp., 97 F. Supp. 360, 364 (S.D. Cal. 1951), *rev'd*, 197 F.2d 767 (9th Cir. 1952); Kirtsaeng v. John Wiley & Sons, Inc., 568 U.S. 519, 568 n.10 (2013); Walt Disney Prods. v. United States, 327 F. Supp. 189, 192 (C.D. Cal. 1971), *aff'd as modified*, 480 F.2d 66 (9th Cir. 1973); King Bros. Prods. v. RKO Teleradio Pictures, Inc., 208 F. Supp. 271, 277 (S.D.N.Y. 1962); Robert Bowden, Inc. v. Aetna Cas. & Sur. Co., 977 F. Supp. 1475, 1478 (N.D. Ga. 1997); Tegg Corp. v. Beckstrom Elec. Co., 650 F. Supp. 2d 413, 433 (W.D. Pa. 2008).

25 *See infra* Part III.

26 *See infra* Section III.B.

27 *See infra* Section III.A.

28 *See infra* Section III.A.

Act in 1909 to make clear that "the [copyrighted work] is distinct from the . . . material object,"[29] the distinction continued to fuel all manner of mischief for decades.[30]

What emerges from this analysis is an unsettling conclusion: The confusion about copyright's boundaries is not a recent phenomenon but an age-old pathology—one that long predates modern copyright law.

Third, the Article explores the implications of this account.[31] It takes no great leap of imagination to see that the confusion about copyright's domain poses a grievous threat. If courts can't agree on what constitutes an intangible work, it becomes difficult, perhaps impossible, to define exactly what function copyright is meant to serve. Copyright is supposed to be justified by the need to protect intangible creations. The general idea is that, because intangible works are difficult to create but easy to copy, we must provide their authors with some form of legal exclusivity.[32] But the decline of the intangible/physical distinction complicates this story. It blurs the line between copyright and property law. It undermines the legitimacy of our copyright system. And it enables courts to do just what copyright abhors: encroach into the realm of physical property.

After working through the consequences of this account, the Article argues for an alternative, context-sensitive approach—one that offers a richer understanding of copyright's conceptual pathologies.[33] Such pathologies include the difficulty of analyzing functional works,[34] copyright's so-called "framing problem,"[35] the elusive nature of the intellectual work,[36] the prevalence of intuitionist arguments in

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29 The 1909 Copyright Act expressly acknowledged that "the copyright is distinct from the property in the material object copyrighted, and the sale . . . of the material object shall not of itself constitute a transfer of the copyright." Copyright Act of 1909, ch. 320, § 41, 35 Stat. 1075, 1084, *repealed by* Copyright Act of 1976, Pub. L. No. 94-553, 90 Stat. 2541 (codified as amended at 17 U.S.C. §§ 101–810, 18 U.S.C. § 2318, 44 U.S.C. §§ 505, 2113 (2006)) [hereinafter 1909 Copyright Act].

30 *See infra* Section III.B.

31 *See infra* Part IV.

32 *See, e.g.*, Kal Raustiala & Christopher Sprigman, *The Piracy Paradox: Innovation and Intellectual Property in Fashion Design*, 92 VA. L. REV. 1687, 1688 (2006); James Gibson, *Re-Reifying Data*, 80 NOTRE DAME L. REV. 163, 164 (2004).

33 *See infra* Part IV.

34 *See infra* Section IV.A.1.

35 *See infra* Section IV.A.2.

36 *See infra* Section IV.A.2.

copyright jurisprudence,[37] the shift from physical to digital copies,[38] and the multifunctional nature of the copyrighted work.[39]

All said, this Article seeks to illuminate—and, where appropriate, reorient—copyright's doctrinal terrain. Scholars and students of copyright law tend to think that the basic perimeters of our system are self-contained and doctrinally settled. Copyright, the argument runs, is strictly about protecting intangible works. In treatises and legal opinions, the idea is recited as a backbone principle that distinguishes the field from property law. Perhaps it is surprising, then, that there has been relatively little scholarship on the intangible/physical divide. But getting at the core of this distinction is a matter of crucial importance. For more than a century, the concept of the intangible work has informed doctrine, theory, and ideology, and it continues to play a pivotal role in defining and legitimating copyright law. This Article is the first to offer a full, critical account of how this central conceptual principle operates in the real world.

Before proceeding, one prefatory point deserves note: As a descriptive matter, I do not mean to suggest here that the confusion that engulfs the intangible/physical distinction is always, or even usually, fatal. But neither is it a trivial feature limited to outlier cases or extraordinary circumstances. The confusion over copyright's boundaries underpins a significant subset of cases, remains woefully understudied, and has striking implications for copyright law. It is therefore pervasive enough to deserve our attention.

The argument proceeds in five parts. Part I offers an overview of the supposedly straightforward distinction between the intangible work and the physical object. It chronicles several doctrinal contexts in which the distinction plays a central role. Part II documents the decline of this conceptual distinction across different doctrinal domains, from DNA sequences and architecture to software programs, dishes, living plants, and works of visual art. This analysis shows that, in truth, copyright is much less wedded to this familiar distinction than one immersed in copyright rhetoric would imagine. Part III traces the history of the distinction between the work and the copy. It locates its origins in the intellectual traditions of the eighteenth century. It then considers how the distinction was introduced into copyright's statutory scheme and how it was subsequently applied. Part IV turns to the policy implications of this account. It argues that the confusion over copyright's borders threatens to unsettle structural principles of copyright law. Finally, Part

37 *See infra* Section IV.A.3.
38 *See infra* Section IV.A.4.
39 *See infra* Section IV.A.5.

V sketches out an alternative, context-sensitive approach that would encourage courts to properly attend to copyright's limits. A brief conclusion follows.

I
The Intangible/Physical Dichotomy

Copyright stands aloof from the material realm. This may seem a truism: Copyright protection, after all, attaches only to intangible works of authorship, not their physical embodiment. Copyright is not in the business of protecting physical objects. And courts, in turn, rely on a range of different doctrines to police this line between the intangible and the physical. This Part offers an overview of these doctrines. It begins by discussing the basic principle that the copyrighted work is legally and conceptually independent of the physical copy. It next examines copyright's fixation standard—the threshold requirement that the copyrighted work be fixed in a tangible medium of expression. It then probes into the first sale doctrine, which seeks to restrict the copyright owner's power over the distribution of certain physical copies.

Taken together, these doctrines establish what is commonly believed to be an unforgiving axiom—the idea that copyright law is fundamentally about protecting intangible works, not physical articles.

A. The Intangible Work

What is copyright for? Courts overwhelmingly agree: Copyright governs intangible goods.[40] Today, this centuries-old principle finds expression in section 202 of the Copyright Act, which provides that:

> Ownership of a copyright . . . is distinct from ownership of any material object in which the work is embodied. Transfer of ownership of any

[40] In a series of nineteenth-century cases, the Supreme Court clarified that copyright attaches to an intangible work. *See, e.g.*, Stephens v. Cady, 55 U.S. 528, 531 (1852); Stevens v. Gladding, 58 U.S. 447, 453 (1854); Ager v. Murray, 105 U.S. 126, 129–30 (1881). Lower courts have followed the Supreme Court's lead. *See, e.g.*, Werckmeister v. Springer Lithographing Co., 63 F. 808, 812 (C.C.S.D.N.Y. 1894) (holding that author of painting retains his or her copyright even after selling the painting itself); Loc. Trademarks, Inc. v. Price, 170 F.2d 715, 718 (5th Cir. 1948) ("A copyright is an intangible, incorporeal right . . . and is independent of any material substance."); United States v. Wise, 550 F.2d 1180, 1187 n.9 (9th Cir. 1977) ("[T]he copyright is distinct from the property which is copyrighted . . . ."); Harms v. Cohen, 279 F. 276, 281 (E.D. Pa. 1922) ("[A] copyright is an intangible thing, and it is separate and distinct from the material object copyrighted. . . ."); Patterson v. J. S. Ogilvie Publ'g Co., 119 F. 451, 453 (C.C.S.D.N.Y. 1902) (holding that the plates sold by the copyright owner were separate from the copyrighted work itself); Forward v. Thorogood, 985 F.2d 604, 605–06 (1st Cir. 1993) (holding that ownership of physical tapes is distinct from ownership of the underlying work).

> material object . . . does not of itself convey any rights in the copyrighted work embodied in the object; nor, in the absence of an agreement, does transfer of ownership of a copyright or of any exclusive rights under a copyright convey property rights in any material object.[41]

The core idea is seductively simple: the copyrighted work is separate from the physical object in which it inheres. The distinction is something of a rigid edifice. For example, consider again the Spice DAO kerfuffle. As discussed above, the Spice organization paid millions of dollars for a rare artbook—an original copy of Alejandro Jodorowsky's *Dune Bible*.[42] The organization's stated goal was to rework the novel and turn it into an animated series.[43] Yet the group had disastrously miscalculated. As it turned out, the Spice collective failed to properly account for the distinction between the physical copy and the intangible work. By purchasing a copy, the group merely acquired a material piece of property: a copy of the book.[44] The group did not obtain the copyright to the *underlying* work—the collection of words and images that make up the intellectual creation itself.[45] This meant that the Spice organization had no legal right to create an adaptation of the work; only the copyright owner could legally authorize a derivative work.[46]

This multimillion-dollar blunder was driven in large part by the mistaken belief that a physical copy could somehow confer ownership of the intangible, copyrighted work. But as a matter of blackletter law, the intangible creation is separate from the physical copy. Ownership of the latter does not imply ownership of the former. The larger lesson

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41 17 U.S.C. § 202.

42 Adrienne Westenfeld, *The Saga of the Dune Crypto Bros and Their Very Pricey Mistake Is at Its End*, Esquire (July 28, 2022, 9:24 AM), https://www.esquire.com/entertainment/books/a38815538/dune-crypto-nft-sale-mistake-explained [https://perma.cc/WAJ6-6HZE]; Gabriella Angeleti, *Crypto Group Shamed for Spending $3m on 'Dune' Book, Mistakenly Believing It Had Acquired Copyright to Produce NFTs*, Art Newspaper (Jan. 17, 2022), https://www.theartnewspaper.com/2022/01/17/nft-group-shamed-jodorowsky-dune-book-copyright [https://perma.cc/WRV7-EBCQ]; Adi Robertson, *The Dune Bible Crypto Collective Wants to Sell Its Dune Bible*, Verge (July 27, 2022, 12:58 PM), https://www.theverge.com/2022/7/27/23280490/spice-dao-jodorowsky-dune-bible-crypto-sale-planned-liquidation [https://perma.cc/2X2E-B9ZY]; Wren Graves, *Crypto Collective Spent Millions on Copy of Dune Book Thinking It Gave Them IP Rights*, Yahoo! (Jan. 18, 2022, 2:34 PM), https://www.yahoo.com/entertainment/crypto-collective-spent-millions-copy-193438259.html [https://perma.cc/52UX-ST2Q].

43 Westenfeld, *supra* note 42 (reporting that the group "had big plans to convert the book into NFTs, burn the physical copy, and adapt the story into an animated series").

44 17 U.S.C. § 202 ("Transfer of ownership of any material object, including the copy or phonorecord in which the work is first fixed, does not of itself convey any *rights* in the copyrighted work embodied in the object . . . ." (emphasis added)).

45 *Id.*

46 17 U.S.C. § 106(2) (providing the copyright owner with the exclusive right "to prepare derivative works based upon the copyrighted work").

here is that the intangible/physical divide is more than just window dressing. It is a line-drawing principle, one that sharply distinguishes the work from the copy.

This is not to say, however, that the distinction has always been universally recognized as settled law. As discussed below, the concept of the intangible "work"—an intellectual creation that stands apart from its material embodiment—did not take hold until the late nineteenth century.[47] Although the 1909 Copyright Act subsequently recognized that "the copyright is distinct from the property in the material object,"[48] the distinction continued to inspire much confusion and doubt for decades.[49] Nevertheless, the key point is a simple one: For more than a century, the notion that copyright protection attaches only to intangible goods has been a central tenant of copyright policy.

B. Fixation and Copies

There are two principal requirements for federal copyright protection. The first is the requirement that an eligible work be original to the author.[50] Specifically, courts consider whether the work has originated with the author and whether the work itself displays some minimal measure of creativity.[51] The second prerequisite, which is the subject of this section, is the requirement that an eligible work be "fixed in any tangible medium of expression."[52] To meet the fixation requirement, the copyrighted work must be captured in some durable medium from which it "can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device."[53]

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47 *See infra* Section III.A.

48 1909 Copyright Act, *supra* note 29. So understood, the 1909 Copyright Act entrenched a sharp distinction between the intangible work and the physical object.

49 *See infra* Section III.B.

50 17 U.S.C. § 102(a) ("Copyright protection subsists, in accordance with this title, in original works of authorship . . . .").

51 Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991) (holding that the originality standard "means . . . that the work was independently created by the author . . . and that it possesses at least some minimal degree of creativity"). The *Feist* Court further recognized that this originality standard derives from the Constitution's so-called Intellectual Property (IP) Clause, which empowers Congress to "secur[e] for limited Times to Authors . . . the exclusive Right to their respective Writings." U.S. CONST., art. I, § 8, cl. 8. As the Court made clear, the terms "Authors" and "Writings" mean that an eligible work must possess a degree of originality. *Feist*, 499 U.S. at 346. *See also* Publ'ns Int'l., Ltd. v. Meredith Corp., 88 F.3d 473, 482 (7th Cir. 1996) (observing that the instant recipes are not eligible for protection because they fail to evince "even a bare modicum" of creative expression); Warren Publ'g, Inc. v. Microdos Data Corp., 115 F.3d 1509, 1520–21 (11th Cir. 1997) (finding that the method of selecting communities for representation in a directory of cable television systems was not copyrightable).

52 17 U.S.C. § 102(a).

53 *Id.*

More concretely, the statute specifies that a work is "fixed" in a tangible form when "its embodiment" is made "by or under the authority of the author" and is "sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration."[54]

In most cases, the fixation requirement is rather easy to satisfy. The author of a novel obtains copyright protection the moment they put pen to paper, as it were—or, alternatively, the moment they type words onto a digital file.[55] A performance triggers copyright protection once it is captured on video.[56] Copyright subsists in a musical work the moment it is fixed in a sound recording or reduced to sheet music.[57] The fixation requirement therefore reflects a capacious concept. The statute defines fixation in broad, technology-neutral terms: fixation includes any material medium "now known or later developed, from which [the work] can be perceived, reproduced, or otherwise communicated. . . ."[58]

Still, the fixation requirement can prove more burdensome in cases involving extemporaneous performances, such as live choreographies,[59] interactive shows,[60] or oral conversations.[61] Similarly, some works turn out to be fleeting by their very nature—think of ice sculptures,[62] living

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54 17 U.S.C. § 101. The Copyright Act also appeals to the concept of fixation in defining the moment of creation: a work is created, we are told, "when it is fixed in a copy . . . for the first time . . . ." *Id.*

55 Douglas Lichtman, *Copyright as a Rule of Evidence*, 52 Duke L.J. 683, 716 (2003).

56 *Id.*

57 *Id.*

58 17 U.S.C. § 102(a).

59 *See, e.g.*, Joi Michelle Lakes, Note, *A Pas De Deux for Choreography and Copyright*, 80 N.Y.U. L. Rev. 1829, 1851–57 (2005) (suggesting that choreographic performances often fall short of satisfying the fixation standard).

60 An interactive show is a live performance that relies on interactions between the performer and the audience. The most obvious example is comedy. As Dotan Oliar and Christopher Sprigman have observed, "many stand-up acts are not fully scripted, and depend, to a non-trivial degree, on ad-libbing and audience interaction." Dotan Oliar & Christopher Sprigman, *There's No Free Laugh (Anymore): The Emergence of Intellectual Property Norms and the Transformation of Stand-Up Comedy*, 94 Va. L. Rev. 1787, 1801 (2008). What's more, "jokes and comedic routines often are perfected over dozens of performances, in which the joke changes its form." *Id.* at 1802. The result is that "unless the comedian is meticulous in fixing jokes as they change, the fixation requirement may not be met, and the joke would remain unprotected against copying until fixed." *Id.*

61 *See, e.g.*, Fritz v. Arthur D. Little, Inc., 944 F. Supp. 95, 99–101 (D. Mass. 1996) (concluding that oral lectures will likely be ineligible for copyright protection); Estate of Hemingway v. Random House, Inc., 244 N.E.2d 250, 253–56 (N.Y. 1968) (refusing to decide whether oral conversations or spoken dialogues are protected as a matter of common-law copyright).

62 Castillo v. G&M Realty L.P., 950 F.3d 155, 168 (2d Cir. 2020) (noting, in dicta, that "the gradual erosion of outdoor artwork exposed to the elements or the melting of an ice sculpture" does not give rise to liability due to the lack of fixation).

gardens,[63] and perhaps even foodstuff designs.[64] These works may be insufficiently durable to meet the (otherwise lax) fixation standard.

Fixation also looms over the infringement analysis. As a practical matter, most cases of copyright infringement turn on claims of unauthorized reproduction.[65] To establish a claim of unauthorized reproduction, the copyright holder must prove that the defendant created a copy of the protected work.[66] And, tellingly, the statute defines a "copy" by reference to fixation: A copy is a "material object[] . . . in which a work is fixed by any method now known or later developed, and from which the work can be perceived, reproduced, or . . . communicated . . . ."[67]

In this context, much of the case law has focused on the requirement that the fixed object survive for more than a transitory duration. For example, in one oft-cited case, the Ninth Circuit found that a copy temporarily stored in a computer's Random Access Memory (RAM) was sufficiently fixed.[68] In another case, however, the Second Circuit held that a copy stored in a network system for 1.2 seconds was not "fixed" because it was captured for only a transitory duration.[69]

Fixation thus plays a pivotal role in two seemingly distinct domains of copyright law: copyrightability and infringement.[70] But why insist that the work—or the copy—be fixed in a tangible form? Scholars have identified a few plausible rationales.[71] One common explanation is that fixation serves as a means of providing notice to those who encounter

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63 Kelley v. Chi. Park Dist., 635 F.3d 290, 304–05 (7th Cir. 2011) (observing that a living garden "owes most of its form and appearance to natural forces" and "is not stable or permanent enough" to constitute a fixed work).

64 Kim Seng Co. v. J & A Imps., Inc., 810 F. Supp. 2d 1046, 1054 (C.D. Cal. 2011) (finding that a bowl of perishable food fails to clear the fixation hurdle).

65 Shani Shisha, *Infringement Episodes*, 97 S. Calif. L. Rev. 1029, 1060 (2024).

66 Arnstein v. Porter, 154 F.2d 464, 468 (2d Cir. 1946) (noting that the plaintiff must prove "that [the] defendant copied from [the] plaintiff's copyrighted work"), *abrogated on other grounds, as recognized in* Heyman v. Com. & Indus. Ins. Co., 524 F.2d 1317, 1319 (2d Cir. 1975).

67 17 U.S.C. § 101.

68 MAI Sys. Corp. v. Peak Comput., Inc., 991 F.2d 511, 517–19 (9th Cir. 1993).

69 Cartoon Network LP, LLLP v. CSC Holdings, Inc., 536 F.3d 121, 127–30 (2d Cir. 2008), *cert. denied*, 557 U.S. 946 (2009).

70 *See* Lydia Pallas Loren, *Fixation as Notice in Copyright Law*, 96 B.U. L. Rev. 939, 949–56 (2016) (distinguishing between the doctrine of fixation as applied to the context of copyrightability and the doctrine of fixation as employed by courts in analyzing claims of infringement).

