
NFTS AS DECENTRALIZED INTELLECTUAL PROPERTY

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This Article is the first to elaborate a theory of decentralized intellectual property (De-IP) to explain the phenomenon of NFTs. This theory of De-IP provides a compelling new understanding of NFTs. Like the current movement to adopt decentralized finance (“DeFi”), De-IP utilizes blockchain technology to provide an alternative, decentralized way to engage in activities traditionally governed by a highly centralized regulatory system, typically involving the U.S. government and dominant industry intermediaries who operate as de facto gatekeepers. The primary vehicle for De-IP is a new technology called the non-fungible token (“NFT”), which consists of a computer program called a smart-contract that authenticates a unique virtual token on blockchain and identifies some other subject matter, such as a copyrighted artwork, whose use is governed by a license setting forth the rights the NFT owner receives. Through a combination of virtual tokens (which are new intellectual property in their own right), code, licenses, practices, and norms, NFTs are providing a viable, decentralized alternative to the copyright system—an alternative that does not eliminate the copyright system, but instead, makes it more responsive to what artists and people want. Although critics may object that De-IP does not adequately consider the public interest in how the copyright system should be reformed, both republican theory of deliberation and the ongoing public debate about copyright on social media and in decentralized autonomous organizations (“DAOs”) allay such concerns. Indeed, the current decentralized debate about NFTs and copyright law may be not only better for democratic deliberation but also more responsive to the needs of individual authors and the public. Everyone can participate.

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I. INTRODUCTION

Calls for Congress to enact the “next great copyright act” date back to 2013, when then-Register of Copyrights Maria Pallante endorsed the idea.¹ The moment the Copyright Act of 1976 was enacted, its obsolescence was all but obvious. As former Register of Copyrights Barbara Ringer stated in 1981, the Copyright Act was “a good 1950 copyright law.”² Ringer explained: “no prophet is needed to foretell the need for substantial restructuring of our copyright system before the end of this century.”³

Ringer spoke about the end of the twentieth century. Two decades have passed since that deadline. Yet no major revision of the Copyright Act is in sight. If history is a guide for copyright law as the U.S. Supreme Court says,⁴ Congress’s failure to act is concerning, given that past Congresses enacted major revisions to copyright law roughly every forty years.⁵ That period has passed. Congress’s failure is even more troubling than Ringer could have imagined in 1981. Since then, the Internet and new digital technologies have dramatically transformed how copyrighted content is produced, disseminated, and instantaneously copied online, making the need for a major revision to the Copyright Act of 1976 even more pressing.⁶ The Copyright Act was designed for the printing press, not the Internet. The Act did not anticipate how transitory copies would become a natural part of the process of simply viewing material, making innocent acts potentially infringement, or how digital copies profoundly alter the economics of cultural production and the ease of infringement, as well as pose challenges

1. See Maria A. Pallante, *The Next Great Copyright Act*, 36 COLUM. J.L. & ARTS 315, 322–23 (2013) (“The next great copyright act must be forward thinking but flexible, and, no matter what, it must serve the public interest.”).

2. Barbara Ringer, *Authors’ Rights in the Electronic Age: Beyond the Copyright Act of 1976*, 1 LOY. L.A. ENT. L.J. 1, 4 (1981); see Pamela Samuelson, *Preliminary Thoughts on Copyright Reform*, 2007 UTAH L. REV. 551, 555 (“[T]he 1976 Act was passed with a 1950s/60s mentality built into it, just at a time when computer and communication technology advances were about to raise the most challenging and vexing copyright questions ever encountered.”).

3. Ringer, *supra* note 2, at 4.

4. See *Eldred v. Ashcroft*, 537 U.S. 186, 200 (2003) (“To comprehend the scope of Congress’ power under the Copyright Clause, ‘a page of history is worth a volume of logic.’” (quoting *N.Y. Tr. Co. v. Eisner*, 256 U.S. 345, 349 (1921))).

5. See Edward Lee, *Copyright, Death, and Taxes*, 47 WAKE FOREST L. REV. 1, 5 (2012).

6. See LAWRENCE LESSIG, *REMIX: MAKING ART AND COMMERCE THRIVE IN THE HYBRID ECONOMY* 253 (2009) (“It is time Congress launched a serious investigation into how this massive, and massively inefficient, system of regulation might be brought into the twenty-first century.”).

under doctrines once thought fundamental, such as the first-sale doctrine.⁷ As the considered views of Pallante, Ringer, and other prominent legal experts demonstrate, the twenty-first century's technological advances warrant a modernization of the Copyright Act.⁸ Our 1950 copyright law is no longer good. It's borderline obsolete.

Perhaps the biggest problem with the Copyright Act is that it isn't doing what it is supposed to do: give authors economic incentives to create. "In the real copyright system, . . . writers, artists, musicians, and filmmakers face daunting obstacles in searching for opportunities to write, paint, play, or film anything the public will see," Jessica Litman explained.⁹ The copyright system should give authors economic incentive to create as a profession,¹⁰ meaning authors can make a full-time living from their artistic pursuits instead of working several jobs to support their creative endeavors.¹¹ The Copyright Clause authorizes Congress to grant copyrights to authors for limited times, to serve the larger public good in "promot[ing] . . . Progress" in the United States.¹² As the Supreme Court recognized, the economic principle underlying this constitutional mandate is simple: "Sacrificial days devoted to such creative activities deserve rewards commensurate with the services rendered."¹³

Yet, there is a growing sense—if not consensus—that the copyright system should do better. Many individual artists and authors never get a realistic opportunity to create and succeed in the United States, at least not without being one of the chosen few selected and signed by a major label, studio, publisher, or gallery, who serve as gatekeepers to commercial success.¹⁴ As Jane Ginsburg put it, "all too often in fact, authors neither control nor derive substantial benefits from their work."¹⁵ That assessment is substantiated by two surveys of independent artists in the United States and other countries that show that most artists struggle financially and cannot support themselves with one job as an artist; instead, artists must work other jobs to support their artistic activity.¹⁶ Such a plight devalues artistic endeavors. In the 2017 Artfinder survey, 86% of U.S. independent

7. See Jane C. Ginsburg & Francis Gurry, *Copyright in the Digital Environment: Restoring the Balance 24th Annual Horace S. Manges Lecture, April 6, 2011*, 35 COLUM. J.L. & ARTS 1, 3, 4–5 (2011) (discussing the need for copyright reform in the Internet age).

8. See, e.g., Pallante, *supra* note 1, at 315, 319–23; Ringer, *supra* note 2, at 3–4; Pamela Samuelson et al., *The Copyright Principles Project: Directions for Reform*, 25 BERKELEY TECH. L.J. 1175, 1177 (2010); Samuelson, *supra* note 2, at 555.

9. See Jessica Litman, *The Copyright Revision Act of 2026*, 13 MARQ. INTELL. PROP. L. REV. 249, 252 (2009).

10. Jane C. Ginsburg, *The Author's Place in the Future of Copyright*, 45 WILLAMETTE L. REV. 381, 388–89 (2009).

11. See *id.* at 381–82; Jane C. Ginsburg, *Authors and Users in Copyright*, 45 J. COPYRIGHT SOC'Y U.S.A. 1, 1–2, 4–5 (1997).

12. U.S. CONST. art. I, § 8, cl. 8.

13. *Mazer v. Stein*, 347 U.S. 201, 219 (1954).

14. See Litman, *supra* note 9, at 252–53.

15. Ginsburg, *supra* note 10, at 381.

16. ARTFINDER, THE ARTFINDER INDEPENDENT ART MARKET REPORT: 2017, 4 (2017); THE CREATIVE INDEPENDENT, SURVEY REPORT: A STUDY ON THE FINANCIAL STATE OF VISUAL ARTISTS TODAY 9 (2018).

artists earned less than \$20,000 in annual net income.¹⁷ The starving artist is alive but not well. Meanwhile, the major copyright distributors thrive.¹⁸ The Copyright Clause focuses on individual authors, but the Copyright Act serves the major distributors—the gatekeepers who operate as quasi-patrons in our copyright system, granting or denying access to artists to major pathways to commercial success.¹⁹

These failings of our copyright system have become so entrenched, it would take a radical change in the next great copyright act to fix them. Yet, radical change is unlikely, not only because the vested interests of the copyright industries and gatekeepers pose formidable political barriers, but also because the obligations of all 164 countries in the World Trade Organization (“WTO”), including the United States, to follow certain minimum standards of (twentieth-century) copyright largely prohibit such change.²⁰ The chance of Congress enacting a major revision to the Copyright Act seems slim to none. As Karyn Temple, former Register of Copyrights put it in 2022, “[t]he Next Great Copyright Act may still be a long way away.”²¹ Probably too long.

Although the chance that Congress will pass the next great copyright act appears to be non-existent, what if Congress isn’t needed? What if there is a new, alternative way to modernize the copyright system without a single act of Congress? What if that alternative gives the power back to authors and the public to reshape the copyright system to serve them better and to promote progress in the digital age? And what if that alternative is already happening today?

This Article sets forth a new theory of decentralized intellectual property (“De-IP”). The thesis of this Article is that De-IP is modernizing our aging copyright system already, albeit in a decentralized manner through a new technology called the non-fungible token (“NFT”).

Like the profound movement to decentralized finance (“DeFi”), De-IP utilizes blockchain technology to provide an alternative, decentralized way to engage in activities that have traditionally been governed by a highly centralized

<https://tci-assets.s3.amazonaws.com/pdfs/artist-survey-report/artist-survey-report.pdf> [<https://perma.cc/6ZH6-CQUM>].

17. ARTFINDER, *supra* note 16, at 4.

18. See, e.g., Patrick Frater, *Global Box Office Notched 27% Gain in 2022 to Hit \$26 Billion Total, Research Shows*, VARIETY (Jan. 5, 2023, 10:20 PM), <https://variety.com/2023/data/news/global-box-office-in-2022-1235480594/> [<https://perma.cc/SUKZ-9H7G>]; Tim Ingham, *With \$15BN in Revenue, 2021 Was the US Record Industry’s Biggest Ever Year (Kind of...)*, MUSIC BUS.WORLDWIDE (Mar. 9, 2022), <https://www.musicbusinessworldwide.com/with-15bn-revenue-2021-was-the-us-record-industrys-biggest-ever-year-kind-of/> [perma.cc/8X3A-35NJ]; Lyle Niedens, *Sotheby’s, Christies Post Record Annual Sales, Defy Weak Economy*, INVESTOPEDIA (Dec. 21, 2022), <https://www.investopedia.com/large-auction-houses-record-highest-sales-ever-in-2022-6951545> [perma.cc/52JC-J6JP].