71 *See id.* at 958–62; Lichtman, *supra* note 55, at 723–34; Russ VerSteeg, *Jurimetric Copyright: Future Shock for the Visual Arts*, 13 Cardozo Arts & Ent. L.J. 125, 132 (1994); Kevin J. Hickey, *The Copyright/Commerce Clause Collision: A Subject Matter Approach*, 82 U. Cin. L. Rev. 1, 16 (2013); Megan Carpenter & Steven Hetcher, *Function over Form: Bringing the Fixation Requirement into the Modern Era*, 82 Fordham L. Rev. 2221, 2236–40 (2014).

the work.[72] If you encounter a hardcopy of a book, you can reasonably assume that there is a (potentially) copyrightable work embodied in that copy. An alternative rationale hinges on the evidentiary role of fixation. Several commentators, most prominently Doug Lichtman, have argued that fixation is fundamentally about addressing evidentiary challenges.[73] The argument is that, if copyright were to extend to unfixed works—such as fleeting, oral conversations—courts and litigants would face a mountain of costly litigation over "who said what first."[74]

Whatever one makes of these rationales, one central puzzle continues to haunt the concept of the tangible copy. In theory, copyright purports to protect intangible works of authorship. But time and again, the law turns to physical embodiments. A fixed embodiment, after all, is a prerequisite to copyright protection. And fixation is equally central to the infringement analysis, where the plaintiff must establish that the defendant created a fixed copy of the work. This raises a question: If our system is concerned exclusively with intangible objects, as the standard story would have us believe, why does copyright doctrine focus so keenly on physical copies?

To make sense of this apparent tension, one needs to consider the role of physical copies in modern copyright law. First, as just discussed, fixation serves an important evidentiary function. In a sense, the fixed copy is not the proper object of copyright protection. Instead, it is simply a means of getting at the real object: the intellectual creation. The copy stands in for the intangible work. Given the difficulty of pinning down an unfixed, intangible creation, we must use physical copies as rough proxies for the underlying, intellectual essence.[75]

Second, it's important to note that copyright's notion of a fixed "copy" is hardly an intuitive one. Courts often find that the copyrighted work has been "copied" even if only a miniscule portion of the work was reproduced. So, for example, one can create an infringing copy of a literary work by lifting only 300 words out of a 200,000-word

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72 Loren, *supra* note 70, at 958–62.

73 *See* Lichtman, *supra* note 55, at 730–34; VerSteeg, *supra* note 71, at 132 (noting that the "key danger" that fixation seeks to address is "a practical one: proof"); Gregory S. Donat, Note, *Fixing Fixation: A Copyright with Teeth for Improvisational Performers*, 97 Colum. L. Rev. 1363, 1400 (1997) (noting that "without [fixation], copyright law would forever be mired in disputes over the definition and boundaries of the works claiming copyright protection").

74 Hickey, *supra* note 71, at 16; *see also* Lichtman, *supra* note 55, at 730–34.

75 Some three decades ago, Wendy Gordon noted that "[a]lthough they are not physically 'crossable,' the fixation and marking requirements . . . function as boundaries in the same way as the edges on personal property or physical boundaries around realty do." Wendy J. Gordon, *An Inquiry into the Merits of Copyright: The Challenges of Consistency, Consent, and Encouragement Theory*, 41 Stan. L. Rev. 1343, 1383 (1989).

manuscript.[76] A two-second sample of a sound recording, too, can constitute a "copy" of the work.[77] Indeed, copyright's conception of the copy is not directed at the physical thing itself. To create an actionable copy of a novel, one need not create a literal, physical copy of the book; lifting only a tiny portion of the *underlying text* may suffice. Courts have repeatedly held that the question is not whether the defendant created a verbatim copy of the physical thing, but whether the defendant borrowed the "heart" of the underlying, intangible expression.[78]

What this means is that, as a matter of copyright doctrine, the "copy" is not really keyed to the physical medium. It instead corresponds to the underlying, intangible expression. Although the copy itself must be fixed in some tangible form, the copy is tied to the underlying expression—namely, it must incorporate some portion of the work, no matter the particular, tangible medium in which that work is fixed.

Third, reaching beyond the concept of the "copy," our system entitles the copyright holder to prevent others from creating an adaptation of the work.[79] Accordingly, a novel may not be adapted into a play or a movie without the permission of the copyright owner. Although a play or a movie would not be a literal copy of the physical book, it could still constitute an infringing adaptation of the *underlying work*. The point, to reiterate, is that the copyright owner's rights are tied to the underlying work, not the physical object. Because the work is an elusive, intellectual creation, its essence can be adapted into various forms. One can intrude on the author's rights without producing a literal copy of the physical thing. In short, the work is conceptually and legally severable from the tangible copy.

At the same time, two wrinkles complicate this narrative. One is a practical concern. Even if it is conceptually possible to draw a wedge between the intangible and the physical, the distinction can prove deceptively elusive in practice. As I explain in Part II, courts do, in fact, struggle to disassociate the intangible work from its physical form.[80]

A second concern is a conceptual one. The Copyright Act explicitly pronounces that "[a] work is 'created' when it is fixed in a copy or phonorecord for the first time . . . ."[81] This might seem surprising. The implication here seems to be that the work and the copy are not truly separable: As a matter of statutory law, an unfixed work simply does not exist—it has not yet been "created."

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76 Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539 (1985).
77 Bridgeport Music, Inc. v. Dimension Films, 410 F.3d 792 (6th Cir. 2005).
78 *See, e.g.*, *Harper & Row*, 471 U.S. at 564–66.
79 17 U.S.C. § 106(2).
80 *See infra* Part II.
81 17 U.S.C. § 101.

The legislative record of the 1976 Copyright Act suggests a way to resolve this tension. In drafting the Copyright Act, Congress acknowledged that, as a purely legal matter, the copyrighted work materializes upon fixation.[82] As traditionally conceived, the copyrighted work is a *legal construct*, one that gives rise to certain rights and duties.[83] That construct depends upon the merger of an intangible work with a tangible object.[84] So while it is true that, as a conceptual matter, the intangible creation exists independently of the physical realm, it is also true that, as a matter of legal fiction, eligible subject matter requires merger of expression and fixation.

C. The First Sale Doctrine

The first sale doctrine stands for the proposition that, when a copy of the work is acquired by a consumer, the copyright holder's power over the distribution of that copy is exhausted.[85] "[O]nce the copyright owner places a copyrighted item in the stream of commerce," the Supreme Court has explained, "he has exhausted his . . . right to control its distribution."[86]

To illustrate, suppose you purchase a copy of the book *A Game of Thrones*. Now suppose that you wish to lend or gift your copy to a friend or a family member. In theory, by lending a copy to a friend you would be infringing upon the copyright owner's distribution right: only the copyright owner may sell, lend, or lease a copy of the work.[87] But that's

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[82] *See* H.R. Rep. No. 94-1476, at 53 (1976) ("The two essential elements—original work and tangible object—must merge through fixation in order to produce subject matter copyrightable under the statute.").

[83] *See* Michael J. Madison, *The End of the Work As We Know It*, 19 J. Intell. Prop. L. 325, 328 (2012) [hereinafter Madison, *The End of the Work*] (analyzing the copyrighted work "as a legal thing, which is related to, but conceptually and practically distinct from, the 'work' or 'the work of art' as an artistic or authorial object").

[84] *See* H.R. Rep. No. 94-1476, at 53.

[85] *See* 17 U.S.C. § 109(a) ("[T]he owner of a particular copy or phonorecord lawfully made under this title . . . is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy or phonorecord."). The Supreme Court first endorsed the first sale doctrine in *Bobbs-Merrill Co. v. Straus*, 210 U.S. 339 (1908). The publisher, Bobbs-Merrill, appended to its books a notice suggesting that any retail sale at a price under $1 would constitute copyright infringement. *Id.* at 341. The defendants nonetheless sold the books at a lower price. *Id.* at 341–42. The Court held that the copyright holder's exclusive right to "vend" applied only to the first sale of the copyrighted work. *Id.* at 349–51; *see also* Shyamkrishna Balganesh, *Copyright and Good Faith Purchasers*, 104 Calif. L. Rev. 269, 273 (2016) (discussing the first sale doctrine and its limitations on the resale of copyrighted works).

[86] Quality King Distribs., Inc. v. L'anza Rsch. Int'l, Inc., 523 U.S. 135, 152 (1998).

[87] *See* Ford Motor Co. v. Summit Motor Prods., Inc., 930 F.2d 277, 299 (3d Cir. 1991) (observing that the distribution right encompasses various methods of transferring ownership, including by selling, gifting, or loaning copies of the work).

where the first sale doctrine kicks in. The first sale doctrine ensures that once the copyright holder parts with ownership of a specific copy, they no longer possess the power to restrict downstream circulation of that copy.[88] In turn, the owner of any particular copy may freely sell, lend, or gift it.

On its face, first sale is about exhaustion: The rightsholder's power over a specific embodiment of the work is exhausted once they part with that embodiment.[89] This notion of exhaustion suggests two related principles. The first is a distinction between the intangible work and the physical copy. Copyright law, as we have seen, centers on the intangible work—the creation of an author.[90] And although that creation must take some durable form, it is only the intangible creation itself that is the proper subject of copyright protection.[91] Correspondingly, the copyright holder's authority over *physical* copies must be limited in some ways. The second principle at stake is copyright's presumption of alienability. Our system has long resisted restraints on the "alienability of authors' rights."[92] Alienability is thought to serve the overarching goal of the copyright regime—to "induce wide dissemination of works"[93] by facilitating "the free movement of goods."[94]

Yet not all is well with the first sale doctrine. Most prominently, the doctrine has been menaced in recent decades by the growing prevalence of digital licensing. The core issue is that the first sale doctrine encompasses only *owned* copies.[95] If one merely *licenses* a copy of the work, the first sale doctrine does not apply. This is so because a license does not lead to a transfer of ownership.[96] Predictably, then, copyright owners have increasingly attempted to leverage end user licensing agreements (EULAs) to characterize the transfer of a physical copy as a license rather than a sale.[97]

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88 *Bobbs-Merrill*, 210 U.S. at 349–51.

89 Aaron Perzanowski & Jason Schultz, *Digital Exhaustion*, 58 UCLA L. Rev. 889, 891 (2011) [hereinafter Perzanowski & Schultz, *Digital Exhaustion*] (noting that copyright's exhaustion principle is reflected in the first sale doctrine).

90 *See supra* Section I.A.

91 *See supra* Section I.A.

92 Jane C. Ginsburg, *The Role of the Author in Copyright*, *in* Copyright Law in an Age of Limitations and Exceptions 60, 64 (Ruth L. Okediji ed., 2017) (citing 61 Am. Jur. 2d *Perpetuities and Restraints on Alienation* § 90 (2002)).

93 Shani Shisha, *The Folklore of Copyright Procedure*, 36 Harv. J.L. & Tech. 61, 113 (2022) [hereinafter Shisha, *Folklore*].

94 Perzanowski & Schultz, *Digital Exhaustion*, *supra* note 89, at 911.

95 *See* 17 U.S.C. § 109(a) (limiting the rights of § 109 to "the owner of a particular copy . . . lawfully made").

96 *See id.* (limiting the application of § 109 to an "owner" of a lawfully made copy).

97 Perzanowski & Schultz, *Digital Exhaustion*, *supra* note 89, at 901–02.

But can such self-serving agreements defeat the first sale doctrine by simply invoking the term "license"? Some courts are skeptical.[98] Others, though, insist that the copyright holder can retain title in copies through "mere recitation . . . of a few magic words."[99] On this approach, copyright owners can altogether short-circuit the first sale doctrine by simply stating that they are licensing their works. Consider *MAI Systems Corp. v. Peak Computer, Inc.*,[100] where in a single "cursory, unsupported footnote,"[101] the Ninth Circuit recognized that the first sale doctrine does not apply where the rightsholder purports to license their software.[102] Another notable example is *Microsoft Corp. v. Harmony Computers & Electronics, Inc.*,[103] where the court concluded that "[e]ntering a license agreement is not a 'sale' for purposes of the first sale doctrine."[104]

These cases are most illuminating in what they suggest about the intangible/physical distinction. As copyright scholars have noted, most transactions involve two separate objects: the physical copy and the intangible, copyrighted work.[105] Because the work is separate from the copy, a licensee of the *work* can also be the owner of a specific *copy*. Thus, in suggesting that the existence of a license agreement necessarily

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98 Most critically, some courts conclude that a permanent, perpetual transfer of a copy always amounts to a sale. One example is *UMG Recordings, Inc. v. Augusto*, 558 F.Supp.2d 1055 (C.D. Cal. 2008), *aff'd*, 628 F.3d 1175 (9th Cir. 2011). The defendant, Troy Augusto, sold collectible merchandise on eBay, including promo CDs lawfully purchased from various retailers. *Id.* at 1058. UMG, the copyright owner, asserted that Augusto did not own the CDs he bought, because those CDs included a proviso specifying "Promotion Use Only—Not for Sale" or "This CD is the property of the record company and is licensed to the intended recipient for personal use only." *Id.* at 1058, 1058 n.1. Nevertheless, the court found that the promo CDs were *permanently* transferred to the defendant—UMG never made an effort to retrieve them, kept no records of who obtained particular copies, and the packaging of the CDs imposed no requirement that they should ever be returned to UMG. *Id.* at 1061. In considering the economic realities of the transaction, the court thus found that the "fact that the agreement labels itself a 'license' . . . does not control our analysis." *Id.* at 1060 (quoting Microsoft Corp. v. DAK Indus. (*In re* DAK Indus.), 66 F.3d 1091, 1095 n.2 (9th Cir. 1995)). And because the copies here were *perpetually* transferred to the consumer, the court held that Augusto owned them. *Id.* at 1060–61 (citing Krause v. Titleserv, Inc., 402 F.3d 119, 123 (2d Cir. 2005)).

99 Brian W. Carver, *Why License Agreements Do Not Control Copy Ownership: First Sales and Essential Copies*, 25 Berkeley Tech. L.J. 1887, 1898 (2010).

100 991 F.2d 511 (9th Cir. 1993).

101 Carver, *supra* note 99, at 1899.

102 *MAI Systems Corp.*, 991 F.2d 511, 518 n.5 (9th Cir. 1993).

103 846 F. Supp. 208 (E.D.N.Y. 1994).

104 *Id.* at 213.

105 *See* Carver, *supra* note 99, at 1896–97; Michael J. Madison, *Reconstructing the Software License*, 35 Loy. U. Chi. L.J. 275, 300–02 (2003) [hereinafter Madison, *License*]; David Nimmer, *Brains and Other Paraphernalia of the Digital Age*, 10 Harv. J.L. & Tech. 1, 21–22 (1996) [hereinafter David Nimmer]; Guy A. Rub, *Rebalancing Copyright Exhaustion*, 64 Emory L.J. 741, 812 n.288 (2015).

precludes ownership of a tangible copy, courts appear to conflate the physical embodiment with the copyrighted work.

The confusion results in part from the ambiguity that enshrouds the term "license." The word "license" often means "to give permission [to use]."[106] But it can also reflect a more nuanced idea—that the copyright owner agrees to transfer a tangible embodiment of the work without relinquishing legal ownership of that item.[107] Because "the word 'license' is used in at least two distinct ways," courts have become "susceptible to inadvertent equivocation."[108] A similar sense of uncertainty seethes beneath the intangible/physical divide: "we sometimes think of the intangible copyrighted work as the 'product,'" but occasionally "we might [instead] refer to the tangible copy [itself] . . . as the 'product.'"[109] And the problem is further compounded when the subject of litigation is software—a clouded term that could point either to the intangible work or to the physical copy.[110] The reality, then, is that license agreements tend to speak of a particular "software" being "licensed," but it is often unclear whether these terms seek to capture the physical copy or the intangible work, or both.

II
Modern Doctrine

The previous Part showed that the distinction between the intangible work and the physical medium is a central pillar of the modern copyright system. This Part argues that the distinction is fraught with uncertainty and confusion. The confusion does not stem from disagreement about abstract principles. Most everyone agrees that copyright extends to intangible works of authorship. Rather, the core issue is that judges and scholars seem distinctively at sea when it comes to the challenge of identifying the intangible work.

A few commentators have taken note.[111] Twenty-five years ago, Michael Madison observed that the ostensibly sharp contrast between

106 Carver, *supra* note 99, at 1931.

107 *Id.*

108 *Id.* at 1930.

109 *Id.* at 1933 n.201.

110 *See id.* at 1933–34 (observing that the *MAI Systems* court employed the word "software" to mean both the copyrighted work and the tangible copy). This isn't surprising. As Guy Rub notes, "[w]hile attempts to impose long-term restrictions on consumers are not unique to any one industry, software companies . . . are engaged in those techniques significantly more extensively and broadly than others." Guy A. Rub, *Against Copyright Customization*, 107 Iowa L. Rev. 677, 680 (2022).

111 *See* Michael J. Madison, *Legal-Ware: Contract and Copyright in the Digital Age*, 67 Fordham L. Rev. 1025, 1042–43 (1998) [hereinafter Madison, *Legal-Ware*]; Carver, *supra*

the work and the object has been withering away.[112] For much of the nineteenth and twentieth centuries, copyright focused almost exclusively on physical books, and so it was "relatively simple to physically . . . and conceptually distinguish rights in the thing . . . from the copyright holder's rights in the expression."[113] The tangible book, by virtue of its physical existence, provides important cues as to what a consumer may do with the physical thing or the intangible creation.[114] Yet the emergence of software programs and other digital goods has chipped away at this dichotomy. In the age of digital goods, the tangible "thing"—the copy in which the work is recorded—is often digital rather than physical.[115] As a result, the distinction between the work and the copy will likely grow more attenuated still.

As this Part demonstrates, this conceptual difficulty is both broader and more subtle than previously acknowledged. Courts and scholars struggle to distinguish between the work and the physical thing across various categories of copyrightable subject matter, both digital and physical. To tease out these patterns, this Part canvasses a host of seemingly discrete doctrinal domains. It first examines the debate over the copyrightability of DNA sequences. It then explores the confusion surrounding computer software. It next proceeds to discuss the status of architectural designs and culinary dishes. Finally, it examines how various conceptual challenges play out in cases implicating living subject matter and works of visual art. The analysis demonstrates that the distinction between the work and the copy, for all its pedigree, is increasingly under attack.

A. DNA Sequences

Can copyright protection extend to the information stored in DNA compounds? The proposition may seem absurd. As the Copyright Office emphasizes, "DNA sequences and other genetic, biological, or chemical substances or compounds" are not original works of authorship and do not constitute copyrightable subject matter.[116] But the issue has

note 99, at 1896–97; David Nimmer, *supra* note 105, at 22 n.91; Madison, *License*, *supra* note 105, at 333–34.

112 Madison, *Legal-Ware*, *supra* note 111, at 1042–43.

113 *Id.* at 1042.

114 *Id.*

115 *Id.* at 1042–43.

116 U.S. Copyright Office, Compendium of U.S. Copyright Office Practices § 313.3(A) (3d ed. 2021).

occasioned a flurry of commentary in recent years, and the debate is likely to intensify thanks to the advent of new DNA technologies.[117]

While some commentators have expressed skepticism that copyright could protect DNA sequences,[118] others believe that our law can (and should) extend to human-made DNA sequences. In 1982, Irving Kayton was among the first to argue that "virtually all original works of a genetic scientist are copyrighted."[119] More recently, Michael Murray has suggested that DNA "may be protected" by copyright law.[120] Christopher Holman similarly posits that works of genetic authorship lie within the reach of copyright law.[121] Andrew Torrance contends that "works of genetic authorship" ought to trigger copyright protection.[122] And Devdatta Malshe maintains that the information stored in human-created DNA, once fixed in a tangible medium, should be copyright-eligible.[123]

The central question—whether DNA sequences could be protected by copyright law—is no longer a purely intellectual exercise. In 2012, a group of scientists filed an application with the Copyright Office to register a DNA compound named the "Prancer Sequence."[124] After the Copyright Office refused to register the sequence,[125] the applicants sought reconsideration.[126] In affirming its decision to deny registration, the Copyright Office concluded that the Prancer Sequence did not constitute copyrightable subject matter.[127]

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117 *See The CRISPR Revolution*, Nat'l Inst. of Health., https://www.nih.gov/about-nih/what-we-do/nih-turning-discovery-into-health/transformative-technologies/crispr-revolution [https://perma.cc/KZJ9-PQAG] (describing CRISPR technology, which allows scientists to edit genomes inside living cells).

118 *See* Pamela Samuelson, *Evolving Conceptions of Copyright Subject Matter*, 78 U. Pitt. L. Rev. 17, 82–85 (2016); Dennis S. Karjala, *Protecting Innovation in Computer Software, Biotechnology, and Nanotechnology*, 16 Va. J.L. & Tech. 1, 57–58 (2011); Sapna Kumar & Arti Rai, *Synthetic Biology: The Intellectual Property Puzzle*, 85 Tex. L. Rev. 1745, 1763–64 (2007).

119 Irving Kayton, *Copyright in Living Genetically Engineered Works*, 50 Geo. Wash. L. Rev. 191, 192 (1982).

120 Michael D. Murray, *Post*-Myriad Genetics *Copyright of Synthetic Biology and Living Media*, 10 Okla. J.L. & Tech. 1, 30 (2014).

121 Christopher M. Holman, *Charting the Contours of a Copyright Regime Optimized for Engineered Genetic Code*, 69 Okla. L. Rev. 399, 456 (2017).

122 Andrew W. Torrance, *DNA Copyright*, 46 Val. U. L. Rev. 1, 26 (2011).

123 Devdatta Malshe, *Copyrighting DNA: An Off-Label Use*, 19 Wake Forest J. Bus. & Intell. Prop. L. 34, 42 (2018).

124 *See* Christopher M. Holman, Claes Gustafsson & Andrew W. Torrance, *Are Engineered Genetic Sequences Copyrightable?: The U.S. Copyright Office Addresses a Matter of First Impression*, 35 Biotech. L. Rep. 103, 104–05 (2016).

125 *Id.* at 104.

126 *Id.* at 104–05.

127 *Id.* at 119–23.

A variety of doctrinal factors weigh against copyright protection for DNA sequences. Perhaps most troublingly, DNA doesn't quite fit into any of the existing categories of protectable subject matter. Section 102 of the Copyright Act lists eight categories of expressive works that constitute eligible subject matter, but makes no mention of DNA.[128] Cognizant of this apparent weakness, proponents of DNA protection suggest that DNA could be squeezed into certain existing categories, such as literary or sculptural works.[129] Alternatively, critics have also pointed out that DNA could be protected under a new, standalone category. After all, the list of categories codified in section 102 is illustrative rather than exhaustive.[130] A second problem is that DNA sequences are more functional than expressive. DNA, after all, stores and transmits genetic information that is critical for the functioning of human cells.[131] Thus, DNA sequences seem very different from the kinds of artistic creations that typically occupy the heartland of copyright law, such as literary works, paintings, or musical works.

To get around these hurdles, DNA enthusiasts have gravitated toward a handy analogy: software.[132] In 1980, Congress amended the Copyright Act to recognize computer programs as protected subject matter.[133] Software, like DNA, is mostly functional—its primary function is to provide instructions to a computer.[134] Naturally, then, those who advocate for the protection of DNA sequences have turned to software as a source of inspiration.

But the analogy may well cut in the other direction. The reality is that software, too, fits uneasily with copyright's existing framework. As Justice Stephen Breyer wryly noted, it is unclear whether there's any

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128 17 U.S.C. § 102(a).

129 *See* Dan L. Burk, *Copyrightability of Recombinant DNA Sequences*, 29 JURIMETRICS J. 469, 501–02 (1989); Dan L. Burk, *DNA Copyright in the Administrative State*, 51 U.C. DAVIS L. REV. 1297, 1304 (2018) [hereinafter Burk, *DNA Copyright*].

130 *See* MELVILLE B. NIMMER & DAVID NIMMER, 1 NIMMER ON COPYRIGHT § 2.03 (2024) (acknowledging that "it is also clear that 'works of authorship' are not necessarily limited to the eight broad categories of works listed under Section 102(a)").

131 *See* Deoxyribonucleic Acid (DNA) Fact Sheet, NAT'L HUM. GENOME RSCH. INST., https://www.genome.gov/about-genomics/fact-sheets/Deoxyribonucleic-Acid-Fact-Sheet [https://perma.cc/CJ4P-ZNFX].

132 *See* Burk, *DNA Copyright*, *supra* note 129, at 1304 (describing the history of comparative analysis around copyright protections for software when advocating for DNA copyrights); Nina Srejovic, *Copyright Protection for Works in the Language of Life*, 97 WASH. L. REV. 459, 464–65 (2022) (noting how using software copyright as a roadmap to DNA copyright would lead to the same uncertainty software faces).

133 *See* 17 U.S.C. § 101 (defining a "computer program" as "a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result"). The legislative history indicates that the 1980 amendment "has the effect of clearly applying the 1976 law to computer programs . . . ." H.R. REP. NO. 96-1307, at 19 (1980).

134 *See infra* Section II.C.

need to protect software in the first place.[135] And courts have struggled to define software's expressive, copyrightable elements—indeed, one early court reported that the task of adapting copyright law to software is "like assembling a jigsaw puzzle whose pieces do not quite fit."[136] It is also important to stress that, unlike DNA sequences, software does apply to "a Congressionally endorsed category of subject matter."[137] So the analogy to software, to the extent that it is helpful at all, might counsel *against* protecting DNA sequences.

And yet the problem runs deeper. In a recent study, Nina Srejovic cogently argues that "copyright does not grant exclusive rights to functional, and more specifically genetic, DNA."[138] The reason is that "DNA is not a [copyrightable] 'work' at all, but rather a medium in which information is stored."[139] Thus, "[o]nce DNA is recognized as the physical object in which information is stored," it becomes clear that it cannot and should not be subject to copyright protection.[140]

Genetic DNA in human cells "carries the information necessary to produce all the proteins required for survival of the organism."[141] The information embedded in DNA can be analogized to the cell's operating system.[142] Ultimately, "just as the information in a computer's operating system operates to produce a different output depending on the input, the information in a cell's DNA operates to produce a different protein depending on the chemical compounds introduced."[143]

By these lights, DNA might be characterized as a physical repository of sorts. It is not a "work of authorship" at all.[144] Rather, DNA compounds function as the tangible medium in which information is stored.[145]

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135 Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281, 344 (1970) ("One should become suspicious of the need for protection . . . upon learning that the software industry is currently burgeoning without the use of copyright . . . .").

136 Lotus Dev. Corp. v. Borland Int'l, Inc., 49 F.3d 807, 820 (1st Cir. 1995), *aff'd*, 516 U.S. 233 (1996) (Boudin, J., concurring).

137 Burk, *DNA Copyright*, *supra* note 129, at 1306.

138 Srejovic, *supra* note 132, at 467.

139 *Id.* at 468.

140 *Id.* at 468.

141 *Id.* at 469.

142 *Id.*

143 *Id.*

144 As Srejovic puts it, "DNA compounds are not works of authorship at all. DNA compounds are the physical material in which copyrightable works or other information may be fixed, in other words, 'copies' under the Copyright Act." *Id.* at 474–75.

145 *Id.*

Commentators, however, have largely failed to acknowledge this distinction. Some speak of "genetic works."[146] Some refer to "genetically manufactured" organisms.[147] Some invoke DNA "molecules" or "code."[148] Some look to human-made or biological sequences.[149] Some focus on a variation of the term "human-designed DNA."[150] And some call upon such terms as "recombinant DNA" or simply "DNA" to describe the objects being staked.[151] The scholarly landscape, in short, is a flaming jumble.

The result is a ragbag of vague and often conflicting terms. By focusing on terms that describe physical objects, such as DNA molecules, some observers appear to conflate the material embodiment with the intangible work. On the other hand, terms such as "DNA sequences" could plausibly be taken to refer to an intangible object: the arrangement and sequence of the letters A, T, C, and G, that are typically used to describe DNA compounds.[152] While the arrangement of letters could be protected as a literary work, the DNA compound itself is merely a physical embodiment and is thus not the object of copyright protection.[153]

To be clear, I do not mean to suggest that the literary work embodied in the DNA compound is necessarily copyrightable. Most sequences are likely ineligible for copyright protection due to their functional nature.[154] The point, instead, is that if we want to get things right—that

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146 Kayton, *supra* note 119, at 201; *see also* Jorge A. Goldstein, *Copyrightability of Genetic Works*, 2 Nature Biotech. 138, 139 (1984) (invoking the term "genetic works" to discuss the copyrightability of genetic information).

147 *See* Kayton, *supra* note 119, at 218 ("genetically engineered organisms"); Jorge A. Goldstein, *supra* note 146.

148 Donna Smith, *Copyright Protection for the Intellectual Property Rights to Recombinant Deoxyribonucleic Acid: A Proposal*, 19 St. Mary's L.J. 1083, 1106 (1988); Holman, *supra* note 121, at 401–02; Torrance, *supra* note 122, at 35.

149 Holman et al., *supra* note 124, at 103; Stephen R. Wilson, *Copyright Protection for DNA Sequences: Can the Biotech Industry Harmonize Science With Song?*, 44 Jurimetrics J. 409, 446 (2004); Tani Chen, *Can a Biological Sequence Be Copyrighted?*, 19 Intell. Prop. & Tech. L.J. 1, 3 (2007).

150 Holman et al., *supra* note 124, at 118.

151 *See* Burk, *DNA Copyright*, *supra* note 129, at 1302–04 (discussing the longstanding debate over "DNA copyright"); Torrance, *supra* note 122, at 3 (discussing whether "DNA constitutes subject matter eligible for copyright").

152 *See* DNA Fact Sheet, *supra* note 131 (noting that "[t]he four types of nitrogen bases found in nucleotides are: adenine (A), thymine (T), guanine (G) and cytosine (C). The order . . . of these bases determines what biological instructions are contained in a strand of DNA . . . . the sequence ATCGTT might instruct for blue eyes, while ATCGCT might instruct for brown").

153 Srejovic, *supra* note 132, at 471, 474–75.

154 *Id.* at 493–503.

is, if we want to figure out what could or couldn't be copyrightable—we must first be able to sever the intangible from the physical.

B. Architecture

The Copyright Act defines an "architectural work" as "the design of a building as embodied in any tangible medium of expression, including a building, architectural plans, or drawings."[155] But architectural works were not always protected under the Copyright Act. Initially, Congress was somewhat reluctant to extend copyright protection to architectural structures. It did so only after the Copyright Office issued a report recommending that the federal statute be amended to explicitly recognize architectural works as copyrightable subject matter.[156] The Report concluded that, while architectural plans were already "unequivocally protected" under existing law,[157] it was unclear whether the Copyright Act could reach "the unauthorized construction" of such architectural plans.[158] Consequently, the Report found that U.S. copyright law "may well prove inadequate."[159]

To address this state of affairs, the Report contemplated an array of potential solutions.[160] One solution—and the very solution Congress eventually implemented—was to introduce a new category of copyrightable subject matter for works of architecture.[161] Such works were to include both architectural plans and physical buildings.[162]

None of this, however, was thought to conflict with the intangible/physical distinction. That copyright extends to buildings does not mean that the buildings themselves—the physical structures—are the object of copyright protection.[163] Instead, the building is merely a physical manifestation of the intellectual work. The work is the *design* of the

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155 17 U.S.C. § 101.

156 U.S. Copyright Office, The Report of the Register of Copyrights on Works of Architecture app. A (1989) [hereinafter Report on Works of Architecture].

157 *Id.* at 4.

158 *Id.*

159 *Id.* at 221. Based on a "review of existing law in the United States, the evolution of protection for works of architecture in the Berne Convention, and the laws and practices in Berne member countries," the Report concludes that U.S. law would fall short of satisfying the Berne Convention's requirements "absent legislative or judicial clarification." *Id.*

160 *Id.* at 223–26.

161 *Id.* at 223–24.

162 *See* 17 U.S.C. § 101 (specifying that an "architectural work" consists of "the design of a building as embodied in any tangible medium of expression, including a building, architectural plans, or drawings").

163 *See* Report on Works of Architecture, *supra* note 156, at 157.

building, which consists of "the overall form as well as the arrangement and composition of spaces and elements."[164] The Report clarified that

> Copyright law protects original expression which is usually embodied in physical media. . . .[A]n "architectural work" can and usually must be distinguished from the building or other structure in which it is embodied. . . .[T]he protection of architectural works under copyright is fundamentally not about the protection of buildings per se; it is . . . about the protection of perceptible personal expression embodied in some, but not all, buildings.[165]

The idea, then, is that copyright isn't about protecting "buildings per se," but rather about the "perceptible personal expression" that constitutes the intangible work. But here, too, the waters grow murky. Consider again the Report's central finding: that a statutory amendment was necessary because early courts refused to hold that an architectural plan could be infringed by constructing the building depicted in the plan.[166]

Why did early courts find that copyright did not cover a physical structure derived from an architectural plan? Some courts held that a structure is not protected at all—or is subject to thin protection—because it is a "useful article."[167] Others reasoned that the construction of an unauthorized structure is permissible because it amounts to "copying for purposes of use" rather than copying for the purpose of expression or explanation.[168] And, most alarmingly, some courts have instead suggested that the construction of a physical building is not actionable since the building itself is not a "copy" of the architectural work.[169]

Take *DeSilva v. Herrald*.[170] A Florida company brought an action for copyright infringement against a few individuals who used the company's architectural plans to build physical homes.[171] Although the

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164 The statutory definition in section 101 makes this patently clear: the architectural work "is the design of a building embodied in any tangible medium of expression . . . ." 17 U.S.C. § 101. The central idea, in brief, is that the work *is* the intangible design, not the physical embodiment itself.

165 Report on Works of Architecture, *supra* note 156, at 157.

166 *Id.* at 4.

167 Robert R. Jones Assocs., Inc. v. Nino Homes, 858 F.2d 274, 278 (6th Cir. 1988); *see also* 1 Nimmer & Nimmer, *supra* note 130, at § 2A.09[A][1][b].

168 *See* Muller v. Triborough Bridge Auth., 43 F. Supp. 298, 300 (S.D.N.Y. 1942) (holding that "plaintiff's copyright of [an architectural] drawing . . . does not prevent any one from using and applying the system [embodied in the drawing]").

169 *See, e.g.*, Oravec v. Sunny Isles Luxary L.C., 469 F. Supp. 2d 1148, 1162 (S.D. Fla. 2006).

170 DeSilva Const. Corp. v. Herrald, 213 F. Supp. 184, 195–96 (M.D. Fla. 1962).

171 *Id.* at 187–91.

court dismissed the company's infringement claims on other grounds, it also found that the purportedly infringing structures did not qualify as "copies" of the company's architectural plans.[172] The court stressed that the exclusivity conferred upon "the proprietor of copyright in architectural plans does not encompass the protection of the buildings or structures themselves" and is instead "limited only to the plans."[173] In reaching this conclusion, the court further noted that "[t]he building is not a copy of the plans; and if the protection is limited under the current law to the plans themselves, the construction of the building would not deprive the architect of his right to secure a copyright of his plans. . . ."[174]

This may seem rather strange. The intangible work at issue here is an architectural design consisting of a combination of various design elements.[175] And the building, in turn, is a material embodiment of that intangible design: it captures the design in a concrete, durable form. As a matter of first principles, copyright law protects against copying in any medium, not just the original medium in which the work was first fixed.[176] A two-dimensional work may not be copied into a three-dimensional medium.[177] Any physical embodiment of the work—that is, any material object "from which the work can be perceived"[178]—is plainly a "copy" as a matter of blackletter doctrine.

For this reason, courts have at times recognized that common-law copyright could extend to three-dimensional buildings.[179] But in a subset of early cases, as in the *DeSilva* case, courts seemed to have erroneously determined that a physical structure is simply not a copy of the architectural plan.[180] Implicit in these cases was the assumption

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172 *Id.* at 195–96.

173 *Id.* at 195.

174 *Id.* at 196.

175 *See* 17 U.S.C. § 101 (defining an architectural work as consisting of "the overall form as well as the arrangement and composition of spaces and elements in the design").

176 1 NIMMER & NIMMER, *supra* note 130, at § 2A.09[A][1][b].

177 *Id.*

178 17 U.S.C. § 101.

179 *See, e.g.*, Wallace v. Helm, No. 867 177, 1969 WL 9567, at *3 (Cal. Super. Ct. 1969) (concluding that the defendant's construction of houses based on the plaintiff's drawings were actionable).

180 *DeSilva*, 213 F. Supp. at 195–96; Data Cash Sys., Inc. v. JS&A Group, Inc., 480 F. Supp. 1063, 1068 (N.D. Ill. 1979), *aff'd on other grounds*, 628 F.2d 1038 (7th Cir. 1980) ("An architectural plan is a technical writing which is capable of being copied only by similar technical writings, i.e., by other plans. A building is the result of plans not a 'copy' of them.") (quoting Nucor Corp. v. Tennessee Forging Steel Serv., Inc., 476 F.2d 386, 391 n.8 (8th Cir. 1973)); Demetriades v. Kaufmann, 680 F. Supp. 658, 664–65 (S.D.N.Y. 1988) ("Although plaintiffs may have a valid copyright in the architectural plans that served as the basis for the [defendants'] house, that protection simply does not extend to the design or the house itself absent a design patent."); Robert R. Jones Assocs., Inc. v. Nino Homes, 858 F.2d 274, 280 (6th Cir. 1988) (recognizing the general "rule . . . that one may construct a house which is identical

that the "work" is the architectrual plans themselves, and so a physical building cannot be an infringing copy. Yet that's clearly wrong as a matter of copyright law. The architectual plans are *not* the "work," but rather a method of fixing the work. The work, properly understood, is an incorporeal creation. As such, the work consists of a combination of design elements. And those design elements, in turn, can be fixed in any number of tangible mediums, including a physical building or a written architectural plan.

To put it more starkly: the building is no doubt a copy of the intangible design. That copy may or may not be protected, depending on whether its functional elements can be separated from its expressive elements.[181] But it is a copy nonetheless. If one accepts that the work is an elusive creation—a combination of design elements that can take different forms—it is hard to see why a physical structure shouldn't qualify as a copy of the intangible design. By overlooking this basic point, courts have again failed to take account of the conceptual distinction between the work and the copy.

C. Software

To understand software, it might be useful to begin with a brisk overview of how computers work. A computer houses an array of on/off switches.[182] These switches, popularly referred to as "circuits," combine with one another to perform complex calculations and carry out a range of functions—serving as a word processor, a digital painter, a media player, a web browser, and so on.[183]

The computer's multipurpose capacity is partly a product of programming. By harnessing programming instructions—i.e., instructions as to which circuits to turn on and which to turn off—users are able to get the computer to perform certain tasks.[184] These instructions operate against the computer's on/off switches, and so they manifest in a binary language: the number one, which stands for "on,"

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to a house depicted in copyrighted architectural plans, but one may not directly copy those plans and then use the infringing copy to construct the house").