19. Clark D. Asay, *Copyright’s Technological Interdependencies*, 18 STAN. TECH. & L. REV. 189, 198–99 (2015).

20. Lee, *supra* note 5, at 3–4.

21. Karyn A. Temple, *Beyond Whack-a-Mole: Content Protection in the Age of Platform Accountability*, 45 COLUM. J.L. & ARTS 147, 167 (2022).

regulatory system, typically involving the government and dominant industry intermediaries.²² DeFi provides an alternative to the financial system and fiat money regulated by the Federal Reserve and dominated by banks and other traditional financial institutions.²³ Likewise, De-IP provides an alternative to the copyright system and copyrights regulated by Congress and dominated by intermediaries, including the major labels, studios, publishers, galleries, and auction houses. Just as DeFi has not eliminated the existing financial system, De-IP has not eliminated the existing copyright system.²⁴ They co-exist. For both DeFi and De-IP, a decentralized alternative has been created by private individuals in the market utilizing blockchain technology in ways that are perceived to be more decentralized, open, democratic, and empowering, and less susceptible to domination by government or industry intermediaries.²⁵ If the copyright system is intended to promote the arts, incentivize artists to create, and enable authorship to be a full-time occupation,²⁶ NFTs have already shown greater promise in achieving that goal. Artists no longer need to be approved by industry gatekeepers to succeed. De-IP puts creators back in control.²⁷

And the primary vehicle for De-IP is the new technology called the NFT. An NFT is a virtual token that is created by computer code (what's called a smart contract) that identifies the token as unique—or “non-fungible”—on blockchain, a peer-to-peer network that operates as a permanent public ledger.²⁸ Artists can use NFTs to associate the tokens with copyrighted works by including, within the smart contract, a link to a digital file containing a digital copy of the work, such as a pictorial work, musical work, or audio-visual work.²⁹ When a buyer sees an NFT for sale online, the buyer sees a public display of the digital image of the work with the description of the NFT for sale.³⁰ But the NFT is different from the digital image—what's disparagingly called “just a JPEG.” When people buy NFTs, they are not buying “just a JPEG.” Instead, the sale involves a purchase of the *virtual token*, a new type of property, stored on blockchain, *plus* a content license, granted by the creator, that allows the NFT owner to make certain uses of the associated copyrighted work, such as commercial uses and the

22. See Fabian Schär, *Decentralized Finance: On Blockchain- and Smart Contract-Based Financial Markets*, 103 FED. RESRV. BANK ST. LOUIS REV. 153, 153 (2021); see also discussion *infra* Part III.

23. See Schär, *supra* note 22, at 153.

24. See *Overview*, U.S. COPYRIGHT OFF., <https://www.copyright.gov/about/> (last visited Mar. 3, 2023) [<https://perma.cc/H85K-RGYL>]; see also *infra* note 239 and accompanying text.

25. See Schär, *supra* note 22, at 153; see also *infra* note 239 and accompanying text.

26. Ginsburg, *supra* note 10, at 388–89.

27. EDWARD LEE, *CREATORS TAKE CONTROL: HOW NFTS REVOLUTIONIZE ART, BUSINESS, AND ENTERTAINMENT* 41 (2023).

28. See Schär, *supra* note 22, at 157, 160; see also *infra* Subsection III.A.1.

29. See Schär, *supra* note 22, at 157, 160; see also *infra* Subsection III.A.1; see, e.g., *Welcome to the Bored Ape Yacht Club*, BORED APE YACHT CLUB, <https://boredapeyachtclub.com/#/home> (last visited Mar. 3, 2023) [<https://perma.cc/LC3A-VHXT>] (showing various “bored ape” NFT artworks).

30. See, e.g., *Crossroad #1/1*, NIFTY GATEWAY, <https://www.niftygateway.com/marketplace/item/0x12f28e2106ce8fd8464885b80ea865e98b465149/100010001> (last visited Mar. 3, 2023) [<https://perma.cc/5L9H-Q6BD>]; Team Createra, *Createra Genesis Land*, OPENSEA (Jan. 2023), [https://opensea.io/collection/createra-genesis-land?search\[sortAscending\]=true&search\[sortBy\]=UNIT_PRICE](https://opensea.io/collection/createra-genesis-land?search[sortAscending]=true&search[sortBy]=UNIT_PRICE) [<https://perma.cc/L9GQ-T8ZE>].

making of derivative works.³¹ This complex arrangement of virtual ownership—the sale of a virtual token with a content license that grants the NFT owner certain rights to use the associated artwork—has created a new form of De-IP.

De-IP provides an alternative way to update copyright law to fit the digital age. And it has spawned a Virtual Renaissance and an explosion of creative works—especially digital and AI generative art—by artists around the world.³² Although the market for NFTs is in its early stages, in 2021 over \$27 billion in NFT sales occurred.³³ To put that number into perspective, global streaming revenue from recorded music was estimated to be only \$19.6 billion in 2021.³⁴

To get a glimpse of how NFTs operate as De-IP, consider that NFTs are, themselves, a new form of intellectual property. One can abandon copyrights for the artwork associated with an NFT, yet the NFT can have independent value as intellectual property.³⁵ Indeed, the Nouns and Moonbirds projects have already done so. Although they have abandoned all copyrights by adopting Creative Commons 0 licenses—which is a growing movement within De-IP—the lowest priced NFTs for Nouns and Moonbirds have sold for \$100,000 and \$20,000, respectively.³⁶ XCOPY, one of the most successful digital artists, has adopted CC0 licenses for his artworks, yet the NFTs still sell for substantial amounts.³⁷

Or consider that NFTs are being used to recognize a new right of the creator to resale royalties for NFTs—a right that does not exist for copyrights under U.S. law and one that Congress has failed to pass at least six times, despite its adoption in approximately eighty countries around the world.³⁸ NFTs also provide a novel solution to the digital first-sale controversy. Every buyer of an NFT becomes its

31. See Jacob W. S. Schneider, *What Are You Buying When You Buy an NFT?*, HOLLAND & KNIGHT (Mar. 7, 2022), <https://pdf.hklaw.com/pdfrederer.svc/v1/abcpdf11/GetRenderedPdfByUrl/What%20Are%20You%20Buying%20When%20You%20Buy%20an%20NFT.pdf?url=https%3a%2f%2fwww.hklaw.com%2fen%2finsights%2fpublications%2f2022%2f03%2fwhat-are-you-buying-when-you-buy-an-nft%3fpdf%3d1> [https://perma.cc/HP8H-HE3M]; see also *infra* Subsection III.C.4.

32. See Jesus Rodriguez, *The Machine Learning Powering Generative Art NFTs*, COINDESK (Nov. 21, 2022, 12:27 PM), <https://www.coindesk.com/layer2/2022/11/21/the-machine-learning-powering-generative-art-nfts/> [https://perma.cc/KV4R-BDL5].

33. See LaToya Harding, *NFTs 2021: The Birth of a \$27bn Marketplace*, YAHOO! NEWS (Jan. 18, 2022), <https://news.yahoo.com/nft-non-fungible-tokens-2021-birth-of-a-27-bn-marketplace-000127769.html> [https://perma.cc/AE4T-A3Q8].

34. See Mark Mulligan, *Major Label Revenue Surged in 2021, but What Does That Mean?*, MIDIA RSCH. LTD. (Jan. 7, 2022), <https://www.midiaresearch.com/blog/major-label-revenue-surged-in-2021-but-what-does-that-mean> [https://perma.cc/W2RX-H3WZ].

35. See *infra* note 271 and accompanying text; *infra* text accompanying notes 36–38; see, e.g., *Nouns DAO*, NOUNS DAO, <https://nouns.wtf/> (last visited Mar. 3, 2023) [https://perma.cc/8VL3-S68D].

36. *Nouns*, OPENSEA, <https://opensea.io/collection/nouns> (last visited Mar. 3, 2023) [https://perma.cc/7LQE-YYC5] (showing the lowest priced Noun at 40 ETH); *Moonbirds*, OPENSEA, <https://opensea.io/collection/proof-moonbirds> (last visited Mar. 3, 2023) [https://perma.cc/GCX5-5BHS] (showing the lowest priced Moonbird at 8,520 ETH). Note that USD prices are based on an ETH value of \$1,329.

37. Andrew Hayward, *Crypto Artist XCOPY Sells \$23M Worth of Ethereum NFTs in 10 Minutes*, DECRYPT (Mar. 25, 2022), <https://decrypt.co/96009/crypto-artist-xcopy-23m-ethereum-nfts-10-minutes> [https://perma.cc/R9XN-CC5E]; @XCOPYART, TWITTER (Aug. 1, 2022, 9:32 AM), <https://twitter.com/XCOPYART/status/1554112748816109569> [https://perma.cc/4GYG-LB52]; Ian Kane, *Crypto Art Steals the Show with 500 ETH NFT Purchase – Top 10 NFT Highlights*, DAPP RADAR (Aug. 29, 2022), <https://dappradar.com/blog/crypto-art-steals-the-show-with-500-eth-nft-purchase-top-10-nft-highlights> [https://perma.cc/CPV8-4SDZ].