[181] 1 NIMMER & NIMMER, *supra* note 130, at § 2A.09[A][1][b] (detailing how an architectural plan could be considered "a work that protrays a useful article," rather than a "useful article" itself).

[182] James Gibson, *Once and Future Copyright*, 81 NOTRE DAME L. REV. 167, 173 (2005) [hereinafter Gibson, *Once and Future*].

[183] *Id.* at 173–74.

[184] Pamela Samuelson, Randall Davis, Mitchell D. Kapor & J.H. Reichman, *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308, 2316 (1994).

and the number zero, which stands for "off."[185] These instructions consist of a string of thousands (or more) of ones and zeros.

Such instructions form the basis for what we typically describe as "software." Modern software is created with the aid of programming languages.[186] These languages, though "mostly unintelligible to the untrained eye,"[187] transform one-and-zero strings into something that is more evocative of human language: they contain words and numbers.[188] The result is source code—a collection of words, symbols, and numbers written in a particular programming language. Nonetheless, because the computer cannot "read" programming languages,[189] certain programs (known as "compilers") are used to translate them into the one-and-zero strings that the computer can effectively process.[190]

So characterized, software fits quite elegantly within modern copyright law—it draws upon letters and numbers, thus resembling a textual, literary work.[191] And, as discussed in Section II.A above, Congress has already amended the Copyright Act to make clear that software programs constitute copyrightable subject matter.[192]

That said, the letters and numbers that make up software code are not expressive in the same way that natural language is. While humans can read, perceive, and understand natural language, software code operates by providing certain technical instructions to a computer. But the computer does not "read" or "understand" these instructions. In fact, the term "instructions" is itself figurative, because there is no one that the code could possibly "instruct" and there is no sense in which the computer can comprehend instructions. So, although the Copyright Act defines a computer program as "statements or instructions to be used directly or indirectly in a computer," it is also true that, in a sense,

185 Gibson, *Once and Future*, *supra* note 182, at 174.

186 *See* Samuelson, Davis, Kapor & Reichman, *supra* note 184, at 2322 n.41.

187 Gibson, *Once and Future*, *supra* note 182, at 174.

188 *See* Samuelson, Davis, Kapor & Reichman, *supra* note 184, at 2316 (acknowledging that source code "is clearly some form of text, even if in a strange language not easily read by the casual observer").

189 I use the term "read" here as something of a metaphor: The computer is a machine, and as such it cannot "read" anything, at least not in the colloquial sense typically invoked in conversations about human perceptions.

190 Pamela Samuelson, *CONTU Revisited: The Case Against Copyright Protection for Computer Programs in Machine-Readable Form*, 1984 Duke L.J. 663, 686 (1984); *see also* Samuelson, Davis, Kapor & Reichman, *supra* note 184, at 2316 n.16 (describing the use of compilers or assemblers to convert the code into "a machine-executable form").

191 Gibson, *Once and Future*, *supra* note 182, at 176.

192 *See supra* text accompanying note 133.

"there is nothing [in software] that can be described as 'statements or instructions' except as an elaborate metaphor."[193]

From this perspective, a software program is no more expressive than "the gears that operate the shift of a car."[194] By putting your car into gear, you are not engaging in an expressive activity. You are not providing "instructions," and the car is not following any. Similarly, a computer is best understood as a machine or a technical process; it is driven by "the flow of current through electronic circuitry [and thus] needs no instructions (and could follow none were they given)."[195]

The twin metaphors of "language" and "instructions" have therefore obscured the functional nature of software programs. And because software is mostly functional, courts have fashioned a number of tests to weed out its functional aspects and identify its protected, expressive elements.[196]

Tellingly, however, software suffers from much the same infirmity that ails other areas of copyright doctrine. In practice, the line between the work and its fixed form is slippery, and courts often fail to distinguish between the expression and the medium in which it is captured. Consider *Lotus v. Borland*, where the First Circuit held that copyright does not cover the text and layout—namely, the user interface—of a computer program.[197] Lotus Development Corporation sued Borland International for allegedly copying the command menu of its Lotus 1-2-3 spreadsheet software.[198] The First Circuit found for Borland, concluding that the menu itself did not constitute copyrightable subject matter but was instead a functional, unprotected "method of operation."[199]

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193 Lloyd L. Weinreb, *Copyright for Functional Expression*, 111 HARV. L. REV. 1149, 1157 (1998).

194 *Id.* at 1168.

195 *Id.* at 1157 (alteration in original).

196 *See, e.g.*, Computer Assocs. Int'l, Inc. v. Altai, Inc., 982 F.2d 693, 714 (2d Cir. 1992) (observing that the functional elements of a software "do not qualify for copyright protection"). In *Altai*, a software development company recruited a programmer from its competitor, Computer Associates. The programmer then copied portions of Computer Associates' program. *Id.* at 699–700. After Computer Associates sued for infringement, the Second Circuit ruled in favor of Altai. *Id.* at 696–97. In so doing, the court established the Abstraction-Filtration test, which consists of three steps: abstraction, filtration, and comparison. *Id.* at 706–12. Under this test, the court must first ascertain where to draw the line between idea and expression by breaking down the program into its abstract elements. *Id.* at 706–07. Next, the court must filter out non-protectable elements. *Id.* at 707. Finally, the court is tasked with comparing the remaining, protectable aspects of the copyrighted program to the allegedly infringing program. *Id.* at 710.

197 Lotus Dev. Corp. v. Borland Int'l, Inc., 49 F.3d 807 (1st Cir. 1995), *aff'd*, 516 U.S. 233 (1996).

198 *Id.* at 810–11.

199 *Lotus*, 49 F.3d at 815–18.

What is perhaps most noteworthy about *Lotus v. Borland* is the court's confusion about the proper object of copyright protection. As Lloyd Weinreb notes, "[t]he user interface . . . is not an element of the *encoded* program—that is to say, the program code—although the two are intricately related."[200] As a result, "copying the interface is not, strictly speaking, copying the program code literally or nonliterally."[201]

The point is that the copied portion (the user interface) was not part of the work at all. Borland did *not* copy the underlying code, but rather wrote its own code to produce a similar command menu.[202] The court focused on a material object—the actual menu as it appeared in the program—but failed to realize that the menu was separate from the intangible expression: the literary work embodied in the code. Borland replicated the command menu without lifting anything from Lotus's expressive, intangible work. Put simply, the *Lotus* court failed to distinguish between the tangible medium and the intangible expression.[203]

More broadly, this suggests that the text (the code) is independent of the end result—the actual program as it appears to users.[204] Scholars have pointed out that software differs from other copyrighted works in precisely this way.[205] After all, it would be impossible to "create two plays with different dialogue and characters, but that appear indistinguishable to the audience."[206] Nor would it be possible to "create two pieces of music that have different notes, but that sound indistinguishable."[207] Software is different. Two software programs derived from different codes can, in fact, be indistinguishable.[208]

200 Weinreb, *supra* note 193, at 1156.

201 *Id.*

202 *Id.* at 1157 ("When Borland copied the user interface, it copied elements of the (broadly conceived) program itself and not elements of the program code."); *see also* Samuelson, Davis, Kapor & Reichman, *supra* note 184, at 2317 (noting that "[a] second comer can develop a program having identical behavior, but completely different text through a process sometimes referred to as 'black box' testing").

203 Weinreb, *supra* note 193, at 1156–57. To an extent, the uncertainty stems from the fact that "programs can just as well *be* physical machines." Samuelson, Davis, Kapor & Reichman, *supra* note 184, at 2320. Samuelson, Davis, and Kapor have thus argued that "source code is the medium in which a program is created." *Id.* at 2323. Accordingly, "it makes no more sense to talk about copyrighting programs than to talk about copyrighting plastic or steel; it confuses the *medium of creation* and the *artifact* created." *Id.*

204 *See* Samuelson, Davis, Kapor & Reichman, *supra* note 184, at 2317–18.

205 *Id.*

206 *Id.* at 2318.

207 *Id.*

208 *Id.*

Where does this leave us? One critical implication is that the underlying *expression*, the literary work, resides in the code.[209] So, in analyzing software as a literary creation, it is crucial that we distinguish the tangible object (the program) from the expression (the combination of letters and numbers embodied in the code).

The confusion that gripped *Lotus v. Borland* is illustrative of a larger trend. Courts deploy a rich assortment of different terms—program, software, code, and more—to describe the copyrighted work.[210] Only recently, the Supreme Court's decision in *Google v. Oracle* referred interchangeably to both code and software as the object of copyright protection.[211] This slippage between "program" and "code" is troubling. Copyright attaches only to the *expression* stored in the code, not the material program that results from it. Yet this critical distinction is all too often lost when courts pithily treat "code" or "program" as synonymous with "software." The result, to echo Weinreb, is that courts regularly fail to "distinguish the program from the code."[212]

Indeed, similar confusion pervades the law of software licensing. Section I.C showed that, in disputes involving software licensing agreements, courts often enlist the term "software" to refer to both the intangible work and its tangible embodiment.[213] Sometimes judges take "software" to mean a physical or digital copy of the work. At other times, courts presume that the term "software" speaks to the intangible work itself. This confusion is partly a consequence of linguistic ambiguity: In colloquial parlance, the term "software" could plausibly refer to both the work and its fixation, and the term "license" can prove equally elusive.[214] The rub is that software has given rise to a stubbornly confused body of case law.

D. Recipes

The status of culinary dishes is thought to be settled. By and large, courts and scholars agree that recipes are not copyrightable.[215] The Copyright Office takes the view that "[m]ere listings of ingredients as

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209 *Id*. at 2323 (noting that "source code is the medium in which a program is created, even though the value in a program, as with other machines, lies in its behavior").

210 Srejovic, *supra* note 132, at 476.

211 Google LLC v. Oracle Am., Inc., 593 U.S. 1, 6, 11–12 (2021).

212 Weinreb, *supra* note 193, at 1157.

213 *See supra* text accompanying notes 99–110.

214 *See supra* text accompanying notes 106–10.

215 *See infra* text accompanying notes 218–31; *see also* 1 Nimmer & Nimmer, *supra* note 130, at § 2A.13.

in recipes . . . are not subject to copyright protection."[216] As a formal matter, the Copyright Act does not list recipes among the statutory categories of protected subject matter.[217] Modern courts, for their part, have long held that recipes do not constitute eligible subject matter. Take *Publications International v. Meredith*, where the Seventh Circuit reversed a lower court's finding of infringement in a suit involving a cookbook.[218] Though the court disclaimed any position as to whether recipes are "per se amenable to copyright protection,"[219] it found that "[t]he recipes involved in this case comprise the lists of required ingredients and the directions for combining them to achieve the final products."[220] Having so described the recipes at stake, the court determined that they "contain no expressive elaboration upon either of these functional components, as opposed to recipes that might spice up functional directives by weaving in creative narrative."[221]

In reaching its decision, the Seventh Circuit looked to Nimmer's copyright treatise. According to Nimmer, it is "doubtful" whether recipes could be copyrightable because their content is "dictated by functional considerations."[222] Consequently, recipes lack sufficient expressive content and are unprotectable under section 102(b), which excludes from copyright protection any "procedure, process . . . or discovery."[223] Nimmer also points out that, even were recipes themselves copyrightable, the author of a recipe could not prevent others from actually preparing the dishes embodied in the recipe—instead, the owner of a recipe could only bring action against those who reprint the recipe itself.[224]

Building on Nimmer's analysis, the Seventh Circuit found that dishes like "curried turkey and peanut salad" do not exhibit even a "bare modicum of the creative expression."[225] A recipe, the court stated, is either a collection of facts—the ingredients necessary to prepare a given dish[226]—or instead a procedure for bringing about a particular

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216 *What Does Copyright Protect?*, U.S. Copyright Off., https://www.copyright.gov/help/faq/faq-protect.html#recipe [https://perma.cc/5MDY-MUX7].

217 *See* 17 U.S.C. § 102(a).

218 Publ'ns Int'l, Ltd. v. Meredith Corp., 88 F.3d 473, 481–82 (7th Cir. 1996).

219 *Id.* at 480.

220 *Id.*

221 *Id.*

222 1 Nimmer & Nimmer, *supra* note 130, at § 2A.13.

223 17 U.S.C. § 102(b).

224 1 Nimmer & Nimmer, *supra* note 130, at § 2A.13.

225 *Meredith*, 88 F.3d at 482.

226 *Id.* at 480.

outcome.[227] As such, recipes are excluded from copyright protection under section 102(b).[228] And while the court did recognize that some aspects of a recipe may be protected so long as their creator "lace[s] their directions . . . with musings about the spiritual nature of cooking,"[229] it found that the recipes here did not satisfy this standard.[230] Other courts have followed suit, concluding that recipes are not protected because they amount to little more than functional directions.[231]

And yet, as Christopher Buccafusco has argued, the law of recipes is a mess. First, courts often discount the creativity associated with culinary dishes by invoking examples of culinary creations that are strikingly pedestrian or unoriginal—say, recipes for dishes like apple pie or chicken curry.[232] Broadly speaking, such recipes are not original; they embody dishes that are commonplace or too generic. But one shouldn't conclude that just because *some* recipes are unoriginal, *all* recipes are. Surely there are many innovative dishes, often found at high-end restaurants, that incorporate a dazzling assortment of elaborate, original ingredients.[233]

Second, courts tend to confuse the intangible work with its material embodiment. Indeed, a recipe is merely a medium in which the work—or, more precisely, the list of instructions for performing the work—is recorded.[234] Recall again that, to qualify for protection, the work must be fixed in some durable form.[235] So, for example, a work of choreography might be fixed in a drawing or scheme that records a sequence of dance steps.[236] Or, to take a closer analog, a musical composition may be captured in musical notations.[237] The recipe, the drawing, and the musical notes all operate in the same way: They constitute a means of fixing the intangible work in a tangible medium. Just as a recipe consists of a list of instructions for performing the work—that is, for creating

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227 *Id.* at 481 ("The recipes at issue here describe a procedure by which the reader may produce many dishes featuring Dannon yogurt. As such, they are excluded from copyright protection as either a 'procedure, process, [or] system.'").

228 *Id.* at 480–81.

229 *Id.* at 481.

230 *Id.* at 482.

231 *See, e.g.*, Lambing v. Godiva Chocolatier, 142 F.3d 434 (6th Cir. 1998) (unpublished table decision) ("[R]ecipes are functional directions for achieving a result and are excluded from copyright protection under 17 U.S.C. § 102(b).").

232 Buccafusco, *infra* note 397, at 1130–31.

233 *See id.* ("When the focus shifts from standard dishes to the more obviously innovative dishes like "Oysters and Pearls" that have no gastronomic precedent, it makes no sense to suggest that these innovations lack originality because they are merely statements of facts.").

234 *Id.* at 1131.

235 17 U.S.C. § 102(a).

236 Buccafusco, *infra* note 397, at 1131.

237 *Id.*

a particular dish—so do musical notes reflect a certain procedure for performing the musical work. The work is the dish, not the recipe in which it is embodied.

It's difficult, of course, to pin down precisely how a dish might "express anything."[238] But a similar air of uncertainty lingers over other categories of copyrightable expression, like music. Although it may be hard to identify the expressive aspects of music, everyone seems to agree that music is inherently capable of communicating expression. Perhaps culinary creations are different. One could argue, for example, that culinary dishes are less deserving of protection due to their functional nature—food serves as a source of energy and nourishment. But that has little to do with the method of fixation—the recipe itself. To determine whether the dish conveys some kind of copyrightable expression, we must first be able to identify the intangible creation. Once we sort the intangible from the physical, it becomes clear that the dish itself, rather than the instructions for preparing it, is the subject of the copyright monopoly. Nonetheless, instead of analyzing the dish for its expressive nature, courts have largely focused on the directions for its creation. To ascertain whether the work is sufficiently expressive, the court must consider the particular dish, not its method of fixation.

E. Living Subject Matter

Debates about copyrightability have been raging in another area of copyright law: living subject matter. The most notable case to have addressed the issue is *Kelley v. Chicago Park District*.[239] In *Kelley*, the artist Chapman Kelley sued the Chicago Park District for modifying his wildflower garden—a garden consisting of an arrangement of living plants—in violation of his moral rights under the Visual Artists Rights Act (VARA).[240] Since the mid-1980s, Kelley's wildflower display occupied a vast space at the heart of Chicago. It comprised two "enormous elliptical flower beds," each said to be "nearly as big as a football field."[241] Over the years, however, the garden fell into a state of disrepair. What was once a breathtaking assembly of native wildflowers has eventually deteriorated, and the Chicago Park District decided to reconfigure the flower beds and reduce the size of the garden.[242] Kelley sued under section 106A of VARA, which entitles the author of a work

238 *Id.* at 1133.
239 Kelley v. Chi. Park Dist., 635 F.3d 290 (7th Cir. 2011).
240 *Id.* at 291.
241 *Id.*
242 *Id.*

of visual art, the right to "prevent any intentional distortion, mutilation, or other modification" of their work.[243]

The Seventh Circuit held that Kelley's display was not eligible for copyright protection. First, the court concluded that the living garden was not sufficiently fixed in a tangible medium.[244] A garden is "simply too changeable" to fulfill the evidentiary function associated with fixation: The appearance of the garden is "too inherently variable" and is incapable of setting a "baseline for determining questions of copyright creation and infringement."[245] When should a garden be viewed as having been fixed? Once it has been planted? Once the flowers first blossom? As the court pointed out, it is unclear "[h]ow—and at what point in time—[a] court [might] determine whether infringing copying has occurred."[246]

Ultimately, the court found that plants are not stable enough to qualify as "fixed." Plants are "in a state of perpetual change; they germinate, grow, bloom, become dormant, and eventually die."[247] Although the garden "may endure from season to season," its essence is "one of dynamic change."[248] In brief, the Seventh Circuit found that living matter of the sort claimed by Kelley was too changeable to satisfy the fixation requirement.

Second, for much the same reason, the court was skeptical that Kelley should be considered the "author" of the garden.[249] To qualify for protection, the work must originate with an author; it must be the product of the author's original intellectual conception.[250] And authorship, the court explained, is fundamentally a human enterprise.[251]

A living garden, however, "presses too hard" on this basic principle. Rather than owing its existence to any particular human author, the garden is more aptly viewed as a product of nature itself: "[G]ardens," the court said, "are planted and cultivated, not authored."[252] The

243 *Id.*; *see also* 17 U.S.C. § 106A.

244 *Kelley*, 635 F.3d at 304–05.

245 *Id.*

246 *Id.* at 305.

247 *Id.*

248 *Id.*

249 *Id.* at 304–05.

250 *See* Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 58 (1884) ("[T]he constitution is broad enough to cover an act authorizing copyright of photographs, so far as they are representatives of original intellectual conceptions of the author."); Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 346–47 (1991) (finding that an eligible author must show "the existence of . . . originality, of intellectual production, of thought, and conception") (citing *Burrow-Giles*, 111 U.S. at 59–60); Lindsay v. Wrecked & Abandoned Vessel R.M.S. Titanic, No. 97 Civ. 9248 (HB), 1999 WL 816163, at *4 (S.D.N.Y. Oct. 13, 1999) (same).

251 *Kelley*, 635 F.3d at 304.

252 *Id.*

"colors, shapes, textures, and scents of the plants" all result from, and are predetermined by, the forces of nature.[253] The author's intellectual conception plays no role in defining or shaping the natural, living elements of the garden. The Seventh Circuit therefore acknowledged that, "[at] any given moment . . . a garden owes most of its form and appearance to natural forces."[254]

This line of reasoning is deeply flawed. The problem, as should be clear by now, is that the *Kelley* court confused the intangible work for the physical medium. Indeed, although the physical plants themselves do not constitute copyrightable subject matter, the *arrangement* of plants surely does. Consider a useful analogy: compilations of facts. Courts have long held that the selection and arrangement of factual information may qualify for copyright protection to the extent that it is minimally creative.[255] The Copyright Act similarly recognizes that the "collection and assembling" of data may constitute an original work of authorship.[256] Facts, the Supreme Court has stated, are not "authored" by a human progenitor but instead are discovered by one.[257] Like plants, facts are not traceable to any specific individual.[258] And yet no one doubts that factual compilations—*arrangements* of facts—can be copyrightable.

The analogy makes plain what the court's analysis obscured: The underlying, copyrighted work is not the plant matter itself, but rather the *selection and arrangement* of plants into a single, uniform work. The *Kelley* court mistook the physical object, the actual plant matter, for the intangible creation. In so doing, the court made a category mistake. To figure out whether the work has been "authored," the court had to first define the "work." And the answer is that the work—the very object being authored—was not the plants themselves but the *arrangement* of plant matter.

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253 *Id.*

254 *Id.* At the same time, the court did recognize that a human author may determine "the initial arrangement of the plants in a garden." *Id.* Yet this kind of creative judgment, the court brusquely stated, is simply "not the kind of authorship required for copyright." *Id.* As the remainder of this Part makes evident, this last proposition is wrong as a matter of copyright law.

255 *See Feist*, 499 U.S. at 347–48. As the Court pointed out, "[f]actual compilations . . . may possess the requisite originality." *Id.* at 348. Such protection would arise if the author makes original choices as to "which facts to include, in what order to place them, and how to arrange the collected data . . . ." *Id.*

256 17 U.S.C. § 101.

257 *See Feist*, 499 U.S. at 347 ("[F]acts do not owe their origin to an act of authorship . . . . The first person to find and report a particular fact has not created the fact; he or she has merely discovered its existence.").

258 *Id.* (citing Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 58 (1884)) (noting that "one who discovers a fact is not its 'maker' or 'originator'").

In other contexts, the point might seem self-evident. In the context of architecture, the relevant work isn't the actual, concrete material used to construct a building; instead, it is the *arrangement* of design elements that combine to yield an original, architectural design.[259] In the context of data compilations, the work flows from the arrangement of facts, not the facts themselves. Facts and building materials are no more "authored" than are living plants. Facts, building materials, and living plants all work in the same way: They constitute a physical medium in which the intangible work is fixed. Hence, in focusing on the physical medium (living plants) instead of the intangible work (the selection and arrangement of plants), the court once again made a hash of the intangible/physical distinction.

F. Works of Visual Art

Ambiguity over the nature of the intangible work has been playing out in another important arena: works of visual art. The Visual Artists Rights Act (VARA) confers upon the author of a "work of visual art" a bundle of so-called moral rights, including the right to prevent the modification or destruction of the work.[260] These rights govern only a small subset of works: paintings, drawings, prints, sculptures, and exhibition photographs that exist in either a single copy or a limited edition of two hundred copies or fewer.[261]

But the definition of a "work of visual art" leaves much to be desired. As Brian Frye points out, VARA's subject matter could reasonably be read to point in two different directions.[262] On the one hand, a "work of visual art" is still a "work" within the meaning of the Copyright Act—and, as we have seen, the term "work" refers to an intangible creation that is distinguishable from the tangible thing in which it is fixed.[263] The "work" is thus an incorporeal creation, while the "copy" is a tangible medium in which the work is captured. On this reading, a "work of visual art" is simply a "particular kind of intangible [creation], fixed in a particular kind of tangible copy."[264] So construed, the term "work of

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259 17 U.S.C. § 101 (defining an architectural work as "the design of a building as embodied in any tangible medium of expression"). The statutory definition clarifies that, in the context of architecture, the work "includes the overall form as well as the arrangement and composition of spaces and elements in the design." *Id.*

260 *Id.* § 106A. *See generally* Visual Artists Rights Act of 1990, Pub. L. No. 101-650, § 603, 104 Stat. 5128, 5128–29 (codified at 17 U.S.C. § 106A).

261 17 U.S.C. § 101.

262 *See* Brian L. Frye, *A Textualist Interpretation of the Visual Artists Rights Act of 1990*, 19 Colo. Tech. L.J. 365, 369–75 (2021).

263 *See supra* Section I.A.

264 Frye, *supra* note 262, at 372.

visual art" meshes rather crisply with copyright's broader concept of the copyrighted work.

That said, it is hard to see how a "work of visual art" could be viewed as a purely intangible essence. As Jane Ginsburg noted, it is clear that "[o]n its own terms, [VARA] extends only to hard copies and then only to certain hard copies."[265] Most of the rights provided under VARA would indeed prove meaningless if applied to an intangible work of authorship.[266] Take the integrity right, which entitles the author of a work of visual art to "prevent any intentional distortion, mutilation, or other modification of [the] work."[267] Or consider the right to "prevent any destruction of a work of recognized stature."[268] The problem is that, as a conceptual matter, it is impossible to mutilate or destroy an intangible work because, once created, that work exists outside of the physical realm. By destroying a particular *copy* of a painting, one does not affect the essence of the intangible *work*. Whatever harm may be inflicted upon the work's physical instantiation, the intangible work itself—understood as an ethereal abstraction—remains unscathed. By definition, an intangible work cannot be destroyed or mutilated.

So, the rights to prevent the distortion or destruction of the work can only apply to unique, *physical things*. VARA, in turn, can only be understood as protecting the physical integrity of certain tangible copies.

All of this means that VARA is conceptually incoherent. Though it invokes the concept of an intangible "work," VARA nevertheless provides authors with a set of rights applicable only to tangible objects. The core problem is that "[a]n object is not—and can't be—a 'work of visual art.'"[269] In copyright jargon, the object is not a "work" at all, but rather a physical embodiment of a work. In that way, VARA is profoundly at odds with copyright's notion of the intangible work.[270]

Courts applying VARA seldom appear to recognize—much less address—this fundamental tension. Take what is perhaps the most

265 Jane C. Ginsburg & Eva E. Subotnik, *Speaking of Moral Rights, A Conversation*, 30 Cardozo Arts & Ent. L.J. 91, 94 (2012).

266 Frye, *supra* note 262, at 372.

267 17 U.S.C. § 106A.

268 *Id.*

269 Frye, *supra* note 262, at 373.

270 The point, to be clear, is not that VARA ought to extend to both intangible and tangible objects. As explained above, this would render VARA effectively meaningless: an intangible work cannot be destroyed or mutilated. VARA's statutory scheme can only be understood, as Congress had intended, within the context of specific, physical copies of certain works. So the broader argument here isn't that courts or commentators have misinterpreted VARA; instead, it's that VARA itself, properly interpreted, is necessarily in conflict with the intangible/physical distinction.

high-profile case involving VARA claims, *Castillo v. G&M Realty*.[271] In 2002, Jerry Wolkoff, the owner of a dilapidated warehouse in Long Island City, invited a group of graffiti artists to paint over the walls of his building.[272] The building, widely known as 5Pointz, quickly became something of a mecca for graffiti art, attracting both artists and tourists from all over the world.[273] In 2013, Wolkoff decided to demolish the warehouse in order to make way for a luxury apartment building.[274] The artists brought action under VARA to enjoin Wolkoff from destroying their works.[275] After the district court rejected the artists' motion for a temporary restraining order, Wolkoff had the building whitewashed overnight, thereby destroying the artists' works.[276] The district court subsequently found that Wolkoff was liable for the destruction of the works and awarded the artists $6.75 million in statutory damages.[277] The Second Circuit affirmed the district court's judgment.[278]

The problem is that, at least as a conceptual matter, it's not at all clear that the works were destroyed. Instead, as Frye observes, "[o]nly particular copies of [the works] were destroyed. [T]he works in question were quite well documented. All of the works are preserved, [and] the only thing we are missing is particular objects."[279] The works themselves thus continue to endure, as reflected in different photographs and videos of the 5Pointz site.[280] The intangible work, after all, is separate from the physical medium in which it is recorded. Accordingly, a single work may be fixed in various tangible mediums and may assume different physical forms. The work is independent of its tangible guise. The result is that the *Castillo* case, like other VARA cases, cannot readily be reconciled with copyright's longstanding principle that the work is distinct from the copy.

III
History

As the previous Part indicates, modern copyright law has long been dogged by a conceptual puzzle. Across different domains—DNA

271 Castillo v. G&M Realty L.P., 950 F.3d 155 (2d Cir. 2020).
272 *Id.* at 162.
273 *Id.* (noting that the 5Pointz site has "evolved into a major global center for aerosol art. It attracted thousands of daily visitors, numerous celebrities, and extensive media coverage").
274 *Id.*
275 Cohen v. G&M Realty L.P., 320 F. Supp. 3d 421, 427 (E.D.N.Y. 2018).
276 *Id.*
277 *Id.* at 447.
278 *Castillo*, 950 F.3d at 162.
279 Frye, *supra* note 262, at 376.
280 *Id.*

sequences, architectural works, computer software, culinary dishes, plants, and works of visual art—courts fail to distinguish between the intangible work and the physical medium. The net effect is that courts cannot quite agree on the kinds of objects that are, or should be, eligible for copyright protection.

This Part demonstrates that the confusion over copyright's eligibility doctrine is hardly new. As a historical matter, the concept of the copyrighted "work"—an intellectual creation that is both intangible and sharply distinguishable from creations of the past—emerged in the seventeenth century. Eventually, Congress came to recognize the intangible work as copyright's central conceptual construct. The copyright statute of 1909 was subsequently amended to reflect the idea that the intangible work is distinct from the object in which it is embodied. But a survey of post-1909 case law suggests that, for decades, courts continued to disagree over whether and to what extent the work is separable from the physical object.

After offering a brief, high-level sketch of the intellectual environment that gave rise to the concept of the "work," I highlight the ensuing chaos it unleashed. The unavoidable conclusion is that courts have *always* struggled to draw a line between the intangible work and the material object.

A. The Copyrighted Work

The story of copyright law is a familiar one. Its origins trace back to the sixteenth century, when members of the Stationers' Company—a powerful guild of book publishers—held control over the publishing business in England.[281] Only members of the guild were allowed to print books,[282] and the guild erected a licensing regime "that both facilitated the censorship of printed matter and protected guild members from competition by other members."[283] This licensing regime collapsed in the late seventeenth century after Parliament failed to renew or extend the licensing laws that provided the Stationers with enforcement

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281 *See* Lyman Ray Patterson, Copyright in Historical Perspective 28–77 (1968). As Patterson notes, "Company powers were generally limited geographically, but the charter of the Stationers' Company gave it almost complete monopoly of printing, together with powers of national regulation." *Id.* at 32.

282 In relevant part, the charter of the Stationers' Company provided that "[N]o person within this our realm . . . shall practise or exercise by himself or by his ministers, his servants or by any other person the art of mistery of printing any book . . . unless the same person . . . shall be one of the community of the foresaid mistery or art of Stationery of the foresaid City . . . ." Stationers' Charter (1557), *in* Primary Sources on Copyright, (1450–1900), xxx–xxxi (L. Bently & M. Kretschmer, eds.) https://copyrighthistory.org/cam/tools/request/showRepresentation.php?id=representation_uk_1557 [https://perma.cc/6EF8-3T36].

283 Jessica Litman, *Readers' Copyright*, 58 J. Copyright Soc'y U.S.A. 325, 332 (2011).

privileges.[284] In response, the guild waged a lobbying campaign to press Parliament into reinstating its monopoly.[285] And although those efforts failed, Parliament eventually enacted the 1710 Statute of Anne—frequently dubbed the world's first copyright statute—to confer upon the authors of published books an exclusive right to prevent unauthorized printing.[286]

The Statute of Anne, much like its subsequent American counterpart, was rooted in a richly nuanced intellectual environment. As Oren Bracha notes, the emergence of copyright was bound up with the concept of the "author": a solitary creator who labors to conjure up an original creation.[287] This image of the lone author was accompanied by a second, but no less important, concept: the intangible work. "Within the late eighteenth-century conception of authorship," Bracha explains, copyright was thought to reflect a regime of ownership "over an intangible object of property."[288] That intangible creation was framed as a truly original work, one that departed sharply from all previous creations.[289] Together, these interlocking constructs—the lone author and the intangible work—provided the justificatory backbone for our budding copyright regime.[290]

At the same time, even as the concept of the intangible work grew increasingly more punctuated during the eighteenth century, copyright's statutory framework lagged behind. Eighteenth-century copyright law focused almost exclusively on physical objects—primarily books—and did not afford authors a right to prevent others from reproducing the

284 *See* Mark Rose, *The Public Sphere and the Emergence of Copyright:* Areopagitica*, the Stationers' Company, and the Statute of Anne*, 12 TUL. J. TECH. & INTELL. PROP. 123, 136 (2009) (observing that "[e]xcept for the brief period between the abolition of Star Chamber and the Ordinance of 1643 and a second temporary gap after 1679, licensing in various forms remained in effect in England from the early Tudors until 1695, when the Restoration Licensing Act of 1662 was allowed to lapse for the final time").

285 Litman, *supra* note 283, at 332; Oren Bracha, *The Ideology of Authorship Revisited: Authors, Markets, and Liberal Values in Early American Copyright*, 118 YALE L.J. 186, 193 (2008) [hereinafter Bracha, *Authorship*].

286 Statute of Anne, 8 Ann., c. 19 (1710) (Eng.), PRIMARY SOURCES ON COPYRIGHT (1450–1900), https://www.copyrighthistory.org/cam/tools/request/showRepresentation.php?id=representation_uk_1710 [https://perma.cc/34EU-PFXG]; *see* Ronan Deazley, *Commentary on Statute of Anne*, SOURCES ON COPYRIGHT (1450–1990), https://www.copyrighthistory.org/cam/tools/request/showRecord.php?id=commentary_uk_1710 [https://perma.cc/4SEL-T467] (describing the Statute of Anne as "the world's first copyright statute").

287 *See* Bracha, *Authorship*, *supra* note 285, at 193.

288 *Id.* at 224.

289 *Id.* at 193.

290 As Bracha notes, the Stationers "developed the new conception of authorship and employed it in their lobbying efforts for achieving governmental privileges or favorable legislation." *Id.*

intangible work in other forms.[291] The federal copyright statute of 1790 made no mention of the "work"; it focused instead on material objects, such as books or maps. As Michael Madison explains, "[t]oday we speak of an author creating a work; in the late eighteenth century, lawyers spoke of an author writing a book. The work was . . . represented in the material production. Works were tangible things."[292]

In turn, early courts held that copyright extended only to literal, printed copies—exact reproductions of an existing book.[293] Indeed, one nineteenth-century court emphatically pronounced that copyright does not deal in "abstractions" but is instead limited only to "the concrete form which [the author] has given [their work], and the language in which [the author] has clothed [their work]."[294] In another mid-nineteenth-century case, a federal court in Massachusetts described copyright as a right attached "only to the book deposited."[295]

Copyright, in other words, did not govern various adaptations or alterations of the intangible creation. Rather, it sought to regulate only the unauthorized printing of physical books. In that sense, early copyright law failed to accommodate the concept of the intangible work—an intellectual abstraction that could attach to both a literal copy and an imprecise approximation. This was, to borrow Bracha's terminology, the "printing copies" era of copyright law.[296] An alteration of the work was deemed non-infringing because it did not amount to a literal, printed copy.

But copyright's "printing copies" era was short-lived. The copyright system gradually expanded to cover not just technical reproductions of the physical thing but also various adaptations of the elusive, intangible work. In 1870, Congress first accorded authors the right to control translations and dramatizations of their works.[297] In 1909, the statute again expanded to recognize certain additional categories of protected derivative works.[298] And the Copyright Act of 1976 finally codified a standalone, catchall right to control all derivative works.[299]

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291 *See id.* at 224–26.

292 Madison, *The End of the Work*, *supra* note 83, at 334.

293 Bracha, *Authorship*, *supra* note 285, at 224–26.

294 Stowe v. Thomas, 23 F. Cas. 201, 206 (C.C.E.D. Pa. 1853).

295 Lawrence v. Dana, 15 F. Cas. 26, 37 (C.C. Mass. 1869).

296 Bracha, *Authorship*, *supra* note 285, at 226.

297 Patent Act of 1870, ch. 230, § 86, 16 Stat. 198, 212 (1870) (repealed 1909).

298 Act of Mar. 4, 1909, ch. 320, § 1(b), 35 Stat. 1075, *repealed by* Copyright Act of 1976, Pub. L. No. 94-553, 90 Stat. 2541 (codified as amended at 17 U.S.C. §§ 101–810, 18 U.S.C. § 2318, 44 U.S.C. §§ 505, 2113 (2006)).

299 17 U.S.C. § 106(2); *see also* Pamela Samuelson, *The Quest for a Sound Conception of Copyright's Derivative Work Right*, 101 Geo. L.J. 1505, 1509 (2013) ("Not until the Copyright

These shifts were driven in large part by the concept of the intangible work. In "translating copyright interests into legal arguments," copyright owners and publishers "built on the notion that copyright was ownership of an intellectual object . . . [that] could take a manifold of concrete forms."[300] Copyright thus grew to encompass a right of "general control of this elusive intellectual essence, irrespective of form."[301] With these changes, the work was no longer a "static thing" manacled to a particular embodiment, but an intellectual abstraction that could assume different forms.[302] The concept of the work has finally "divorced content from form."[303]

Most notably, the distinction between the work and the physical copy informed section 41 of the 1909 Copyright Act, which provided that "the copyright is distinct from the property in the material object copyrighted, and the sale . . . of the material object shall not of itself constitute a transfer of the copyright."[304] An almost identical provision was included in a 1958 amendment.[305] Today, the 1976 Copyright Act entrenches much the same idea—that "[o]wnership of a copyright . . . is distinct from ownership of any material object in which the work is embodied."[306] The current statute also instructs that "[t]ransfer of ownership of any material object . . . does not of itself convey any rights in the copyrighted work embodied in the object."[307] In that way, both the current statute and its turn-of-the-century predecessor appear to recognize, in the clearest of terms, that copyright is fundamentally about protecting intangible, rather than physical, goods.

To state the point more succinctly: Although the concept of the intangible work has long swirled in the background, it wasn't until the nineteenth century that copyright law finally began to formalize the distinction between the work and the object. The intangible work has been parlayed from an intellectual concept into a legal construct. However, even after it had been introduced into copyright's statutory scheme, the distinction between the work and the copy continued to stir a great deal of confusion. The next Section examines the ensuing havoc.

Act of 1976 (1976 Act) did U.S. law grant authors a general right to control the preparation of derivative works.").

300 Bracha, *Authorship*, *supra* note 285, at 226.

301 *Id.*

302 Madison, *The End of the Work*, *supra* note 83, at 337.

303 *Id.*

304 Act of Mar. 4, 1909, ch. 320, § 41.

305 17 U.S.C. § 27.

306 *Id.* § 202.

307 *Id.*

B. Copyright Assignment

We have seen that, for well over a century, copyright drew a sharp, unbending distinction between the work and its physical instantiation. Beginning with the 1909 Copyright Act, the work has been "distinct from the property in the material object copyrighted."[308] The 1909 statute likewise mandated that the sale of a physical object, such as a copy of a book, did not entail a transfer of the underlying, intangible work.[309] The current statute anchors a similar provision.[310]

What this means is that, since the early twentieth century, the distinction between the work and the copy has been a matter of settled statutory law. But even in the wake of the 1909 amendment and well into the mid-twentieth century, courts didn't quite get the memo. For decades, courts around the country continued to chafe against the intangible/physical distinction in cases involving a transfer of a physical copy of the work.