38. See Litman, *supra* note 9, at 252–53; see also *infra* note 327 and accompanying text.

owner and can resell it—unlike the situation under copyright law with the lack of a digital first-sale right for digital files.³⁹ If these dramatic changes are not substantial enough, consider that some copyright owners are taking a far more permissive approach in allowing the sharing and copying of their copyrighted content. Paradoxically, copying itself, which is the foundation of the Copyright Act, has become less significant. Some NFT licenses don't even mention "copies." Instead, the focus is on "uses" of the artwork.⁴⁰ Many of the most successful NFT collections, including the CryptoPunks and Bored Apes, have liberally allowed third parties to make similar-looking "alternative" and "expansion" versions, "clones," and "derivative" versions without the threat of copyright lawsuits.⁴¹ This new ethos for the emerging, decentralized Web3 views unauthorized copies and derivatives by third parties as creativity, not a threat. That explains why there is a growing movement among NFT projects to adopt Creative Commons 0 licenses—and abandon copyrights altogether.⁴²

Part II explains the need for a major revision of the Copyright Act and discusses how private ordering plays a pivotal role in how the copyright system operates. Part III then sets forth a new theory of decentralized intellectual property, or De-IP, which refers to the restructuring of the contours of intellectual property—here, copyright law—through a decentralized process involving many actors, without a central authority like Congress to dictate the changes. The primary vehicle by which De-IP is being implemented is the new technology of NFTs. Part IV critiques the shortcomings of De-IP and the potential concerns it raises for copyright law and the public interest. As a disruptive technology, NFTs have sparked great controversy.⁴³ It is right to question whether and, if so, how De-IP can be designed to serve the public good—and the constitutional goal of "progress"—when decisions are made in a decentralized manner—without congressional debate. Republican theory provides, however, compelling reason to consider decentralized deliberation. Such deliberation is already occurring for NFTs—with people discussing copyright issues in vigorous debates online.⁴⁴

39. Compare Schneider, *supra* note 31, with Asay, *supra* note 19, at 213–14; see *infra* Subsection III.C.5.

40. See, e.g., *Terms of Service*, DOODLES, <https://docs.doodles.app/terms-of-service> [perma.cc/4XX7-4TQZ] ("With this Doodle you can show it off, use it as your pfp, sell it, and even merchandise it up to \$100,000 through the sale of physical merch or using your full Doodle in a piece of art you may create.") (emphasis added).

41. See *Terms & Conditions*, BORED APE YACHT CLUB, <https://boredapeyachtclub.com/#/terms> (last visited Mar. 3, 2023) [<https://perma.cc/4J65-5J4X>]; *Terms of Use*, CRYPTOPUNKS, <https://cryptopunks.app/cryptopunks/terms> (Aug. 14, 2022) [<https://perma.cc/L57Y-68NY>]; *infra* Subsection III.C.6.

42. See Ornella Hernandez, *From Moonbirds to CryptoPunks, Terms of Service Are Changing*, BLOCKWORKS (Aug. 16, 2022, 7:51 AM), <https://blockworks.co/news/from-moonbirds-to-cryptopunks-terms-of-service-are-changing> [<https://perma.cc/QLLA-ZNQZ>]; see also *infra* Subsection III.C.8.

43. See *infra* Part IV; see also, e.g., Edward Ongweso Jr., 'All My Apes Gone': NFT Theft Victims Beg for Centralized Saviors, VICE (Jan. 6, 2022, 11:38 AM), <https://www.vice.com/en/article/y3v3ny/all-my-apes-gone-nft-theft-victims-beg-for-centralized-saviors> [<https://perma.cc/V7N4-82JU>].

44. See, e.g., Todd Kramer (@toddkramer1), TWITTER (Dec. 29, 2021, 11:10 PM), <https://web.archive.org/web/20211230071313/https://twitter.com/toddkramer1/status/1476450669406175234> [<https://perma.cc/F9ZQ-GJE8>]; see also *infra* Subsection IV.A.1.

II. THE SHORTCOMINGS OF THE COPYRIGHT ACT OF 1976 AND RELIANCE ON PRIVATE ORDERING

This Part describes the need for Congress to enact a major revision to the Copyright Act of 1976, to modernize it and make it fit better with the Internet and digital technologies of the twenty-first century. Just as importantly, improvements are needed to better serve the constitutional mandate in incentivizing authors to create by offering them rewards commensurate with their creative output. This Part explains how the use of private ordering, discussed at length in prior scholarship summarized below, can serve as an alternative to congressional inaction. The key to recognize is that, when Congress fails, alternative avenues exist. And the resort to private ordering is a legitimate response—one that is contemplated by both Congress and the Copyright Office, and already pervasive in our current copyright system.

A. *Calls for the Next Great Copyright Act and Obstacles to Enacting It*

The current Copyright Act is nearly a half-century old.⁴⁵ Enacted before the Internet and digital technologies, with a model of publishing based on the printing press and physical copies, the Copyright Act of 1976, many leading experts agree, stands in need of a major revision.⁴⁶ If history is our guide, the time for revision is overdue. After the first Copyright Act of 1790, Congress enacted major revisions in 1831, 1870, 1909, and 1976, which is the current act.⁴⁷ Almost like clockwork, Congress enacted major updates to the Copyright Act roughly every forty years after the first Copyright Act of 1790. The only time Congress has failed to meet that pace of modernization is now—a delinquency that is more worrisome given that the current 1976 Act was dated even when it was enacted.⁴⁸

In 2013, then-Register of Copyrights Maria Pallante recognized the need for a major revision—which she called “the next great Copyright Act,” a term that spurred other copyright experts to propose reform ideas.⁴⁹ As Pallante explained:

The 1976 Act, which was a fair and remarkable achievement by many accounts, did not come close to the bleeding edge of technology. . . . Barbara Ringer acknowledged the shortcomings of the new law, calling it “a good

45. See Copyright Act of 1976, 17 U.S.C. §§ 101–1511 (1976).

46. See, e.g., Pallante, *supra* note 1, at 315, 323; Litman, *supra* note 9, at 250–52; Samuelson et al., *supra* note 8, at 1177.

47. See *Copyright Timeline: A History of Copyright in the United States*, ASS’N RSCH. LIBRS., <https://www.arl.org/copyright-timeline/> (last visited Mar. 3, 2023) [<https://perma.cc/4BSQ-GWYF>].

48. Congress has instead enacted piecemeal amendments to the Copyright Act of 1976, such as the Digital Millennium Copyright Act of 1998, the Music Modernization Act of 2018, and CASE Act of 2020. Digital Millennium Copyright Act of 1998, Pub. L. No. 105-304, 112 Stat. 2860 (1998) (codified in 17 U.S.C. § 1201 (2022)); Orrin G. Hatch–Bob Goodlatte Music Modernization Act, Pub. L. No. 115-264, (2018) (codified at 17 U.S.C. § 101 (2018)); CASE Act of 2020, Pub. L. No. 116-260, 134 Stat. 1182, (2020) (codified at 17 U.S.C. § 1501–11 (2022)). These amendments fall far short of a major revision.

49. See Pallante, *supra* note 1, at 319–20.

1950 copyright law.” “[I]t may be resilient enough to serve the public interest for some time to come,” she said, “[b]ut some of its inadequacies are already becoming apparent, and no prophet is needed to foretell the need for substantial restructuring of our copyright system before the end of this century.”⁵⁰

The 1976 Act has many shortcomings—too many to discuss here. Palante’s essay, which included ten areas for reform, provides a good starting point.⁵¹ Legal scholars have added thoughtful ideas and proposals to fix the 1976 Act’s deficiencies.⁵² The 1976 Act is outdated, highly technical and overly complex, and a terrible fit for the Internet and digital technologies and digital copies. The Internet’s disruption to the 1976 Act has roiled both sides of the debate. Copyright maximalists decry the rampant “piracy” online and obsess over instituting greater enforcement measures plus greater duties on and payments of royalties by large Internet service providers, whose platforms may facilitate infringement by their users.⁵³ Copyleftists lament the cherished principles, such as the first-sale doctrine and physical ownership, that digital copies have undone, but hail the “remix” culture that digital technologies have sparked.⁵⁴ The Internet has disrupted the 1950 copyright system and has caused displeasure on both sides of the debate.

I’d like to focus on a more fundamental problem with the 1976 Act: its ineffectiveness in serving the constitutional mandate of the Copyright Clause. The Supreme Court has interpreted the Copyright Clause as enunciating an economic principle:

The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in ‘Science and useful Arts.’ Sacrificial days devoted to such creative activities deserve rewards commensurate with the services rendered.⁵⁵

Our copyright system is, as the Court recognized, intended to ensure that individual authors “secure a *fair return* for [their] creative labor.”⁵⁶ Time and again,

50. *Id.* at 344 (quoting Ringer, *supra* note 2, at 4).

51. *Id.* at 324–39.

52. *See, e.g.*, Litman, *supra* note 9, at 257; Samuelson, *supra* note 2, at 558.

53. *See* Riddhi Setty, *Online Copyright Piracy Debate Ramps Up Over Proposed Legal Fix*, BLOOMBERG L. (Mar. 23, 2022, 2:12 PM), <https://news.bloomberglaw.com/ip-law/online-copyright-piracy-debate-ramps-up-over-proposed-legal-fix> [<https://perma.cc/X788-ZZY4>].

54. *See* Aaron Perzanowski & Jason Schultz, *Legislating Digital Exhaustion*, 29 BERKELEY TECH. L.J. 1535, 1539 (2014); Rebecca Tushnet, *Scary Monsters: Hybrids, Mashups, and Other Illegitimate Children*, 86 NOTRE DAME L. REV. 2133, 2154 (2011).

55. *Mazer v. Stein*, 347 U.S. 201, 219 (1954).

56. *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975) (emphasis added).

the Court has endorsed this economic principle as the *raison d'être* of copyright.⁵⁷ Put simply, “copyright thus rewards the *individual author* in order to benefit the public.”⁵⁸

But does it? Undoubtedly not, at least not very well. As Ginsburg and Litman recognized, the copyright system has been tilted, if not distorted, to serve the big industry distributors, gatekeepers, or “middlemen.”⁵⁹ Too often neglected are individual authors and artists—and the economic principle of the copyright system to secure them a fair return for their labor, commensurate with the services rendered.⁶⁰

These concerns are substantiated by surveys of independent artists that show that the vast majority of artists cannot survive on the income generated from their creative activity.⁶¹ “The majority of independent artists do not make a full time living from their work, despite identifying themselves as full time artists,” one survey report concluded.⁶² In 2017, roughly 86% of independent artists in the United States earned a net income under \$20,000, including nearly 49% who earned less than \$5,000 annually.⁶³ A larger survey by the Creative Independent of visual artists in 2018 from fifty-two countries (75% from the United States) found that 60% of artists had annual incomes of less than \$30,000.⁶⁴ According to a survey of musicians by the same organization, roughly 80% of musicians made only 40% or less of their income from work related to music, with 67% not even making 20% of their income from music.⁶⁵ The report concluded: “The vast majority of musicians cannot earn a living wage through music-related work.”⁶⁶ One musician commented: “I really feel like in the next 10 years every person making indie music will be forced into day jobs[,] a million side hustles.”⁶⁷

A cynic might conclude that the creative works of the majority of artists are not very good. And if artists must work three jobs to support their artistic pursuits, then so be it. No one in the United States is guaranteed a living wage.