Take *Grant v. Kellogg*.[311] An artist created and submitted an image featuring three cartoon gnomes to be included in a Rice Krispies advertisement.[312] The company, Kellogg, then decided to commission images of gnomes from another artist.[313] The original artist brought legal action, asserting that the company had appropriated his gnome characters.[314]

The court held that the copied material amounted to unprotected "ideas or conceptions."[315] At the same time, the court also clarified that, even if the artist initially held any rights to his work, those rights had been assigned to Kellogg.[316] Because the artist's artwork was a piece of "personal property," it was "transferrable by sale and delivery."[317] Thus, by selling his artwork, the artist transferred his rights to the purchaser.[318] The court found that any sale of an original copy, unless expressly qualified, entails an assignment of the rights in the copyrighted work. If an artist wishes to retain their rights, they should indicate as much; A restriction on the transfer of rights must be "expressed and clearly

308 Act of Mar. 4, 1909, ch. 320, § 41.
309 *Id.*
310 17 U.S.C. § 202.
311 Grant v. Kellogg Co., 58 F. Supp. 48 (S.D.N.Y. 1944), *aff'd*, 154 F.2d 59 (2d Cir. 1946).
312 *Id.* at 49.
313 *Id.* at 53.
314 *Id.* at 49.
315 *Id.* at 52.
316 *Id.* at 51.
317 *Id.*
318 *Id.*

imposed."[319] In failing to articulate such reservations, the plaintiff here implicitly agreed to convey his rights to the company.[320]

To reach this conclusion, the court relied on the pre-1909 case of *Parton v. Prang*.[321] In *Parton*, an individual purchased an oil painting from an artist, and later resold that painting to another individual.[322] The second purchaser then created and published a lithograph of the painting.[323] The original artist sued for infringement, asserting that he did not assign his rights in the copyrighted work.[324] The court held that, by selling his painting, the plaintiff transferred his rights to the purchaser.[325] The sale and delivery of the painting, the court noted, was "absolute and unconditional."[326] Having parted with his painting in that way, the original artist was deemed to have relinquished any future claim to the underlying, copyrighted work.[327]

Parton's framework continued to dominate copyright jurisprudence well after the 1909 statute came into force. This may seem surprising. Recall that the 1909 Copyright Act enshrined a distinction between the copyright and the "property in the material object copyrighted."[328] As the statute emphasized, the sale of a material object should not be viewed as effectuating a transfer of the copyright.[329] And yet the shadows of *Parton* continued to brood over post-1900 law. The most vivid example is *Pushman v. New York Graphic Society*.[330] In *Pushman*, the plaintiff sold a painting to the University of Illinois.[331] The university retained the painting for ten years and then sold it to the defendant, New York Graphic Society.[332] After the defendant created copies of the painting, the original artist sued for infringement of his common-law copyright.[333]

The court concluded that the plaintiff's common-law copyright was transferred with the physical painting.[334] "All the evidence," the court

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319 *Id.*
320 *Id.*
321 18 F. Cas. 1273 (C.C.D. Mass. 1872) (No. 10,784).
322 *Id.* at 1273.
323 *Id.*
324 *Id.* at 1274.
325 *Id.* at 1277–78.
326 *Id.* at 1278.
327 *Id.* at 1277–78.
328 1909 Copyright Act, *supra* note 29, at § 41.
329 *Id.*
330 Pushman v. N.Y. Graphic Soc'y, Inc., 39 N.E.2d 249 (N.Y. 1942).
331 *Id.* at 249.
332 *Id.* at 250.
333 *Id.*
334 *Id.* at 251 ("The question is whether [the plaintiff's common-law copyright] did pass with the sale of this painting. We think it follows . . . that it did so pass and that an artist must,

explained, "is that the plaintiff did not state that he was seeking to reserve reproduction rights in his painting."[335] The court thus found that the artist's common-law copyright passed with the sale of the painting.[336]

Cases like *Pushman* and *Kellogg* were not exceptional. In *Dam v. Kirk La Shelle*, for example, the Second Circuit held that a magazine acquired a copyright in the author's story because, in agreeing to sell his story, the author made no reservations about retaining his rights.[337] Similarly, in *Yardley v. Houghton Mifflin*, the court concluded that an artist's copyright in a painting transferred with an unqualified sale of the painting.[338] These cases all point in the same direction: Twentieth-century courts were often quick to equate the transfer of a physical object with the transfer of the copyright. In holding that the unqualified sale of a material object implied an assignment of the underlying copyright, these courts appeared to overlook a straightforward statutory directive—that the sale "of the material object shall not of itself constitute a transfer of the copyright."[339]

The distinction between the work and the object was thus in a state of tumult. To correct for this effect, Congress introduced section 202 of the 1976 Copyright Act.[340] Given that "copyright ownership and ownership of a material object" are two "entirely separate things,"[341] Congress crafted section 202 with an eye toward undoing the common-law presumption that an author transfers their rights upon the sale of a physical copy.[342]

But the question remains: Why did early courts fail to take account of the statutory distinction between the work and the object? One explanation is that early courts looked to the factual record; they drew from the record a circumstantial inference that the original owner had *intended* to part with their copyright. The court in *Pushman*, for example, pointed to rich industry practice suggesting that the original artist likely knew that his rights would transfer with the sale—that was the "general practice" of the gallery through which the artist sold his painting.[343] A similar theme underpinned *Parton*.[344] On this account, early courts

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if he wishes to retain or protect the reproduction right, make some reservation of that right when he sells the painting.").

335 *Id.* at 249.

336 *Id.* at 251.

337 Dam v. Kirk La Shelle Co., 175 F. 902, 904–05 (2d Cir. 1910).

338 Yardley v. Houghton Mifflin Co., 108 F.2d 28, 30 (2d Cir. 1939).

339 1909 Copyright Act, *supra* note 29, at § 41.

340 H.R. Rep. No. 94-1476, at 124 (1976).

341 *Id.*

342 *Id.*

343 Pushman v. N.Y. Graphic Soc'y, Inc., 39 N.E.2d 249, 250 (N.Y. 1942).

344 *See id.* at 251 (noting that "[t]he whole tenor of the *Prang* case, as we read it, is that an ordinary, straight out bill of sale shows an intention to convey the artist's whole property in his picture").

did not meaningfully stray from the 1909 directive. It wasn't the act of selling a copy that led to the transfer of the underlying copyright; instead, it was the *constructive intent* of the parties, derived from circumstantial evidence and industry norms.

There is another reason to think that the law of copyright assignment was responsive to industry norms. Many of the cases referenced above focus on a particular category of subject matter: paintings. This is no accident. Unlike other copyrighted works, nineteenth-century paintings were rarely reproduced or distributed at scale. There was often only a single, original copy of a painting in existence. Paintings were viewed as unique, singular works of fine art. And in disputes implicating works of fine art, "a purchaser typically engaged the original artist to acquire the *only* existing copy of the work."[345] So a default presumption of assignment made sense when the object sold was the only existing copy of the work. If the author was willing to give away the only existing copy, they likely meant to assign their rights. After all, if you no longer have access to the only existing painting, how will you be able to create copies of it? In the pre-digital world of the early twentieth century, you could only create reproductions of a painting if you had access to it. How will the artist, having relinquished control of the physical embodiment, be able to effectively exercise their copyright?

The trouble with this explanation, however, is that it overlooks the difference between *effective control* and *legal entitlement*. That the copyright owner cannot control an embodiment of the work does not mean that they don't have a *legal right* to do so. To a large extent, the cases discussed in this Section betray confusion about this very issue. These cases were motivated by the idea that the work is an object of personal property, akin to chattel, and should thus be subject to the same presumption of assignment that attaches upon the sale of personal property. But this property-driven framework was decidedly misplaced. The copyrighted work is an intangible, intellectual creation. As such, the work is distinguishable from the physical object in which it is embodied. And the 1909 statute drew precisely this distinction, emphasizing that the sale of a copy should not be viewed as an assignment of the underlying copyright.

The net result is that courts of the late nineteenth and early twentieth century had a rather shaky conception of what is now a lynchpin principle of copyright law: the idea that the work is distinct from the copy. Although the 1909 Copyright Act sought to solemnize this distinction, nineteenth-century courts had not yet acquired a clear

345 Shisha, *Folklore*, *supra* note 93, at 110.

grasp of the "work"—an intellectual essence that is reflected in, but independent of, the physical object.

IV
The Stakes

In the preceding Parts, I explained that copyright's much-vaunted distinction between the intangible work and the physical object is in a state of disarray. Across a wide range of doctrinal contexts, courts cannot quite agree on the kinds of objects that could qualify as intangible works. The law of eligibility is littered with a barrage of confusing and conclusory labels.

This Part considers what this revisionist account could mean for the future of copyright law. First, I explore a raft of likely explanations for the decline of the intangible/physical principle. The more one examines this principle, the more one wonders whether the attendant confusion is unavoidable. Second, I demonstrate that the erosion of the dichotomy between the work and the copy raises normative questions about the legitimacy, scope, and trajectory of copyright law.

A. The Failure of Intangibility

As I describe above, courts and scholars struggle to cleave off the intangible work from the material copy. The question is why. This Section suggests a number of interconnected explanations: the difficulty of analyzing functional works; the difficulty of properly framing an otherwise elusive, intangible creation; the prominence of intuitionist norms in modern copyright jurisprudence; the shift from analog to digital copies; and the multifunction nature of the copyrighted work.

1. Functional Works

The uncertainty that smolders beneath the intangible/physical distinction arises most frequently in cases involving functional works. To be sure, many works serve a purely (or mostly) expressive function: their value depends upon their artistic or aesthetic quality. But some works are defined by both expressive and functional elements. One example is architecture. A building is not just an object reflecting artistic expression; it is also a physical structure designed to accommodate certain activities, residential or otherwise.[346] Architectural designs

[346] The House Report employed the term "buildings" to refer only to structures inhabited by humans. H.R. Rep. No. 101-735, at 20 (1990), *as reprinted in* 1990 U.S.C.C.A.N. 6935, 6951. This means that more creative architectural works, such as bridges or gardens, are not

are typically tailored to, and limited by, a specific, zoned-for permit. Buildings must fit within a given plot, and they must be designed in such a way as to fulfill a particular purpose: a building may serve as a residential structure, an office building, a restaurant, a venue, and so on. Simply stated, an architectural design consists of both useful and expressive elements.

In amending the Copyright Act to provide protection for architectural designs, Congress was well aware of the dual nature of buildings.[347] Section 120 thus provides that "the owners of a building embodying an architectural work may, without the consent of the author or copyright owner of the architectural work, make or authorize the making of alterations to such building."[348] Because a building is not a work of art *simpliciter* but rather a functional structure meant to be inhabited by humans, Congress thought it necessary to ensure that the owners of the physical building are able to adapt, alter, or destroy it.[349] This is because the building, again, is more than just an object that embodies a work of authorship; it is also a functional structure than is meant to be habitable.

This tension between functionality and expressiveness manifests in many of the other cases discussed above: Culinary dishes are functional objects meant to be consumed as sources of nourishment and energy; software controls the operations of a machine; and DNA sequences serve a key role in certain biological processes.

Questions about the applicability of copyright law to functional works were first addressed by the Supreme Court in the 1879 case of *Baker v. Selden*.[350] Selden, the plaintiff, asserted copyright protection in both his book, *Selden's Condensed Ledger, or Bookkeeping Simplified*, and the bookkeeping system described in it.[351] The Court found for the defendant, holding that Selden's system was ineligible for copyright protection.[352] As the Court explained, copyright's domain is creative

governed by copyright. Though such structures may well prove more expressive or creative than residential homes, they are excluded from copyright protection.

347 *Id.* at 20–21. The report suggests that, under the new statutory standard, "[p]rotection would be denied for the functionally determined elements [of an architectural design], but would be available for the nonfunctional determined elements." *Id.* at 21.

348 17 U.S.C. § 120.

349 H.R. Rep. No. 101-735, at 13 (observing that "[a]rchitectural works are the only form of copyrightable subject matter that is habitable"); *Id.* at 23 (advising that an explicit exemption for the alteration or destruction of a structure is necessary "in light of the fact that architectural works represent a new category of protected subject matter, and unlike other forms of subject matter are habitable").

350 101 U.S. 99 (1880).

351 *Id.* at 99–100.

352 *Id.* at 107.

expression, not utility. A book that provides functional instructions on how to build a particular machine may be eligible for protection, but such protection would attach only to the specific ways in which the instructions are expressed; it would not cover the actual method embodied in the instructions. Selden's bookkeeping system was therefore within the province of patent law, the system charged with protecting functional, useful arts.[353]

Baker is often credited with cementing a channeling principle: Useful arts are protected by patent law, while creative works are sorted into the realm of copyright.[354] A similar sorting mechanism underlies copyright's "useful articles" doctrine. Section 101 of the Copyright Act provides that copyright extends to the design of useful articles only if such design can be "identified separately" from the utilitarian aspects of the article.[355] Courts have applied the useful articles doctrine in cases involving department store mannequin torsos,[356] a creatively designed bicycle rack,[357] a decorative belt buckle,[358] and a lamp-base sculpture.[359] The legislative record indicates that Congress intended for copyright protection to cover the aesthetic aspects of useful articles only if those aspects are "physically or conceptually . . . separable" from the useful aspects of the work.[360]

Accordingly, courts have developed a range of tests to discern whether the article's design elements are separable from its functional aspects.[361] After decades of uncertainty—resulting in a staggering array of various doctrines for evaluating both physical and conceptual separability—the Supreme Court stepped into the breach in 2017. In *Star Athletica, L.L.C. v. Varsity Brands, Inc.*, the Court held that the chevron design of a cheerleader uniform was copyrightable.[362] To determine whether a design embedded in a useful article is separable, the Court explained, we must first "spot some two- or three-dimensional element

353 *Id.* at 105.

354 *See generally* Pamela Samuelson, *Strategies for Discerning the Boundaries of Copyright and Patent Protections*, 92 NOTRE DAME L. REV. 1493 (2017).

355 17 U.S.C. § 101 (defining "pictorial, graphic, and sculptural" works to include the design of "useful article[s]" only to the extent that "such design incorporates pictorial, graphic, or sculptural features that can be identified separately from, and are capable of existing independently of, the utilitarian aspects of the article").

356 Carol Barnhart Inc. v. Econ. Cover Corp., 773 F.2d 411, 419 (2d Cir. 1985).

357 Brandir Int'l Inc. v. Cascade Pac. Lumber Co., 834 F.2d 1142, 1146–48 (2d Cir. 1987).

358 Kieselstein-Cord v. Accessories by Pearl, Inc. 632 F.2d 989, 993 (2d Cir. 1980).

359 Mazer v. Stein, 347 U.S. 201, 202 (1954).

360 H.R. REP. NO. 94-1476, at 55 (1976).

361 *See* Christopher Buccafusco & Mark A. Lemley, *Functionality Screens*, 103 VA. L. REV. 1293, 1327–38 (2017).

362 137 S. Ct. 1002, 1016 (2017).

that appears to have pictorial, graphic, or sculptural qualities."[363] The next step is to determine whether these features are "able to exist as [their] own pictorial, graphic, or sculptural work . . . once [they are] imagined apart from the useful article."[364]

The uniform's design satisfied both steps: First, the chevron patterns on the surface of the uniform were readily identifiable as "features having pictorial, graphic, or sculptural qualities";[365] and, second, "the arrangement of colors, shapes, stripes, and chevrons" could exist separately from the uniform—say, as a drawing on a painter's canvas.[366]

Copyright scholars have taken a rather dim view of *Star Athletica*. Many agree that the Court's two-step test is unworkable, conclusory, or simply "mysterious."[367] The core problem, scholars observe, is that the Court offered little guidance on how one might determine whether a certain feature can exist apart from the utilitarian aspects of the article.[368]

The remarkable uncertainty that dominates the doctrine of useful articles is telling. It turns out that courts struggle to determine what design features are, or aren't, separable from the functional aspects of the article. And while it's true that these questions are technically distinct from the types of questions that courts ask in analyzing the intangible/physical dichotomy, the two are often bound up. When courts attempt to draw a line between the expressive and functional aspects of a useful article, the analysis sometimes collapses into an assessment of physicality. In such circumstances, the question is whether the design element—the intangible creation, as it were—can be imagined separately from the physical article.

Indeed, Part II explores different categories of subject matter—DNA sequences, architecture, software, and dishes—where similar patterns play out. Courts seem to recognize that these works are partly

363 *Id.* at 1010.

364 *Id.*

365 *Id.* at 1012.

366 *Id.*

367 *See, e.g.*, Christopher Buccafusco, Mark A. Lemley & Jonathan S. Masur, *Intelligent Design*, 68 Duke L.J. 75, 109–24 (2018); Buccafusco & Lemley, *supra* note 361, at 1334; Mark P. McKenna, *Knowing Separability When We See It*, 166 U. Pa. L. Rev. Online 127 (2017); Christopher Buccafusco & Jeanne C. Fromer, *Fashion's Function In Intellectual Property Law*, 93 Notre Dame L. Rev. 51 (2017); Peter S. Menell & Daniel Yablon, Star Athletica*'s Fissure in The Intellectual Property Functionality Landscape*, 166 U. Pa. L. Rev. Online 137 (2017); Rebecca Tushnet, *Shoveling a Path After* Star Athletica, 66 UCLA L. Rev. 1216 (2019); Christopher Buccafusco & Jeanne C. Fromer, *Forgetting Functionality*, 166 U. Pa. L. Rev. Online 119, 121 (2017).

368 *See, e.g.*, Buccafusco & Lemley, *supra* note 361, at 1334 (noting that "much of the Court's opinion remains mysterious—including how to determine whether a feature is functional or not, or even whether a court should engage in that inquiry at all").

utilitarian. And, in attempting to weed out the functional, non-protected elements of such works, courts fail to properly account for an antecedent question: whether the object at issue constitutes an intangible work in the first place. This means that, although functionality and intangibility are two separate concepts, they tend to intersect. The result is that, across a wide swath of doctrinal contexts, courts misidentify the physical embodiment for the intangible work.

2. Copyright's Framing Problem

The confusion about copyright's contours can be understood as part of a broader framing problem. Coined by Margot Kaminski and Guy Rub, the term "framing problem" refers to a persistent pathology endemic to much of copyright law: In various areas of copyright doctrine, courts make implicit choices about how to frame the copyrighted work.[369] In virtually every dispute, courts must decide whether to frame the work as a single, uniform object, or instead break it down into its various subparts.[370] The problem is that many works consist of smaller components—a book is made up of paragraphs and chapters, and an album consists of individual songs. In fact, many of these smaller components could be further splintered into even smaller subparts: A song, for example, can be reduced to verses, chords, and notes. Figuring out how to frame the copyrighted work is a critical, if often overlooked, task. From a practical perspective, a court's framing choice can impact questions of infringement, fair use, and damages.[371] In truth, framing pervades nearly every aspect of copyright doctrine.

As Kaminski and Rub note, copyright's framing problem is so pervasive in large part because the Copyright Act nowhere defines the copyrighted "work."[372] This is surprising given the centrality of the "work" to modern copyright law: after all, "[c]opyright protection subsists in . . . original works of authorship."[373] In the deliberations leading up to the 1976 Copyright Act, one observer reported that "courts have struggled mightily with [defining the copyrighted work], and have not really come up with a satisfactory result."[374] Yet, although there was initial consensus

369 *See* Margot E. Kaminski & Guy A. Rub, *Copyright's Framing Problem*, 64 UCLA L. Rev. 1102 (2017).