The cynic’s view is misguided. There is mounting evidence that artists contribute far more to society than the financial rewards they receive in the United

57. See, e.g., *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 429 (1984) (“[The limited grant] is intended to motivate the creative activity of authors and inventors by the provision of a special reward, and to allow the public access to the products of their genius after the limited period of exclusive control has expired.”); *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 546 (1985); *Fox Film Corp. v. Doyal*, 286 U.S. 123, 127 (1932).

58. *Harper*, 471 U.S. at 546 (emphasis added).

59. See Ginsburg, *supra* note 10, at 382–83; Litman, *supra* note 9, at 252–53; Tim Wu, *When Code Isn’t Law*, 89 VA. L. REV. 679, 712 (2003).

60. Ginsburg, *supra* note 10, at 383.

61. Litman, *supra* note 9, at 252–53.

62. ARTFINDER, *supra* note 16, at 6.

63. *Id.* at 4.

64. THE CREATIVE INDEPENDENT, *supra* note 16, at 4.

65. Willa Köerner & René Kladzyk, *Music Industry Investigation Report: Key Challenges, Collective Insights, and Possible Futures for the Music Industry*, CREATIVE INDEP. (2020), <https://thecreativeindependent.com/music-industry-report/> [https://perma.cc/H84K-YK7D].

66. *Id.*

67. *Id.*

States. As noted above, the income of independent artists is low, with the vast majority unable to sustain themselves through their creative work.⁶⁸ But artists contribute many positive externalities to society. Studies have shown, for example, that exposure to art fosters civic-mindedness, community, and “greater tolerance towards racial minorities and homosexuals.”⁶⁹ Likewise, in a randomized, controlled study of 10,548 school children, a correlation existed between arts education and better behavior, better performance on standardized tests, and greater compassion.⁷⁰ Many studies have also found that exposure to art promotes health and wellness.⁷¹ Especially in the turbulent time in which we live, artists are vital. Their artworks reflect, critique, interrogate, and challenge society’s flaws, biases, bigotry, narrow-mindedness, and intolerance. Americans already understand the importance of arts to society. In one survey conducted in 2019, 91% of Americans said arts are vital to children’s education, 93% said exposure to arts “helps broaden one’s mind,” and 83% said “that art is essential to building communities and identities.”⁷² Yet, despite all the evidence of the importance of artists to society, our copyright system has failed to provide artists with the rewards commensurate with their services. Unlike during the Italian Renaissance, artists’ works today are devalued.⁷³

It’s unclear whether the lack of opportunities artists face has anything to do with the quality or even marketability of their artistic works. Independent artists of all kinds—visual artists, musicians, filmmakers, etc.—face gatekeepers who select the artists who receive funding and support from the establishment. The gatekeepers operate as quasi-patrons in our copyright system.⁷⁴ As Wu recognized, “The gatekeepers were book publishers at first; later gatekeepers included record manufacturers, film studios, and others who produced works on a mass scale.”⁷⁵ While the Internet and online distribution and sale opened up a new opportunity for artists to bypass the traditional gatekeepers, it exposed works to unauthorized digital copying and exposed artists to new gatekeepers in the form of Big Tech platforms.⁷⁶ Creators of video content must qualify for YouTube’s or TikTok’s revenue-sharing program, for example.⁷⁷

68. ARTFINDER, *supra* note 16, at 6.

69. Kelly LeRoux & Anna Bernadka, *Impact of the Arts on Individual Contributions to US Civil Society*, 10 J. CIV. SOC’Y 144, 160 (2014).

70. Brian Kisida & Daniel H. Bowen, *New Evidence of the Benefits of Arts Education*, BROOKINGS (Feb. 12, 2019), <https://www.brookings.edu/blog/brown-center-chalkboard/2019/02/12/new-evidence-of-the-benefits-of-arts-education/> [<https://perma.cc/75BY-CGA6>].

71. Heather L. Stuckey & Jeremy Nobel, *The Connection Between Art, Healing, and Public Health: A Review of Current Literature*, 100 AM. J. PUB. HEALTH 254, 254 (2010).

72. Chris Jackson, *Americans Believe the Arts Are an Important Part of Society and Education*, IPSOS (Apr. 9, 2019), <https://www.ipsos.com/en-us/news-polls/Americans-Believe-the-Arts-Are-an-Important-Part-of-Society-and-Education> [<https://perma.cc/9G7N-TUZB>].

73. BRUCE COLE, *THE RENAISSANCE ARTIST AT WORK: FROM PISANO TO TITIAN* 18 (1983).

74. Asay, *supra* note 19, at 198–99.

75. Wu, *supra* note 59, at 712.

76. Asay, *supra* note 19, at 199–200.

77. *Id.*

Even though our copyright system has long been defended as superior to the patronage system of the Renaissance,⁷⁸ that is debatable, if not doubtful. When artists are lucky enough to be among the chosen few, they sometimes must assign away their copyrights to the label, studio, or other intermediary, while the compensation to artists may be paltry.⁷⁹ Of course, the gatekeepers do promote their artists, at least the ones they deem marketable, but the recent controversy over Taylor Swift's lack of copyright ownership to her early music recordings sparked an intense debate over the desirability of the music industry practice, in which labels have all the bargaining power over new artists.⁸⁰ Kevin Greene has also raised serious concerns about the music industry's past exploitation of Black musicians, who "routinely found their works appropriated and exploited by publishers and managers."⁸¹

Despite the plight of individual artists, in some industries, the gatekeepers thrive. To take the music industry, if a musician is signed with a major label, the label usually gets 45.5% of the royalties, the publishers split 10% with the songwriters, and the artists get 6.8%.⁸² New artists often must agree to assign their copyrights to the music label as a part of signing a deal.⁸³ As a new artist, Taylor Swift did so, but after she found stardom, she called attention to this dubious practice.⁸⁴ As Swift advised new artists, "You deserve to own the art you make."⁸⁵ It's well-documented that musicians today receive paltry income from streaming of their music. Kevin Kadish, who co-wrote one of Meghan Trainor's hits, said he received only \$5,679 for 178 million streams of the song.⁸⁶ As *The*

78. Neil Weinstock Netanel, *Copyright and a Democratic Civil Society*, 106 YALE L.J. 283, 339 (1996) ("Copyright supports a sector of creative and communicative activity that is relatively free from reliance on state subsidy, elite patronage, and cultural hierarchy.").

79. Ginsburg, *supra* note 10, at 382.

80. See Frank Pallotta, *Why Taylor Swift Re-recorded 'Red,'* CNN BUS., <https://www.cnn.com/2021/11/12/media/album-re-recordings-taylor-swift/index.html> (Nov. 12, 2021, 2:36 PM) [<https://perma.cc/R66T-YQAD>]; Ann Herman, Note, *You Belong with Me: Recordings Artists' Fight for Ownership of Their Masters*, 18 NW. J. TECH. & INTELL. PROP. 239, 242–44 (2021).

81. K.J. Greene, *Copyright, Culture & Black Music: A Legacy of Unequal Protection*, 21 HASTINGS COMM'NS & ENT. L.J. 339, 357–58 (1999).

82. Paul Lilly, *Record Labels Reap 45 Percent of Royalties from Streaming Services, Study Finds; Artists Lucky to Pocket 7 Percent*, TECHHIVE (Feb. 6, 2015, 2:18 PM), <https://www.techhive.com/article/599552/record-labels-reap-45-percent-of-royalties-from-streaming-services-study-finds-artists-lucky-to-poc.html> [<https://perma.cc/HM7V-W7U5>].

83. *The Song Goes on Forever; Can the Copyright End?*, KELLY-IP (Apr. 2, 2020), <https://www.kelly-ip.com/copyright/the-song-goes-on-forever-can-the-copyright-end/> [<https://perma.cc/D56R-L4DE>].

84. Taylor Swift, TUMBLR (June 30, 2019), <https://taylorswift.tumblr.com/post/185958366550/for-years-i-asked-pleaded-for-a-chance-to-own-my> [<https://perma.cc/5PCT-KFS5>].

85. *Id.*

86. Amy X. Wang, *The Paltry Sum Paid to a Writer for 178 Million Streams of His Hit Song*, QUARTZ (Sept. 24, 2015), <https://qz.com/510004/the-paltry-sum-paid-to-a-writer-for-178-million-streams-of-his-hit-song/> [<https://perma.cc/AN4N-G8PN>].

New York Times aptly put it, musicians are in “A Business of Pennies (and Fractions of Pennies).”⁸⁷ Meanwhile, the revenues for Sony BMG, Universal Music Group, and Warner Music Group were all booming.⁸⁸

Another example of how the 1976 Act fails to meet the constitutional mandate of securing a fair return to individual authors is Congress’s failure to enact a right to resale royalties for visual artists. Approximately eighty countries recognize such a right.⁸⁹ The Office of the Register of Copyrights studied the desirability of resale royalties and issued two reports, cautiously supporting its adoption for visual artists in its 2013 report during Pallante’s tenure.⁹⁰ The report, which is measured due to accommodating competing interests, supported the potential adoption of a right to resale royalties, concluding “that Congress should consider ways to rectify the problem [of financial disparity among different artists] and to further incentivize and support the development and creation of visual art.”⁹¹ One of the disparities is that the lack of resale royalties under U.S. copyright law disqualifies U.S. artists from being able to receive resale royalties in *all* the countries of the Berne Convention that do recognize such a right.⁹² So, American artists are penalized not just in the United States, they are also penalized around the world. Yet Congress failed to act—indeed, six different times when bills were proposed since the 1976 Act was enacted.⁹³ California tried to help visual artists for sales of works in-state by recognizing a right to resale royalties in California, but, in 2018, a federal court ruled that the Copyright Act preempted the law.⁹⁴

87. Ben Sisario, *Musicians Say Streaming Doesn’t Pay. Can the Industry Change?*, N.Y. TIMES, <https://www.nytimes.com/2021/05/07/arts/music/streaming-music-payments.html> (May 10, 2021) [<https://perma.cc/7NZS-RZZU>].

88. Tim Ingham, *Sony Generated \$7.5BN Across Recorded Music and Publishing Last Year, Up 24% YOY*, MUSIC BUS. WORLDWIDE (Feb. 2, 2022), <https://www.musicbusinessworldwide.com/sony-generated-7-5bn-across-recorded-music-and-publishing-last-year-up-24-yoy/> [<https://perma.cc/HSA6-Z3YZ>]; Tim Ingham, *Universal Music Group Surpassed \$10 Billion in Revenues Last Year. It’s Now Double the Size It Was a Decade Ago.*, MUSIC BUS. WORLDWIDE (Mar. 3, 2022), <https://www.musicbusinessworldwide.com/universal-music-group-crashed-past-10-billion-in-revenue-last-year-its-now-double-the-size-it-was-a-decade-ago/> [<https://perma.cc/K8KF-HVPM>]; Tim Ingham, *Warner Music Group Revenues Up 12.1% in Calendar Q2; Recorded Music Streaming Up 2.7%*, MUSIC BUS. WORLDWIDE (Aug. 9, 2022), <https://www.musicbusinessworldwide.com/warner-music-group-revenues-up-12-1-in-calendar-q2-recorded-music-streaming-up-2-7/> [<https://perma.cc/ED3C-6WE7>].

89. Catherine Jewell, *The Artist’s Resale Right: A Fair Deal for Visual Artists*, WIPO (June 2017), https://www.wipo.int/wipo_magazine/en/2017/03/article_0001.html [<https://perma.cc/E6ER-3FE7>].

90. See U.S. COPYRIGHT OFF., *RESALE ROYALTIES: AN UPDATED ANALYSIS* 65 (Dec. 2013), <https://www.copyright.gov/docs/resaleroyalty/usco-resaleroyalty.pdf> [<https://perma.cc/4DRH-8GXT>] [hereinafter *RESALE ROYALTIES*].

91. *Id.*

92. Berne Convention for the Protection of Literary and Artistic Works, art. 14(2), Sept. 28, 1979 [hereinafter *Berne Convention*] (stating that a resale right “may be claimed in a country of the Union only if legislation in the country to which the author belongs so permits, and to the extent permitted by the country where this protection is claimed”).

93. Anna J. Mitran, Note, *Royalties Too?: Exploring Resale Royalties for New Media Art*, 101 CORNELL L. REV. 1349, 1354 n.42 (2016).

94. *Close v. Sotheby’s, Inc.*, 894 F.3d 1061, 1072 (9th Cir. 2018).

Given this plight for visual artists, the only recourse they have left is a contract. The Office of the Register of Copyrights supported the idea of private parties engaging in voluntary initiatives to secure resale royalties by contract—which, as we’ll see later in Part III, is exactly what is occurring now with NFTs.⁹⁵ Indeed, the Virtual Renaissance in digital art that NFTs have sparked provides a natural experiment of the tremendous incentive for creativity that resale royalties have for artists. As the phenomenal artist FEWOCiOUS described: “Royalties were the reason the art community flocked to NFTs in the first place. A new democratization of art & a new world where artists finally found a way to get PAID from their WORKS on an ONGOING basis.”⁹⁶

This critique of the 1976 Act’s deficiencies should not be misunderstood as suggesting that we need to do away with the big industry distributors and gatekeepers. Given the ineluctable pull of media consolidation, they are likely to play an outsized role in content production indefinitely. But that possibility shouldn’t lead to the conclusion that the copyright system should cater to media conglomerates over individual authors.⁹⁷

Digital artists face especially difficult challenges. The gatekeepers of the art establishment—galleries, museums, and auction houses—historically didn’t prize digital art.⁹⁸ Paintings and sculptures still dominate the art world. And, because digital creations lack an original aka “one of a kind” (each digital copy of a work is fungible), digital artists were hard-pressed to find a market for their creations.⁹⁹ The Office of Register of Copyrights’ 2013 report did not confront the inherent challenges that digital artists face—largely relegating them to footnotes.¹⁰⁰ NFTs have proven that digital artists can greatly benefit from a right to resale royalties.¹⁰¹ A survey of sales on the marketplace OpenSea from July 2021 to July 2022 found that creators received over \$1.5 billion in royalties.¹⁰² For individual artists like Tyler Hobbs and NFT projects like Doodles, resale royalties were the lion’s share of revenue these creators earned—far more than initial sales or “mint” revenue.¹⁰³

Unfortunately, the prospect that Congress will enact a major revision to the Copyright Act in the foreseeable future is slim to none. One obstacle is that copyright debates now involve more industries and stakeholders, including Internet companies, along with traditional media companies, which makes reaching an

95. *See id.* at 1071.

96. Ross Wardrop, *FEWOCiOUS Writes Emotional Letter to OpenSea Regarding Artist Royalties*, NFT LATELY (Nov. 8, 2022), <https://nftlatelately.com/fewocious-writes-emotional-letter-to-opensea-regarding-artist-royalties/> [perma.cc/3VHC-KSYS].

97. *See* Ginsburg, *supra* note 10, at 382–83.

98. Eric Wayne, *The Remarkable Complete Absence of Digital Painting in the Fine Art World*, ART & CRIT BY ERIC WAYNE (Oct. 6, 2019), <https://artofericwayne.com/2019/10/06/the-complete-absence-of-digital-painting-in-the-fine-art-world/> [https://perma.cc/56LV-7ZYK].

99. *Id.*

100. REALE ROYALTIES, *supra* note 90, at 33 nn.223–24.

101. Mitran, *supra* note 93, at 1354–55.

102. *See* PROOF of Documentation, *Deep Dives: NFT Royalties 2* (Sept. 2022), <https://docs.proof.xyz/research/deep-dives/004> [perma.cc/S8Y4-QYP8].

103. *Id.* (exhibit 3).

agreement (or compromise) challenging to say the least, especially in a more polarized environment.¹⁰⁴ Another obstacle is that the Berne Convention and the Agreement on Trade-Related Aspects of Intellectual Property Rights (“TRIPS Agreement”) confine the options of WTO members, including the United States, in revising copyright laws in ways that violate the minimum standards of those agreements.¹⁰⁵ If major changes are considered to modernize copyright law, the United States will likely have to seek similar changes at the international level—a prospect that is even more dim, given that amendments to the TRIPS Agreement require a consensus among all members.¹⁰⁶ Daniel Gervais proposed an ambitious path for the Berne Convention to be updated,¹⁰⁷ but there’s no avoiding the requirement of consensus.

Even if Congress enacts a major revision, there’s no guarantee the revision would be balanced or best serve the public interest. Litman has described the process of enacting copyright legislation and its many shortcomings, including dominance in the process by industry lobbyists who write the actual text.¹⁰⁸ Letting lobbyists from different industries hammer out copyright amendments explains “why enacted copyright bills are so long and internally inconsistent, why it takes Congress so long to pass them, and why so many of the provisions in copyright laws look more like rent-seeking than information policy.”¹⁰⁹ The debates over copyright issues have become highly charged, politicized, and divisive.¹¹⁰ Copyleftists—who favor a more limited scope of copyright—are unlikely to hold the same influence in Congress as lobbyists from the music, movie, and publishing industries, assuming that copyleftists would even be invited to the debate.¹¹¹ Independent artists, likewise, have little clout in Congress.

B. Private Ordering as an Alternative to Update Copyright Law

Private ordering provides an alternative to congressional (in)action. Through contracts and practices in the marketplace, parties can devise arrangements related to copyrighted works. Sometimes the private ordering may even compensate for gaps and shortcomings of the Act. Legal scholarship in this area is substantial. Below is a non-exhaustive summary of some of the key literature.

104. Lee, *supra* note 5, at 12–14.

105. *Id.* at 14–15.

106. *See id.* at 3.

107. *See* DANIEL J. GERVAIS, (RE)STRUCTURING COPYRIGHT: A COMPREHENSIVE PATH TO INTERNATIONAL COPYRIGHT REFORM 30 (2017).

108. *See* Jessica D. Litman, *The Politics of Intellectual Property*, 27 CARDOZO ARTS & ENT. L.J. 313, 314 (2009); *see also* JESSICA LITMAN, DIGITAL COPYRIGHT 23 (2001).

109. Litman, *supra* note 108, at 314.

110. *Id.*

111. *See* Rod Dixon, *When Efforts to Conceal May Actually Reveal: Whether First Amendment Protection of Encryption Source Code and the Open Source Movement Support Re-drawing the Constitutional Line Between the First Amendment and Copyright*, 1 COLUM. SCI. & TECH. L. REV. 1, 34 (2000) (explaining copy-leftist); Amy Kapczynski, *The Access to Knowledge Mobilization and the New Politics of Intellectual Property*, 117 YALE L.J. 804, 807, 874–75 (2008).