370 *Id.* at 1107–10.

371 *Id.* at 1117–49.

372 *Id.* at 1111–13.

373 17 U.S.C. § 102(a).

374 H. Comm. on the Judiciary, 88th Cong., Copyright Law Revision, Part 4, at 158 (Comm. Print 1964).

that "the concept [of the 'work'] cries out for a definition,"[375] the 1976 statute provides no such definition. As a result, "[c]onfusion over how to define copyright's central unit of measurement—the work—is one of the most familiar sources of anxiety in the field."[376]

The uncertainty that surrounds the intangible/physical distinction is a species of a similar (though not identical) issue. The problem is that, to identify the intangible creation, courts must first frame the actual object being staked. For example, consider the debate over the copyrightability of software. If one defines software as a literary work, it is easy to see that the intangible work is embodied in the code.[377] Recall that, under the Copyright Act, an embodiment of the work is a tangible medium from which the work can be perceived, reproduced, or communicated.[378] On this framing, the code is a tangible medium from which the literary work—a collection of words, numbers, and symbols—can be perceived or communicated. The code, after all, is a form of text.

But there's an alternative way to frame the work. In a decades-old paper, Samuelson, Davis, Kapor, and Reichman propose that we conceive of software as a sort of virtual machine.[379] It's true, they acknowledge, that "[s]ource code is clearly some form of text."[380] But the code is not the intangible work itself, but rather a medium in which the work is stored.[381] "[L]ike steel and plastic," software code is "a medium in which other works can be created."[382] Drawing on this observation, Samuelson, Davis, Kapor, and Reichman posit that software is best viewed not as a form of text but instead as a type of virtual machine, which can be both utilitarian and expressive.[383] Although the code consists of text, the intangible work—its nonphysical essence—can take different forms. Accordingly, "it makes no more sense to talk about copyrighting programs than to talk about copyrighting plastic or steel;

375 *Id.* The lack of statutory definition for the term "work" has provoked some scholarly commentary. *See, e.g.*, Paul Goldstein, *What is a Copyrighted Work? Why Does it Matter?*, 58 UCLA L. Rev. 1175, 1175 (2011) (noting that the Copyright Act "nowhere in fact delimits the metes and bounds of a copyrighted work, or even prescribes a methodology for locating a work's boundaries"); Justin Hughes, *Size Matters (or Should) in Copyright Law*, 74 Fordham L. Rev. 575, 576 (2005) ("American copyright law is an enormous legal structure, full of defined terms, all built on one completely undefined term: the 'work.'").

376 Joseph P. Fishman, *Music as a Matter of Law*, 131 Harv. L. Rev. 1861, 1883 (2018).

377 Samuelson, Davis, Kapor & Reichman, *supra* note 184, at 2323 (acknowledging that "source code is the medium in which the work is created").

378 17 U.S.C. § 101.

379 *Id.* at 2320–24.

380 *Id.* at 2316.

381 *Id.* at 2323.

382 *Id.*

383 *Id.* at 2320–24.

it confuses the medium of creation and the artifact created."[384] The idea is that there is something arbitrary (if somewhat understandable) about our choice to frame software as a literary work.

A similar framing problem infects debates over the protection of DNA sequences. Scholars have proposed that we analyze DNA sequences within any number of subject matter categories: software, sculptures, text, and so on.[385] Likewise, the court in *Kelley* considered, but did not fully address, the possibility that a landscape display could be classified as either a sculpture or a painting.[386]

The point is not that these kinds of framing decisions are identical to the ones that Kaminski and Rub identify. Rather, the issue is that the intellectual creation is something of an abstraction: Given its intangible nature, it can be mapped onto different categories of subject matter, depending on how one frames the object being claimed. Is software really a literary work? Should we treat DNA sequences as sculptures or instead as literary works? Should a living garden qualify as a painting, a sculpture, or perhaps something else altogether? To answer these questions, we must make a judgment about how best to frame the intangible work.

3. Intuitionism

The framing conundrum derives in equal measure from copyright's unique dominion: aesthetic expression. Copyright centers on expressive, creative works of authorship. And yet, in theory, copyright condemns aesthetic judgment. Our law is supposed to be neutral about the artistic or aesthetic value of the copyrighted work. The conventional wisdom holds that all expressive works, so long as they meet copyright's originality threshold, are protected in precisely the same way.[387] This sentiment was captured in Justice Holmes's famous admonishment that "[i]t would be a dangerous undertaking for persons trained only to the law to constitute themselves final judges of the worth of [copyrighted works]. . . ."[388]

In practice, however, judges often render aesthetic judgments about the quality or nature of the copyrighted work.[389] In so doing,

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384 *Id.* at 2323.

385 *See, e.g.*, Burk, *Copyrightability of Recombinant DNA Sequences*, *supra* note 129, at 495–96 (evaluating whether DNA sequences could qualify as literary works); *Id.* at 501–03 (considering whether DNA sequences might qualify as sculptures).

386 Kelley v. Chi. Park Dist., 635 F.3d 290, 301 (7th Cir. 2011).

387 *See, e.g.*, Shani Shisha, *Commercializing Copyright*, 65 B.C. L. Rev. 443, 444–45 (2024).

388 Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 251 (1903).

389 *See* Robert Kirk Walker & Ben Depoorter, *Unavoidable Aesthetic Judgments in Copyright Law: A Community of Practice Standard*, 109 Nw. Univ. L. Rev. 343, 349–53 (2015)

courts tend to rely on what moral philosophers describe as "intuitionist" arguments.[390] Intuitionist arguments draw upon a direct, intuitive grasp of a particular issue—in this context, an intuitive grasp of the supposed divide between the intangible and the physical.

Intuitionist arguments appeal to raw intuition. They turn on the premise that the copyrighted work has a "know it when you see it" quality. As Parts II and III make evident, courts seldom attempt to explicitly grapple with the challenge of identifying the intangible work. Instead, courts make framing decisions in an avowedly implicit, sometimes unwitting, register. Surely a software program is a literary work, the argument runs. Clearly a living garden is not copyrightable because the "work" consists of the plants themselves. But while such intuitions might seem appealing at first blush, they nevertheless obscure the implicit framing choices that courts must make in attempting to pin down the intangible work.

And, perhaps most critically, raw intuitions are far more likely to fail in this context due to the elusive nature of the intangible work. The intangible creation is an intellectual object that exists apart from the physical world and can don various worldly cloaks. To describe the intangible work as possessing a "know it when you see it" quality is to overstate what humans can—and cannot—perceive. And here lies the core problem: In many instances, the issue is precisely that we cannot "see" the work. Although the work must be captured in some physical form to qualify for copyright protection, that form is a tangible approximation of the work—not the work itself. Intuitionism, in short, is as unhelpful as it is arbitrary.

4. The Rise of Digital Copies

In the analog world of the nineteenth century, it was relatively easy to draw a line between the intangible work and the physical copy. Early copyright law was concerned with printed books.[391] The literary work was an ethereal abstraction, while the physical copy—the book

(describing the ways courts render aesthetic judgments); Alfred C. Yen, *Copyright Opinions and Aesthetic Theory*, 71 S. Calif. L. Rev. 247, 251 (1998) (arguing that copyright decisions require aesthetic judgments); Stacey M. Lantagne, *Sherlock Holmes and the Case of the Lucrative Fandom: Recognizing the Economic Power of Fanworks and Reimagining Fair Use in Copyright*, 21 Mich. Telecomm. & Tech. L. Rev. 263, 295–303 (2015) (discussing courts' aesthetic judgments in copyright cases relating to works of literature and considering the ramifications on fanmade work).

390 *See, e.g.*, Philip Stratton-Lake, *Introduction* to W.D. Ross, The Right and the Good xii–xiii (Philip Stratton-Lake ed., Clarendon Press 2002) (1930) (discussing the basics of intuitionism).

391 *See supra* text accompanying *supra* notes 113–15.

itself—was palpably tangible. One could tell that the book was tangible because the book could be touched, held, moved, or stored on a shelf.[392] The book, then, provided immediate cues as to the very fact that it is a physical thing.[393] In the early days of our copyright system, when the law's primary mission was to regulate the production and distribution of books, the distinction between the work and the copy was conceptually straightforward. Detaching the work from the copy was a matter of physics.

But that's no longer true. The shift from physical to digital goods—from hardcopies to ebooks, from machine to software—has further eroded the intangible/physical principle. The problem, at bottom, is that distinguishing the work from the copy is no longer a matter of physics. Consider an example discussed above: software. As we have seen, the copy of a piece of software is often purely digital. Unlike an analog copy, a digital copy is not amenable to physical possession—it cannot be touched, moved, or placed on a shelf. So, to an extent, the digital copy, like the work itself, is something of an abstraction. The distinction is no longer between the intangible and the physical; it's between "thoughts and bits."[394] As Michael Madison put it, the concept of the digital copy is "elusive at best and arbitrary at worst, because for all practical purposes, the copy cannot be touched."[395]

To be sure, this is an incomplete explanation for why courts fail to distinguish the intangible from the physical. Many of the cases discussed in Part II don't involve digital copies at all. The crisis is broader and more damning, and it is the result of multiple forces—doctrinal, practical, and conceptual—that pull in different directions. Nevertheless, it is important to recognize that the failure of the intangible/physical dichotomy is at least partly attributable to the fact that the physical copy is not always physical.

5. The Multifunction Nature of the Work

In no small part, the intangible work has become a source of considerable disquiet because it is expected to accommodate too many conflicting roles. The concept of the copyrighted "work" strains under

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392 *See* Madison, *Legal-Ware*, *supra* note 111, at 1042–43; Madison, *The End of the Work*, *supra* note 83, at 346–47.

393 Madison, *Legal-Ware*, *supra* note 111, at 1042–43.

394 Madison, *The End of the Work*, *supra* note 83, at 347.

395 *Id.*

the weight of the various functions it's supposed to perform. Below I offer a brief account of these different analytical functions.[396]

(a) Setting a boundary between new and preexisting works. The concept of the work defines the scope of the claimed expression. Once defined, the copyrighted creation can be assessed within two contexts: originality and infringement.[397] First, as a matter of originality, the question is whether the claimed work is original to the author. That is, we must ask whether the work is a product of the author's intellectual conception or was instead derived from a preexisting work.[398] If the claimed expression was borrowed from an existing work rather than independently created by the author, there is no original expression for the author to claim.[399] Second, the boundary between an existing work and other works is most acutely on display in the context of infringement. In an infringement suit, the central question is one of sameness—is the purportedly infringing copy sufficiently similar to the plaintiff's existing work?[400] If so, the defendant may be liable for creating an infringing copy (or an infringing derivative work).

The basic function of the "work," put another way, is to clearly demarcate the scope of the claimed expression so that it could be assessed against other works. Such assessment is directed at two kinds of works: (1) ones that precede the claimed expression, in which case the analysis focuses on originality; or (2) ones that postdate the claimed expression, in which case the analysis revolves around the issue of infringement.

(b) Defining the moment at which the work comes into being. The idea of the work can help determine when the intangible creation becomes, as a legal matter, a "work" that triggers copyright protection, as opposed to an incomplete sketch or an underdeveloped idea.[401]

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396 For a superb overview of the various functions of the copyrighted work, *see id.* at 340–452.

397 *See* Christopher Buccafusco, *There's No Such Thing as Independent Creation, and It's a Good Thing, Too*, 64 Wm. & Mary L. Rev. 1617, 1623–24 (2023) ("Whether a work is original—that is, independently created—is a necessary condition for it being granted a copyright, and the extent of its originality determines the copyright's scope.").

398 *See id.* 1623–24.

399 17 U.S.C. § 102(a) ("Copyright protection subsists, in accordance with this title, in original works of authorship . . . ."); *see also* Alfred Bell & Co. v. Catalda Fine Arts, Inc., 191 F.2d 99, 103 (2d Cir. 1951) ("Originality in this context 'means little more than a prohibition of actual copying.'" (quoting Hoague-Sprague Corp. v. Frank C. Meyer Co., 31 F.2d 583, 586 (E.D.N.Y. 1929))).

400 *See* 4 Nimmer & Nimmer, *supra* note 130, at § 13D.02.

401 Madison, *The End of the Work*, *supra* note 83, at 342; *see also* text accompanying *supra* notes 82–84 (discussing the status of the copyrighted work as a legal fiction).

One example is *Letter Edged in Black Press v. Public Building Commission of Chicago*.[402] The artist Pablo Picasso agreed to design a sculpture and dedicate it to the city of Chicago. Before the sculpture was fabricated and installed, an early model ("maquette") was exhibited at various venues. The model of the sculpture, however, did not bear a valid copyright notice.[403] This failure to satisfy the statutory notice requirement, the plaintiffs claimed, meant that the copyright in the sculpture was forfeited. In response, the defendants asserted that the model was not the complete "work" and so was not subject to the notice requirement in the first place.[404] The complete work was the final product—a monumental sculpture installed at the Chicago Civic Center Plaza.[405] The small-scale model, by contrast, did not qualify as the final, copyrighted "work."[406] Central to these claims was the implict premise that "[the] work itself [is] a kind of jurisdictional boundary; until an author is done creating, copyright law is irrelevant. On this reasoning, an unfinished sculpture [is] not a work."[407]

The court disagreed. It concluded that both the early model and the final sculpture were subject to a single copyright, which attached to the first "perceptible, tangible" object in which the creation was fixed.[408] Although the court used the term "work" somewhat confusingly in referring to both the intangible creation and the tangible embodiment, the idea was clear: the complete "work" was created when the intellectual creation was fixed for the first time.[409] So the work's initial fixation in the form of a small-scale model gave rise to the complete, intangible "work." And the final sculpture was little more than a copy of that preexisting, intangible creation.[410]

The critical takeaway here is that the concept of the "work" is sometimes called upon to delimit the boundaries of the intangible essence. It does so by defining the moment at which the intellectual creation, the very thing being claimed, has fully matured into the legal "work."

(c) Channeling. As Section IV.A.1 details, the concept of the "work" is equally consequential in the context of useful articles or

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402 Letter Edged in Black Press, Inc. v. Public Bldg. Com'n of Chicago, 320 F. Supp. 1303 (N.D. Ill. 1970).

403 *Id.* at 1306–08.

404 *Id.* at 1309–10.

405 *Id.* at 1309.

406 *Id.*

407 Madison, *The End of the Work*, *supra* note 83, at 342.

408 *Letter Edged in Black Press*, 320 F. Supp. at 1310.

409 *Id.*; *see also* 17 U.S.C. § 101 (encoding this definition).

410 *Letter Edged in Black Press*, 320 F. Supp. at 1310.

functional works. When such objects are at issue, the concept of the "work" operates to channel nonexpressive, functional creations into other legal regimes, such as property or patent law. Consider again *Baker v. Selden*, where the court held that the defendant's creation, a bookeeping system, was simply not the kind of intangible creation worthy of copyright protection.[411] Owing to its functional nature, Baker's system did not possess the requisite level of expressiveness that characterizes copyrighted works.[412]

The issue is not one of originality or infringement. Nor is it about whether the copyrighted work has been completed. Instead, it is about the very nature of the intellectual essence—the sorts of qualities that make it eligible subject matter. So, when it comes to the channeling principle, the "work" serves as a boundary between expression and functionality.

(d) Calibrating the size of the work. The discussion above points to another conceptual difficulty arising from our notion of the work: the difficulty in adjusting the size of the copyrighted work. As Section IV.A.2 explains, the concept of the work sometimes operates to set a boundary between the whole and its subparts. Many copyrighted works can be framed as consisting of a collection of smaller works; an album can be divided into individual songs, a television series can be reduced to episodes or even scenes, and a literary work can be broken down into chapters or paragraphs.

The question of whether to treat the whole or any of its individual subparts as the "work" is present in many copyright disputes. Take, for example, *Yellow Pages Photos, Inc. v. Ziplocal, LP*.[413] Yellow Pages Photos owned a library of thousands of photos that were sorted into various collections.[414] It sued two companies for infringing its rights in 178 collections that included 10,411 photos.[415] Because the number of statutory damage awards depends on the number of infringed works,[416] the parties disagreed over how to tally the number of works at issue. The plaintiff argued that the court ought to treat each of the 10,411 photos, rather than each of the 178 collections, as a separate work.[417] The Eleventh Circuit was not persuaded. It ultimately concluded that each of the collections (rather than each of the photos) qualified as an

411 *Baker*, 101 U.S. at 107.

412 *Id.* at 105.

413 Yellow Pages Photos, Inc. v. Ziplocal, LP, 795 F.3d 1255 (11th Cir. 2015).

414 *Id.* at 1260.

415 *Id.* at 1262–63.

416 17 U.S.C. § 504(c)(1) (mandating that the plaintiff is entitled to recover a separate award for "all infringements involved in the action, with respect to any one work").

417 *Yellow Pages Photos, Inc.*, 795 F.3d at 1263.

independent work.[418] As this case illustrates, the concept of the "work" is often invoked when courts or litigants attempt to police the size of the copyrighted work and, by implication, the number of infringed works at stake.

B. Policy Implications

The concept of the intangible work is central to how scholars and courts conceptualize copyright law. It is what makes copyright law identifiable as a distinct genre of intellectual property law. And it is what divides copyright from property law. To understand just how central this conceptual principle is, it might be helpful to briefly examine the conventional justification for American copyright law. Although copyright policy occasionally sounds in the language of moral entitlement,[419] courts and scholars agree that copyright is rooted principally in the need to provide economic incentives to the authors of expressive, intangible works.[420]

This need arises from the unique nature of the intangible work. Works of authorship are public goods. As such, they share two distinct characteristics: they are nonexcludable and nonrivalrous.[421] Information goods are nonexcludable because, once created, their creators cannot easily exclude others from using and consuming them.[422] Information goods are also nonrivalrous; the use of the work by one individual does not deplete the capacity of others to use the work.[423] The canonical

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418 *Id.* at 1277–79.

419 Shani Shisha, *Fairness, Copyright, and Video Games: Hate the Game, Not the Player*, 31 Fordham Intell. Prop. Media & Ent. L.J. 694, 784–85 (2021) ("[S]ome commentators view IP through the lens of a 'natural rights' framework, building on John Locke's theory of property. . . . Still other observers, inspired by the writings of Hegel and Kant, contend that the author's personality is reflected in—and so constituted by—her creation.").

420 *See, e.g.*, Sara K. Stadler, *Incentive and Expectation in Copyright*, 58 Hastings L.J. 433, 433 (2007) ("Nothing is more fundamental to copyright law than the concept of incentives."); Eldred v. Ashcroft, 537 U.S. 186, 212 n.18 (2003) ("[C]opyright law *celebrates* the profit motive, recognizing that the incentive to profit from the exploitation of copyrights will redound to the public benefit by resulting in the proliferation of knowledge. . . . The profit motive is the engine that ensures the progress of science." (quoting Am. Geophysical Union v. Texaco Inc., 802 F. Supp. 1, 27 (S.D.N.Y. 1992))).

421 R. Polk Wagner, *Information Wants to Be Free: Intellectual Property and the Mythologies of Control*, 103 Colum. L. Rev. 995, 999 (2003) ("As virtually everyone acknowledges, the nonexcludable and nonrival nature of information commands a different justification for intellectual property than for real property.").

422 James Y. Stern, *Intellectual Property and the Myth of Nonrivalry*, 99 Notre Dame L. Rev. 1163, 1175 (2024) ("In essence, nonexcludability means the cost of restricting others' access to the resource is prohibitively high.").