1. *Private Ordering in Our Copyright System*

Jennifer Rothman insightfully identified the need for Congress to consider the various instances of private ordering related to the copyright system as Congress undertakes the task of modernizing copyright law.¹¹² Private ordering comes in many shapes and sizes: “Such private ordering has included various forms of custom, such as industry practices, agreements, guidelines, and community norms, as well as contracts and technology that alter how copyrighted works can be used.”¹¹³ Why does private ordering occur in our copyright system? Rothman highlights two important reasons: “Much of the private ordering has developed [i] to address uncertainties or failings of the current law, while other aspects of such ordering have sought [ii] to provide alternatives for those who seek something different than what the basic defaults of copyright offer.”¹¹⁴

Given the disparate kinds of private ordering, Rothman doubts there is “one single approach that formal copyright law should take with regard to private ordering.”¹¹⁵ One of the more intriguing recommendations of Rothman’s is her treatment of Creative Commons (“CC”) licenses. As she explains, “Creative Commons is a nonprofit organization that was formed in 2001 with the idea of layering an alternative, formalized licensing regime on top of existing copyright law. Creative Commons’ mission is to provide greater freedom to use works than the defaults of copyright law.”¹¹⁶ Rothman’s recommendation is nuanced. She wants Congress “largely . . . [to] stay[] clear of the fray” and allow people to choose CC licenses.¹¹⁷ But she also wants copyright law to recognize that a user’s violation of a CC license does not disadvantage a fair use defense that the user otherwise can make.¹¹⁸ Rothman also recommends that copyright law reject an inference that a copyright owner’s decision not to use a CC license means the scope of the owner’s copyright is broader.¹¹⁹ And, in the most provocative proposal of all, Rothman proposes that the Copyright Office allow copyright owners to register their use of CC licenses in the Copyright Office.¹²⁰

In sum, Rothman believes “Congress must confront private ordering as it revises the Copyright Act,” allowing some salutary forms of private ordering, like CC licenses, while regulating other forms of private ordering that have negative consequences.¹²¹ Rothman wants Congress to provide some oversight over private ordering related to the copyright system.¹²² I agree with Rothman’s key

112. See Jennifer E. Rothman, *Copyright’s Private Ordering and the “Next Great Copyright Act,”* 29 BERKELEY TECH. L.J. 1595, 1637–38 (2014).

113. *Id.* at 1598.

114. *Id.*

115. *Id.*

116. *Id.* at 1625.

117. *See id.* at 1626.

118. *See id.*

119. *See id.* at 1629.

120. *See id.* at 1642.

121. *See id.* at 1649.

122. *See id.*

insight in recognizing that attempts to modernize the copyright system must consider the existing private ordering. But, later in Part III, I make the more radical claim that Congress is not essential to oversee private ordering or reforms. In other words, I prefer Rothman's admonition for Congress to "stay[] clear of the fray."¹²³

2. *Different Clusters of Private Ordering*

Rothman identifies various types of private ordering, including clearance culture in expecting licenses for uses of copyrighted works, guidelines and user and industry best practices, CC licenses, technological protection measures and digital rights managements ("DRM"), and contracting around copyright.¹²⁴ Below, I identify different clusters to highlight issues relevant to my theory of De-IP. The clusters are organized into the basic divide between private ordering for (1) enforcement and monetization of copyrights, which serve the copyright owners' interests, and (2) greater permissiveness in using works, which serves the public's interests. These two types of private ordering operate as a push and a pull in the use of copyrighted works in society. Some private ordering favors copyright owners in extracting money from their works, while other private ordering favors the public in using works with fewer restrictions, such as departing from the clearance culture. Technological private ordering can be used on either side of the divide—such as in DRM to protect copyrighted works or in CC licenses to foster more permissive uses of copyrighted works. Finally, the concept of a complex adaptive system refers to the entire ecosystem in which copyrighted works are exploited.

a. Private Ordering for Enforcement and Monetization

We can group together different kinds of private ordering developed to enforce and monetize copyrights. The biggest players are the major copyright industries and, for online dissemination, the Internet platforms that are tasked with notice-and-takedown.

i. Major Copyright Industries' Practices

One major source of private ordering is the practices of the major copyright industries. These so-called gatekeepers—major labels, studios, publishers, and galleries—can effectively use private ordering, through contracts and other practices, to establish the standards for entire industries. To speak metaphorically, the industry gatekeepers can use their private ordering to establish how high the gate is for artists, as well as how the artists can gain entry to a commercial deal. For example, in signing with a major label, musicians often must accept record-

123. *Id.* at 1626.

124. *See id.* at 1599–1637.

ing deals that are unfavorable: in a typical deal, the label gets 45.5% of the royalties, the publishers split 10% with the songwriters, and the artists get 6.8%.¹²⁵ Similarly, visual artists seeking gallery representation must accept even worse deals, typically, sharing 50% of the sales revenue from each work by the artist.¹²⁶ (Just imagine splitting 50% of your paycheck with your employer.) The industry gatekeepers also play a major role in enforcement—and potentially filing lawsuits against parties who make unauthorized uses of copyrighted works. Rothman discusses the predominance of clearance culture in all media industries.¹²⁷ It is encapsulated by the phrase “All Rights Reserved,” a notice used by copyright owners that serves as a kind of “no trespass” sign. The major copyright industries expect every use of their copyrighted works to be licensed—or they deem it a potential infringement.¹²⁸ None of these approaches are dictated by the Copyright Act.¹²⁹ The possibility of fair use runs counter to clearance culture. Yet the private ordering of the major copyright industries has enormous influence on how people behave within our copyright system.

ii. Internet Platforms’ Practices and Policies

Internet and social media platforms that deal with the sharing of copyrighted content by users also exercise great power in their enforcement of copyright online. Indeed, large Internet platforms have become the main enforcers of copyrights online.¹³⁰ The Digital Millennium Copyright Act (“DMCA”) safe harbor’s notice-and-takedown procedure provides a basic starting point for Internet platforms.¹³¹ Given the sheer scale of DMCA notices being sent (many millions daily), so-called “robo-notices” sent by automated systems, large Internet platforms must typically rely on automated takedowns without human review—i.e., algorithmic enforcement.¹³² But the DMCA approach isn’t mandatory—it’s only a way for Internet platforms to qualify for immunity from copyright liability.¹³³ Internet platforms are free to adopt other enforcement measures.¹³⁴ YouTube’s ContentID system is one example of private ordering that uses filtering technology to flag potential infringement in YouTube videos and to let copyright owners decide among several options, including monetizing (with ads) the videos that potentially infringe their copyrights.¹³⁵ ContentID became so popular among

125. See Lilly, *supra* note 82.

126. Jenna Martin, *Selling Art in Galleries: Everything You Need to Know*, PETAPIXEL (Nov. 14, 2014), <https://petapixel.com/2014/11/14/selling-art-galleries-everything-need-know/> [<https://perma.cc/CT56-P9YF>].

127. See Rothman, *supra* note 112, at 1599–1600.

128. See *id.* at 1600–06.

129. See 17 U.S.C. § 101–107.

130. See Rothman, *supra* note 112, at 1632–33.

131. 17 U.S.C. § 512.

132. Maayan Perel & Niva Elkin-Koren, *Accountability in Algorithmic Copyright Enforcement*, 19 STAN. TECH. L. REV. 473, 477 (2016).

133. See *id.* at 484.

134. See *id.*

135. See Hassan Ali, *YouTube Content ID: What Is It and How Does It Work?*, WYZOWL, <https://www.wyzowl.com/youtube-content-id/> (last visited Mar. 3, 2023) [<https://perma.cc/V9U7-CX2V>].

copyright owners, it supplanted the DMCA procedure at YouTube, with 98% of infringement claims going through ContentID.¹³⁶

iii. Self-Help by IP Owners in Enforcing Their IP Rights

Amy Adler and Jeanne Fromer have identified a different kind of informal practice: copyright and trademark owners engaging in “self-help” measures to protect their intellectual property.¹³⁷ They describe this phenomenon as “taking intellectual property into their own hands as a way to seek relief outside the legal system for copying of works well within the heartland of copyright or trademark laws, such as visual art, music, and fashion.”¹³⁸ Adler and Fromer focus on two self-help measures: IP owners’ shaming perceived misappropriators of their IP on social media and reappropriating the misappropriations.¹³⁹ Examining five case studies, Adler and Fromer contend that such self-help measures have been “extremely successful[,]” even “replicating the sorts of relief they could hope to get from successful enforcement of their intellectual property rights in court.”¹⁴⁰ Indeed, the two scholars contend that self-help can achieve the same remedies that traditional litigation offers: “monetary damages, stopping appropriation, getting attribution, and avoiding misattribution.”¹⁴¹ One important point to take away from Adler and Fromer’s theory is the possibility of copyright owners “taking intellectual property into their own hands.” As we’ll see in Part III, that’s precisely what individual creators are doing with NFTs.

b. Private Ordering for Greater Permissiveness in Using Works

Now that we have some understanding of how copyright industries and Internet platforms can develop private ordering to enforce and monetize copyrights, as well as to serve as gatekeepers, we can examine the other side of the divide: how private ordering can be used to facilitate greater permissiveness in using copyrighted works by the public. Instead of a clearance culture, this type of private ordering seeks to promote greater collaboration and enjoyment of copyrighted works among society.

136. Katharine Trendacosta, *Unfiltered: How YouTube’s Content ID Discourages Fair Use and Dictates What We See Online*, ELEC. FRONTIER FOUND. (Dec. 10, 2020), <https://www.eff.org/wp/unfiltered-how-youtubes-content-id-discourages-fair-use-and-dictates-what-we-see-online> [https://perma.cc/73EG-KMT5].

137. See Amy Adler & Jeanne C. Fromer, *Taking Intellectual Property into Their Own Hands*, 107 CALIF. L. REV. 1455, 1455 (2019).

138. *Id.* at 1457.

139. *Id.* at 1458.

140. *Id.* at 1493.

141. *Id.* at 1498.

i. Decentralized Licensing to Promote Collaboration and Less Restrictive Copyright

Two of the most significant examples of private ordering to provide greater flexibility to secondary uses of copyrighted works by third parties are CC licenses and open-source licenses for software. Open-source licenses came first in 1989 and CC licenses in 2001.¹⁴² Both are forms of decentralized licenses to promote collaboration in the use and development of copyrighted works.¹⁴³ They also are social movements to devise a system of licenses to make copyrights more flexible and more conducive to collaboration, innovation, and follow-on creations and derivative works. Each is discussed in turn.