423 Dan L. Burk, *Law and Economics of Intellectual Property: In Search of First Principles*, 8 Ann. Rev. L. & Soc. Sci. 397, 406 (2012); Barton Beebe, *Intellectual Property Law and the*

example of a public good is a lighthouse.[424] Once the light is turned on, the operator of the lighthouse is unable to prevent any ships from using the light. Similarly, the use of the light by one ship does not frustrate the ability of other ships to benefit from the light. In short, the light is both nonexcludable and nonrivalrous.

These two features render intangible goods particularly vulnerable to cheap copying. The general assumption is that it is easier to copy a creative work than to create one. Copyright law thus operates on the theory that, in a world without legal protection, copyists will flood the market with cheap copies and, if left to their own devices, authors won't be able to recoup their investment.[425] To confront this risk, the copyright system confers upon authors a bundle of time-limited exclusive rights to exploit their works in certain ways.[426] Essentially, copyright seeks to turn a nonexcludable good into a legally excludable one.

At the same time, copyright protection comes at a cost. First, copyright enables authors to charge a premium for their works. Indeed, that's the whole point: by allowing authors to charge higher prices, copyright law seeks to provide them with an opportunity to recoup their costs. But higher prices mean that a subset of consumers will be priced out of the market.[427] Second, copyright also risks frustrating, rather than promoting, creative expression. This is so because creativity is fundamentally the product of a cumulative process. As Justice Elena Kagan noted in a recent case, "artists don't create all on their own; they cannot do what they do without borrowing from or otherwise making use of the work of others."[428] To an extent, all creators build on existing works in producing new ones. Yet, by limiting access to existing works, copyright could undermine this creative process. To bridge the tension between the need to provide incentives and the need to ensure that future authors are able to engage with existing works, our system limits the breadth and duration of copyright protection.[429] This account, known

Sumptuary Code, 123 Harv. L. Rev. 809, 825–26, 840 (2010); James Gibson, *Risk Aversion and Rights Accretion in Intellectual Property Law*, 116 Yale L.J. 882, 932 (2007).

424 *See generally* R.H. Coase, *The Lighthouse in Economics*, 17 J.L. & Econ. 357 (1974).

425 Shisha, *Commercializing Copyright*, *supra* note 387, at 482 (explaining that "[c]opyright enables authors to exclude copyists, and this ensures that authors are able to recover their costs by charging a supracompetitive price for the work").

426 17 U.S.C. § 106.

427 Glynn S. Lunney, Jr., *Reexamining Copyright's Incentives-Access Paradigm*, 49 Vand. L. Rev. 483, 497–98 (1996).

428 Andy Warhol Found. for the Visual Arts, Inc. v. Goldsmith, 143 S. Ct. 1258, 1293 (2023) (Kagan, J., dissenting).

429 *See, e.g.*, 17 U.S.C. §§ 102–22 (specifying a host of limitations and exceptions, both open-ended and rule-based, on the scope of copyright protection).

as the incentive-access framework, is supposed to justify, legitimate, and explain what copyright is and why it is needed.

The decline of the intangible/physical distinction puts real pressure on this orthodox story. The standard justification for copyright protection—that is, the need to provide economic incentives to the creators of information goods—is irrevocably entwined with the intangible nature of the intellectual work. Copyright, in short, is justified by the need to protect intangible creations. But if copyright intrudes into the realm of physical property, that justification no longer holds. Physical property does not exhibit the two characteristics that make intangible goods susceptible to copying: nonexcludability and nonrivalry. Unlike intangible goods, physical property is scarce, rivalrous, and excludable.[430] So, if courts can't tell apart the physical from the intangible, and if our copyright regime ends up protecting tangible goods rather than intangible ones, the assumedly sharp divide between copyright and property collapses.

The upshot is that, in reality, copyright law is not all that concerned with intangible goods. And if that's true, perhaps copyright is not all that distinctive, either. The principle that distinguishes copyright from property has scraped away over the centuries. These findings, in turn, call into question the legitimacy of our law. The concept of the intangible work purportedly separates copyright from other disciplines, and it drives unusual features of copyright doctrine, such as the fixation requirement and the first sale doctrine. These aspects of our law look more peculiar, and less defensible, once one recognizes that the distinction between intangible works and physical objects has receded.

V
What's Next: Flexibility and Rigidity

The incoherence that plagues the intangible/physical distinction has startling implications. It gnaws at the distinctiveness of copyright law as a legal field. It undermines the legitimacy of our law. And it produces a muddy and confused body of doctrine across various areas of subject matter.

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430 Irina D. Manta, *Keeping IP Real*, 57 Hous. L. Rev. 349, 354 (2019) ("Examples of rivalrous resources abound when it comes to land and chattels. Two or more people cannot stand in the exact same spot at the same time. They cannot write different things with the same pen simultaneously. And they cannot chew the exact same piece of gum at once."); Kevin Gray, *Property in Thin Air*, 50 Cambridge L.J. 252, 286 (1991) (noting that land "constitutes the most readily excludable resource known to man"); *see also* Mark A. Lemley, *Ex Ante versus Ex Post Justifications for Intellectual Property*, 71 U. Chi. L. Rev. 129, 141–43 (2004) (critiquing a tragedy of the commons approach to IP law by pointing to the nonexcludable nature of intellectual property).

Critically, I argue that the confusion is somewhat inevitable. As Section IV.A demonstrates, the current malaise is partly a consequence of broader pathologies in copyright's doctrinal terrain. Driven by intuitionist arguments, implicit framing choices, the difficulty of pinning down an incorporeal creation, the rise of digital copies, and the multifunction nature of the copyrighted work, courts will continue to wrestle with how to define the intangible work for the foreseeable future.

This suggests that a uniform test for defining the intangible work would be both unworkable and undesirable. The Copyright Act frequently invokes but fails to define the term "work."[431] Commentators have decried this statutory omission.[432] Given the anxiety over the concept of the intangible work, its existentially disorienting nature, and the confusion it has created, it is easy to understand why scholars have been clamoring for a unified, catchall approach. But my foray into various copyright doctrines suggests an unsettling conclusion: a unified test is little more than a pipe dream.

In fact, the chasm at the heart of copyright law—the lack of a clear conception of the intangible work—can prove surprisingly beneficial.[433] Its key function is to provide courts with the necessary flexibility to resolve disputes against the backdrop of copyright's classic policy considerations.[434] As Joseph Liu notes, the Copyright Act is not a source of definitive answers, but instead a delegation of authority to the courts.[435] On many questions of central significance—from the definition of the "author"[436] to the standard for infringement[437] to secondary liability[438]—courts have constructed a rich body of flexible standards to address statutory lacunae. Flexibility is baked into our system.

I thus suggest that, in some contexts, courts should insist upon a sharp distinction between the work and the copy; in other contexts,

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431 *See supra* text accompanying notes 372–76.

432 *See, e.g.*, Paul Goldstein, *supra* note 375, at 1178 (2011) (suggesting a uniform test, based on authorial intent, for identifying the copyrighted work); Hughes, *supra* note 375, at 621 (articulating a multifactor test for defining the copyrighted work).

433 Kaminski & Rub, *supra* note 369, at 1178.

434 *Id.*

435 Joseph P. Liu, *Who's Afraid of the Common Law?* Georgia v. Public.Resource.Org *and the Supreme Court's Recent "Straightforward" Copyright Jurisprudence*, 67 J. Copyright Soc'y 397, 405 (2020).

436 *Id.*

437 *See* Arnstein v. Porter, 154 F.2d 464 (2d Cir. 1946) (outlining a two-step test to establish copyright infringement), *abrogated on other grounds by* Beal v. Lindsay, 468 F.2d 287, 291 (2d Cir. 1972) (departing from the summary judgment standard used in *Arnstein* without taking action on the copyright infringement test).

438 *See, e.g.*, Sony v. Universal City Studios, 464 U.S. 417, 434–42 (1984) (exploring the boundaries of secondary liability theories for copyright infringement).

though, a more flexible approach would be preferable. The underlying thesis here is that, in cases dealing with questions of copyrightability, courts ought to sharply cordon off the intangible from the physical. However, when questions of infringement are at issue, courts should generally approach the distinction between the work and the copy from a more flexible, holistic perspective. As I explain below, a flexible approach of this sort would allow courts to break with the notion that every tangible embodiment of the work necessarily constitutes an actionable copy.

Why apply a rigid approach in the context of copyrightability and a flexible approach in the context of infringement? Conceptually, the law of copyrightability implicates copyright's classic policy justification in a way that the infringement analysis does not. When courts take on the question of eligibility, they must properly identify the object of copyright protection: the intangible work. To be sure, the concept of the intangible work is relevant in the context of infringement, too. To determine whether the copyright owner's rights were infringed, courts must consider whether the defendant has created an unlawful copy of the plaintiff's work—that is, courts must determine whether the defendant has created a tangible embodiment of the intangible work. That assessment, in turn, depends upon a conception of the intangible work itself.

But there's an important distinction lurking here. From a normative perspective, if courts get things wrong in the context of eligibility, they risk impinging upon copyright's boundaries. To extend copyright protection into the sphere of physical goods is to warp the basic divide between copyright and property.[439] As we have seen, the dominant account of copyright law turns on the specific characteristics that render intangible goods—not physical ones—vulnerable to copying.[440]

Such concerns, however, are less pronounced in the context of infringement. Refusal to recognize that a physical embodiment constitutes an infringing copy would not be quite as corrosive to the legitimacy of our system. Rather, in some instances, copyright's incentive–access framework may well *require* that courts exclude certain physical copies from the reach of copyright law. After all, copyright is not just about motivating creators to produce works of authorship; it is also about ensuring that expressive works are accessible to future authors and society at large.[441] To work out a balance between the need to provide incentives and the need to facilitate robust access, our law

439 *See infra* Section IV.B.
440 *See infra* Section IV.B.
441 *See* text accompanying *supra* notes 427–29.

limits the length and scope of the copyright grant.[442] Most prominently, copyright law recognizes that some uses of the copyrighted work, even if unauthorized, are socially desirable and should thus be excused under the doctrine of fair use.[443]

Another mechanism for limiting the rightsholder's power is the infringement standard. To bring an action for infringement, the copyright holder must ordinarily establish that the defendant's copy is "substantially similar" to the protected work.[444] What is often lost in this analysis, though, is the separate question of what constitutes a "copy" in the first place.[445] As Jessica Litman has demonstrated, current doctrine is mired in something of a "copy-fetish."[446] Courts, she says, increasingly believe that every tangible manifestation of the work, no matter how insignificant, is a potentially infringing copy.[447] This view is fueled by notions of physicality. Every tangible, physical instantiation of the work is believed to be an infringing copy—even if the copy at stake is fixed only for seconds, and even if it is not at all usable by (or visible to) users.[448] What matters is that there is a tangible manifestation of the work, however small or fleeting. So, "because courts look for copies everywhere, they see copies everywhere."[449]

Oren Bracha has been equally critical of copyright's obsession with physicality.[450] The idea that every tangible embodiment of the work is a copy, he argues, is ahistorical. It is also at odds with basic tenets of copyright policy. One of copyright's most fundamental principles—the "spillovers" principle—is the idea that the copyright owner is not entitled to fully internalize the value of the copyrighted work.[451] Rather, copyright has "an inherent tension built into it: it [is] a mechanism of

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442 *See, e.g.*, 17 U.S.C. §§ 107–122 (specifying a host of limitations and exceptions, both open-ended and rule-based, on the scope of copyright protection).

443 17 U.S.C. § 107.

444 4 Nimmer & Nimmer, *supra* note 130, at § 13.03.

445 *See, e.g.*, Oren Bracha, The Work of Copyright in the Age of Machine Reproduction 20–25 (Feb. 16, 2024) (unpublished manuscript) (on file with author) (examining the question of whether machine learning by an AI model that uses existing copyrighted IP constitutes copyright infringement).

446 Jessica Litman, *Fetishizing Copies*, *in* Copyright Law in an Age of Limitations and Exceptions 107 (Ruth L. Okediji ed., 2017).

447 *Id.* at 109. Litman describes current doctrine as possessed by the conviction "that every appearance of any part of a work anywhere should be deemed a 'copy' of it, and that every single copy needs license or excuse." *Id.* The problem, Litman notes, is that courts treat every manifestation of the work as an actionable copy, without considering "whether or not the copy has any independent economic significance, [or] whether or not the so-called copy is incidental to some other use that is completely lawful." *Id.*

448 *Id.*

449 Shani Shisha, *The Copyright Wasteland*, 47 BYU L. Rev. 1721, 1768 (2022).

450 *See* Bracha, *Machine*, *supra* note 445.

451 *Id.* at 15.

private control of expression, backed by state sanction, that [is] officially committed to broad and unrestricted dissemination of knowledge."[452] One implication of the spillovers principle is that not every physical embodiment of the work should constitute a "copy" as a matter of law.[453]

For example, consider the legal controversy that accompanied the precipitous rise of generative AI. Generative AI companies have trained their models on large datasets that contain copyrighted works. In a spate of recent lawsuits, copyright holders have asserted that the unauthorized use of their works constitutes infringement.[454] Many scholars contend that training AI on copyrighted material is (or should be) fair use.[455] Yet, as Bracha points out, that's the wrong question. There's no need to reach the issue of fair use, because using copyrighted material for training or learning purposes is not infringing in the first place. Although the training datasets used by AI companies include tangible reproductions of copyrighted works, these reproductions do not constitute "copies," because they are used as part of a technical learning process.[456]

The point is that modern doctrine has taken a wrong turn in embracing a somewhat absolutist approach—namely, that "a copy is a copy is a copy."[457] This fundamentalist posture conflicts with the intellectual traditions and doctrinal strictures of early copyright law. It overlooks the spillovers principle. And it excessively focuses on physicalist notions of thinghood while failing to account for copyright's overarching purpose. Thus, Bracha suggests that we unshackle copyright doctrine from its physicalist fetish.[458] After all, it's not just about whether the defendant has created a tangible embodiment of the work; it's also

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452 *Id.* at 16.

453 *Id.* at 23.

454 *See, e.g.*, Complaint at 29–33, Getty Images (US), Inc. v. Stability AI Inc., No. 1:23-cv00135-UNA (D. Del. Feb. 3, 2023) (alleging copyright, trademark, and other causes of action); Complaint at 30–42, Andersen v. Stability AI Ltd., 2024 WL 3823234 (N.D. Cal. Jan. 13, 2023) (No. 3:23-cv-00201) (alleging copyright and other causes of action); Complaint at 48–50, Authors Guild v. OpenAI Inc., No. 1:23-cv-08292 (S.D.N.Y. Dec. 4, 2023) (alleging copyright causes of action).

455 *See, e.g.*, Mark A. Lemley & Bryan Casey, *Fair Learning*, 99 Tex. L. Rev. 743, 748 (2021) (arguing that machine learning systems should be able to use databases for training); Matthew Sag, *The New Legal Landscape for Text Mining and Machine Learning*, 66 J. Copyright Soc'y U.S.A. 291, 292–94 (2019) (taking stock of text data mining research by AI and supporting its continued legality); Matthew Sag, *Copyright and Copy-Reliant Technology*, 103 Nw. U. L. Rev. 1607 (2009) (arguing that copy-reliant technology should not be seen as infringing on existing copyrights); *see also* Pamela Samuelson, *Fair Use Defenses in Disruptive Technology Cases*, 71 UCLA L. Rev. 1484, 1486–87 (2024) (discussing the landscape of AI training-related litigation).

456 Bracha, *Machine*, *supra* note 445 (manuscript at 23–25).

457 *See id.* (manuscript at 23) (making this argument).

458 *Id.* (manuscript at 23–25).

about the *purpose* of the reproduction and the *usability* of the resultant embodiment. These questions should bear on whether the copy at issue constitutes a "copy" within the meaning of copyright law.

The framework sketched here would attend to these concerns. It would compel courts to distinguish between intangible and physical objects in the context of copyrightability—and, at the same time, it would enable courts to soften this distinction within the context of infringement. Consequently, when courts are called upon to determine whether the defendant has created a copy, they should be able to make a determination based on copyright's background policy principles. Rather than focus single-mindedly on questions of physicality, courts can and should accommodate a concomitant concern for the incentive–access tradeoff.

This analysis has striking implications for the cases discussed in Part II. For instance, consider the status of architectural designs. Before the Copyright Act was amended to expressly extend copyright protection to architectural structures, courts held that a physical structure derived from a protected design was not an infringing copy.[459] This view, I noted, was inconsistent with the intangible/physical distinction.[460] After all, a physical structure is clearly a material embodiment of the intangible design. Nevertheless, under the framework I advance here, the courts' permissive attitude toward physical structures, now long-defunct, might seem rather sensible. The larger lesson is that courts should be allowed to circumvent the presumably stark distinction between the intangible and the physical in the context of the infringement analysis. Though rarely framed in such terms, the infringement standard might serve as a policy-oriented vehicle through which courts can calibrate the scope of copyright protection.

The analysis here also indicates that, although flexibility makes sense in context of infringement, it would not be desirable in the context of copyrightability. The law of copyrightability, in other words, should not lead to a veiled encroachment into the domain of property law. So, for example, in disputes implicating the copyrightability of DNA sequences or culinary dishes, courts should continue to insist upon strict adherence to the intangible/physical dichotomy. Doing so is the only way to sustain the legitimacy and distinctiveness of copyright law. Only by focusing on intangible goods can we properly account for what copyright law is and how it's supposed to operate.

This is not to say that a rigid approach would always be readily administrable. Some level of confusion will continue to fester. As I

459 *See supra* Section II.B.
460 *See supra* Section II.B.

have argued above, the uncertainty over copyright's boundaries is inescapable. But we ought to resist the idea that the enterprise itself is hopeless. This Article argues for a situational approach, one that would demand flexibility in certain contexts and rigidity in others.[461] Such an approach, I suggest, could alleviate some of the confusion and better tether current doctrine to the underlying mission of our law. While imperfect, the proposed framework would represent a significant improvement over the status quo.

Conclusion

American copyright law purports to draw a sharp line between the intangible work and its physical embodiment. Our system, the story goes, is supposed to protect intangible works, not physical objects. But the truth is more complicated. This Article shows that, in practice, courts and commentators struggle to distinguish between the intellectual creation and its material form. In the end, the concept of the intangible work proves to be astonishingly indeterminate.

This Article is the first to explore the nature, evolution, and impact of this critically overlooked phenomenon. It draws together a rich array of doctrines to demonstrate that modern courts disagree sharply over how to define the intangible work. It traces the historical origins of this disagreement and argues that the confusion over copyright's terrain is, in fact, a centuries-old conundrum. Normatively, the Article contends that the erosion of the intangible/physical divide raises profound questions about the legitimacy and stability of our copyright system. The Article then sketches an alternative, context-sensitive framework—one that rests on a more nuanced understanding of copyright's ever-hazy boundaries.

In a deep sense, we know more than we ever have about the trajectory and structure of copyright law. But we know far less than we should about the elusive nature of the intangible work. After centuries of neglect, it's time we bring the intangible work out into the open.

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461 I am not the first to propose that a pragmatic approach—one that applies different standards to different areas of intellectual-property doctrine—would be normatively attractive. *See, e.g.*, Kaminski & Rub, *supra* note 369, at 1178–79 (proposing that courts embrace doctrine-specific tests to resolve copyright's "framing problem" in different contexts); Mark A. Lemley & Mark P. McKenna, *Scope*, 57 Wm. & Mary L. Rev. 2197, 2271–84 (2016) (suggesting that courts either conduct a uniform proceeding to adjudicate claims of IP scope, or instead revise various field-specific doctrines to settle claims of scope); Shisha, *Infringement Episodes*, *supra* note 65, at 1072–78 (developing a policy-driven, multifactor test for calibrating statutory damages).