The movement to use open-source licenses for software started back in the 1980s when Richard Stallman, then at the Massachusetts Institute of Technology, wanted to free computer programming from the shackles of restrictive software licenses.¹⁴⁴ Stallman viewed these restrictive copyright licenses as counter to the very way in which programmers wrote code: “programmers freely worked on programs with each other, contributed fixes for the general public good, and saw development in a community context where people were free to take advantage of the innovations and improvements that others created, while still giving attribution and acknowledgment for the efforts of individual programmers.”¹⁴⁵ With help from lawyers, Stallman then crafted the open-source or General Public License (“GPL”), a license that a creator of a software program can choose as an open-source project that allows everyone to get the source code, distribute it, and make modifications and improvements to it.¹⁴⁶ But if modifications are made, the modified program is still subject to the GPL license.¹⁴⁷ In this way, all improvements are shared with the community on the same terms as set forth in the GPL license. Stallman also founded the Free Software Foundation (“FSF”), a nonprofit whose mission was to oversee and promote free software via the GPL license.¹⁴⁸ Stallman’s idea spawned numerous types of open-source licenses developed by others.¹⁴⁹ According to one industry survey, there are “more than 4 million open source packages and 130 million open source files covering over 200 programming languages.”¹⁵⁰

142. See Dennis M. Kennedy, *A Primer on Open Source Licensing Legal Issues: Copyright, Copyleft and Copyfuture*, 20 ST. LOUIS U. PUB. L. REV. 345, 376 (2001).

143. *Id.*

144. *See id.* at 347, 349.

145. *Id.* at 349.

146. *Id.* at 350.

147. *Id.*

148. *Id.*

149. See Adam Murray, *Open Source Licenses Explained*, MEND (Jan. 24, 2021), <https://www.mend.io/resources/blog/open-source-licenses-explained/> [https://perma.cc/FV8P-8UXZ]; *Comparison of Free and Open-Source Software Licences*, WIKIPEDIA, https://en.wikipedia.org/wiki/Comparison_of_free_and_open-source_software_licences#General_comparison (last visited Mar. 3, 2023) [https://perma.cc/L8AD-FRZG].

150. Adam Murray, *Open Source Licenses in 2022: Trends and Predictions*, MEND (Jan. 27, 2022), <https://www.mend.io/resources/blog/open-source-licenses-trends-and-predictions/> [https://perma.cc/P55T-NT94]. It should be noted that, in 2019, Stallman resigned his positions at MIT and at the FSF due to an email he wrote appearing to defend a former MIT colleague whom Virginia Roberts Giuffre claimed she was instructed to have

The second major movement to make copyright less restrictive was Creative Commons, founded by Lawrence Lessig in 2001 during his unsuccessful constitutional challenge to the 1998 extension of copyright terms.¹⁵¹ CC's mission was far broader than open-source software. CC was intended to be available for *all* copyrighted works of *any* kind in every part of the world.¹⁵² Similar to the concept of a public license from the open-source movement, CC licenses now offer authors seven public licenses to choose from, which then are embedded by code into a work.¹⁵³ The most permissive license is called the CC "Public Domain Dedication," or CC0.¹⁵⁴ The CC0 license relinquishes copyright and donates the work to the public domain, thereby enabling "reusers to distribute, remix, adapt, and build upon the material in any medium or format, with no conditions."¹⁵⁵ On the other end of the spectrum, the most limited CC license "allows reusers to copy and distribute the material in any medium or format in unadapted form only, for noncommercial purposes only, and only so long as attribution is given to the creator."¹⁵⁶ The other CC licenses allow the reuser greater rights, including commercialization of the work and the right to make derivative works.¹⁵⁷ Except for CC0, all CC licenses require attribution to the author of the work.¹⁵⁸ Except for CC0, all CC licenses seek to allow creators to keep their copyrights while sharing their works on more flexible terms than the default "all rights reserved."¹⁵⁹ According to CC, over 2 billion CC licenses have been adopted.¹⁶⁰

We can draw parallels between open-source software licenses and CC licenses. Both use decentralized, public licenses that eliminate transaction costs

sex with, when she was seventeen years old, at the direction of Jeffrey Epstein's conspirator, Ghislaine Maxwell. See Jon Brodtkin, *Richard Stallman Returns to FSF 18 Months After Controversial Rape Comments*, ARS TECHNICA (Mar. 22, 2021, 12:57 PM), <https://arstechnica.com/tech-policy/2021/03/richard-stallman-returns-to-fsf-18-months-after-controversial-rape-comments> [https://perma.cc/XH7E-J5QX]; Russell Brandom, *AI Pioneer Accused of Having Sex with Trafficking Victim on Jeffrey Epstein's Island*, VERGE (Aug. 9, 2019, 3:14 PM), <https://www.theverge.com/2019/8/9/20798900/marvin-minsky-jeffrey-epstein-sex-trafficking-island-court-records-unsealed> [https://perma.cc/BW36-FGK7]; Bill Chappell & Scott Neuman, *Judge Releases Trove of Sealed Records Related To Lawsuit Against Ghislaine Maxwell*, NPR (Jul. 31, 2020, 3:31 AM), <https://www.npr.org/2020/07/31/896627505/judge-releases-trove-of-sealed-records-related-to-case-against-ghislaine-maxwell> [perma.cc/U65V-2TZE]. Stallman returned to the Board of FSF in 2021. Brodtkin, *supra* note 150.

151. See *1.1 The Story of Creative Commons*, CREATIVE COMMONS, <https://certificates.creativecommons.org/cccerteducomments/chapter/1-1-the-story-of-creative-commons/> (last visited Mar. 3, 2023) [https://perma.cc/W3TB-PBQM].

152. *Id.*

153. See *About the Licenses*, CREATIVE COMMONS, <https://creativecommons.org/licenses/> (last visited Mar. 3, 2023) [https://perma.cc/R7DX-NUAW].

154. See *id.*

155. *About CC Licenses*, CREATIVE COMMONS, [https://creativecommons.org/about/ccllicenses/#:~:text=CC0%20\(aka%20CC%20Zero\)%20is,or%20format%2C%20with%20no%20conditions](https://creativecommons.org/about/ccllicenses/#:~:text=CC0%20(aka%20CC%20Zero)%20is,or%20format%2C%20with%20no%20conditions) (last visited Mar. 3, 2023) [https://perma.cc/4R67-BFCM].

156. *Id.*

157. See *id.*

158. See *id.*

159. See *About the Licenses*, *supra* note 153.

160. *Creative Commons Platforms*, CREATIVE COMMONS, <https://creativecommons.org/about/platform> (last visited Mar. 3, 2023) [https://perma.cc/AXZ8-QW65].

and the need for negotiations.¹⁶¹ The license is “baked into” a copy of the work. Any recipient or owner of the copy enjoys the benefit and is subject to the limitations of the license.¹⁶² In addition, both types of licenses are reactions to the restrictions of copyright, emanating from the automatic nature in which copyrights arise for every work upon the moment of fixation in a tangible medium of expression, and from the “all rights reserved” and clearance culture approach common among the major copyright industries.¹⁶³ Although we have seen shifts of big tech companies to embrace open-source and CC licenses,¹⁶⁴ the major copyright industries (*e.g.*, the book and music publishers, major music labels, and major movie studios) have not done so to such an extent.¹⁶⁵ As discussed below in Part III, NFTs and their content licenses are the next movement for fashioning greater flexibility to copyright and decentralized collaboration. Indeed, drawing upon the Creative Commons approach, the venture capital (“VC”) firm a16z has devised a new set of public licenses for NFTs.¹⁶⁶

ii. Warming Effect in People Using Copyrighted Works

Private ordering does not occur only by formal contract. Another kind of private ordering is informal practices of people related to copyrighted works.¹⁶⁷ Gap-filling is an important function of private ordering:

The primary reason we need gap fillers in copyright law is quite simple: formal copyright law is riddled with gray areas and gaps. At a systematic level, the Copyright Act is not constructed to address *ex ante* the welter of circumstances involving uses of copyrighted works. Besides a few very detailed, but mostly industry-based, exemptions, the Copyright Act is written at such a high level of generality that many of the key concepts are often too indefinite to inform the public as to whether an anticipated use is infringing, fair use, or otherwise permitted.¹⁶⁸

Given the high transaction costs, formal licenses are simply unavailable to resolve all the uncertainties in copyright relations.¹⁶⁹ For Web2 during the rise of user-generated content, I identified the phenomenon of warming: “‘Warming’ describes the phenomenon when users make unauthorized uses of copyrighted works based in part on the belief that it is acceptable because it is a larger-scale

161. *See id.*

162. *See About the Licenses, supra* note 153.

163. *See id.*; *see also* discussion *supra* Subsection II.B.2.b.i.

164. *See, e.g.*, Tom Warren, *Microsoft: We Were Wrong About Open Source*, VERGE (May 18, 2020, 7:26 AM), <https://www.theverge.com/2020/5/18/21262103/microsoft-open-source-linux-history-wrong-statement> [<https://perma.cc/FN7M-SF3D>].

165. *See, e.g.*, Gabriel Avner, *Lights, Camera, Open Source: Hollywood Turns to Linux for New Code Sharing Initiative*, LINUX J. (Sept. 14, 2018), <https://www.linuxjournal.com/content/lights-camera-open-source-hollywood-turns-linux-new-code-sharing-initiative> [<https://perma.cc/8FAF-H5YP>].

166. *See infra* Subsection III.C.8.c.

167. *See* Edward Lee, *Warming Up to User-Generated Content*, 2008 U. ILL. L. REV. 1459, 1474–75.

168. *Id.*

169. *See id.* at 1485–86.

practice engaged in by others.”¹⁷⁰ Thus, informal practices and the effect of warming in popularizing a practice provide an alternative way in which the copyright system can be modernized to adapt to new modes of creativity, such as user-generated content. Other than the DMCA safe harbors for internet service providers,¹⁷¹ Congress has largely refrained from addressing how copyright law should be applied to user-generated content and “remix” culture. Today, warming is prominent in popular TikTok videos, which create viral memes and trends that many different creators recreate, all without formal licenses or permission from the original creator that sparked the meme.¹⁷² The popularity of the activity makes others want to join in.

iii. Negative IP Spaces Where Norms Govern

Another line of scholarship has identified so-called negative IP spaces, where norms of the community govern conduct, especially in areas where IP protection might be doubtful or weak.¹⁷³ From cocktails¹⁷⁴ to food¹⁷⁵ to fashion¹⁷⁶ to street art¹⁷⁷ to standup comedy¹⁷⁸ to tattoos¹⁷⁹ and even roller derby names,¹⁸⁰ creators in these negative IP spaces have relied on norms to identify (im)permissible copying apart from copyright law. This literature demonstrates that Congress is not always needed to enact formal IP laws for creative activities, particularly in areas that fall outside the traditional subject matter of existing IP laws.

170. *Id.* at 1544.

171. *See* 17 U.S.C. § 512.

172. Charlotte Shane, *Why Do We Love TikTok Audio Memes? Call It 'Brainfeel.'*, N.Y. TIMES (Aug. 17, 2022), <https://www.nytimes.com/interactive/2022/08/17/magazine/tiktok-sounds-memes.html> [OK] [<https://perma.cc/WBV3-SXLP>]; *see* Amy Adler & Jeanne C. Fromer, *Memes on Memes and the New Creativity*, 97 N.Y.U. L. REV. 453, 526–27 (2022).

173. *See* Stephanie Plamondon Bair & Laura G. Pedraza-Fariña, *Anti-Innovation Norms*, 112 NW. U. L. REV. 1069, 1071 (2018) (“The bulk of the existing scholarship on social norms and innovation concerns IP’s ‘negative space’: innovative communities where creativity flourishes despite a lack of formal IP protection. The upshot of this groundbreaking literature is that social norms can, under the right conditions, promote innovation by regulating copying behavior—a task traditionally accomplished by formal IP rights.”).

174. *See* Matthew Schruers, *An IP Lawyer Walks into a Bar: Observations on Creativity in Cocktails*, in *CREATIVITY WITHOUT LAW: CHALLENGING THE ASSUMPTIONS OF INTELLECTUAL PROPERTY* 45, 45 (Kate Darling & Aaron Perzanowski eds., 2017).

175. *See generally* Emmanuelle Fauchart & Eric von Hippel, *Norms-Based Intellectual Property Systems: The Case of French Chefs*, 19 ORG. SCI. 187 (2008).

176. *See* Kal Raustiala & Christopher Sprigman, *The Piracy Paradox: Innovation and Intellectual Property in Fashion Design*, 92 VA. L. REV. 1687, 1764 (2006).

177. *See* Marta Ilijadica, *Painting on Walls: Street Art Without Copyright?*, in *CREATIVITY WITHOUT LAW: CHALLENGING THE ASSUMPTIONS OF INTELLECTUAL PROPERTY* 118, 118–19 (Kate Darling & Aaron Perzanowski eds., 2017).

178. *See* Dotan Oliar & Christopher Jon 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, 1839 (2008).

179. *See* Aaron Perzanowski, *Tattoos & IP Norms*, 98 MINN. L. REV. 511, 513–14 (2013).

180. *See* David Fagundes, *Talk Derby to Me: Intellectual Property Norms Governing Roller Derby Pseudonyms*, 90 TEX. L. REV. 1093, 1147 (2012).

c. Code as Law: Technology as a Source of Private Ordering

Technology itself can operate as private ordering—indeed, something even akin to private regulation. In 1999, at the start of Web1, Lessig described this phenomenon in the memorable phrase: “code is law.”¹⁸¹ How the Internet is designed and programmed by computer code profoundly affects people’s freedoms and rights online—or lack thereof. Lessig emphasized that the design of the Internet, its architecture, is a choice about what values, democratic or otherwise, are protected online: “We can build, or architect, or code cyberspace to protect values that we believe are fundamental, or we can build, or architect, or code cyberspace to allow those values to disappear.”¹⁸² Today, no one doubts that Lessig was right. If anything, he understated the case. With the rise of artificial intelligence, and automated, algorithmic decision-making, code is even more powerful than laws on the books.¹⁸³ Unless programmed into the code, it can ignore the law on the books.¹⁸⁴

Unlike the other forms of private ordering above, technology can be used on either side of the divide—to enforce and monetize copyrights, such as DRM and YouTube’s ContentID system, or to promote more permissiveness in using copyright works, such as social media platforms that facilitate the widespread sharing, copying, and remixing of content. As discussed below in Part III, blockchain technology and NFTs are two additional examples of how code is law.

d. IP as a Complex Adaptive System (CAS)

The prior sections identified seven types of private ordering that occur and operate in response to copyright law.¹⁸⁵ One final line of scholarship worth mentioning is the recent theory that takes a holistic view of IP as a part of a complex adaptive system (“CAS”),¹⁸⁶ meaning “a system in which large networks of components with no central control and simple rules of operation give rise to complex collective behavior, sophisticated information processing, and adaptation via

181. LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE 5 (1999); see Joel R. Reidenberg, *Lex Informatica: The Formulation of Information Policy Rules Through Technology*, 76 TEX. L. REV. 553, 554–55 (1998) (“Technological capabilities and system design choices impose rules on participants. The creation and implementation of information policy are embedded in network designs and standards as well as in system configurations. Even user preferences and technical choices create overarching, local default rules. This Article argues, in essence, that the set of rules for information flows imposed by technology and communication networks form a ‘Lex Informatica’ that policymakers must understand, consciously recognize, and encourage.”).

182. LESSIG, *supra* note 181, at 6.

183. See Sonia K. Katyal, *The Paradox of Source Code Secrecy*, 104 CORNELL L. REV. 1183, 1191–92 (2019) (“Today, however, many years later, we see that Lessig’s observation was more than just a metaphor for regulating human behavior. In our modern age of algorithms, it is literally the case that code *is* law, and that law is code, because our government has delegated so many of its functions to automated decision making.”); Peter K. Yu, *Artificial Intelligence, The Law-Machine Interface, and Fair Use Automation*, 72 ALA. L. REV. 187, 206–07 (2020).

184. See, e.g., Yu, *supra* note 183, at 206–07 (stating that algorithmic moderation for copyright infringement can ignore fair use).

185. See *supra* notes 142–84 and accompanying text.

186. See generally INTELLECTUAL PROPERTY AS A COMPLEX ADAPTIVE SYSTEM: THE ROLE OF IP IN THE INNOVATION SOCIETY (Anselm Kamperman Sanders & Anke Moerland eds., 2021).

learning or evolution.”¹⁸⁷ In a recent book, Anselm Kamperman Sanders and Anke Moerland explain how IP operates as a complex adaptive system:

The complexity of the IP system can be seen in terms of 1) diverse actors (private, commercial and non-commercial); 2) multifaceted subject matter in material or digital form; 3) governance by inter-sectoral organizations, institutions and public authorities; 4) overlapping and multi-layered adjudication in commercial, administrative and criminal matters at national, regional and international level, and 5) all of these interacting within a broader economic, legal, societal and political system. In addition, the system generates interconnections and feedback loops throughout its lifecycle stages, for example works produced and marketed will not only generate income, but also information on consumer preferences.¹⁸⁸

Viewing IP as a complex adaptive system helps us to better understand how intellectual property operates. In today’s “new reality, IP functions as a business tool for value creation, a vehicle for investment and a relationship between right holders, users and society.”¹⁸⁹ If we focus on the narrow view of IP as “mere legal title that confers a right to exclude others,” we will miss the complexities of how IP operates in our Knowledge Economy.¹⁹⁰

Figure 1 below depicts the copyright system as a complex adaptive system, including the various types of private ordering that may occur. The types of private ordering are not meant to be exhaustive. Once we examine NFTs in Part III, we will compare the complex adaptive system of De-IP they establish.

In the center is the complex adaptive system in which authors produce, disseminate, and attempt to monetize their creative works, as well as enforce their copyrights. Also in the circle is the public, which enjoys the creative works of authors. On the left side of Figure 1 are three different types of private ordering to enforce and monetize copyrights, as we discussed above: (1) the major copyright industries’ gatekeeping, practices, licenses, enforcement; (2) the Internet platform policies and systems for alleged infringement online, including DMCA notice-and-takedown and other regimes, such as YouTube’s Content ID system; and (3) copyright owners’ self-help. By contrast, on the right side are three different types of private ordering that facilitate greater permissiveness in the public’s use of copyrighted works: (4) permissive licensing through open-source and CC licenses; (5) a warming effect for liberal uses of copyright works; and (6) negative IP spaces where norms govern more so than copyright law. At the bottom is (7) code or the use of technology as a form of private ordering—either to assist enforcement, such as through DRM, or to facilitate permissiveness, such as sharing features on social media.

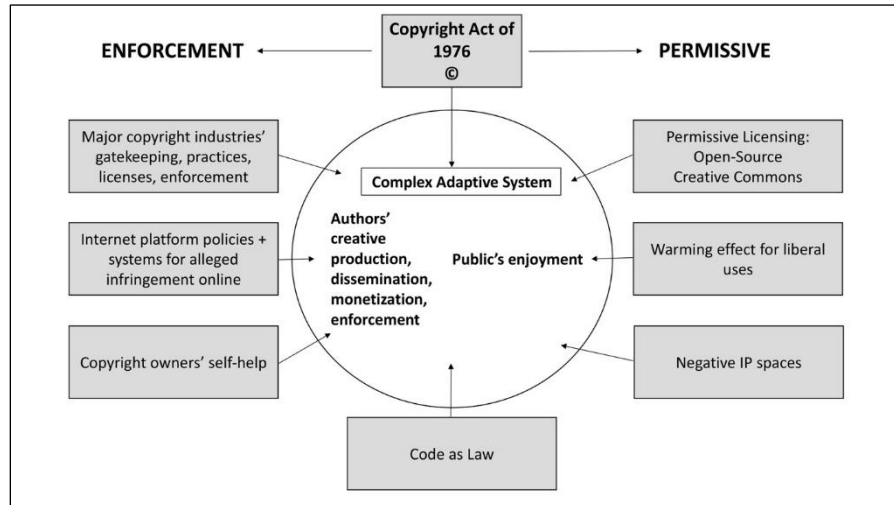
187. See MELANIE MITCHELL, *COMPLEXITY: A GUIDED TOUR* 13 (2009).

188. See Anselm Kamperman Sanders & Anke Moerland, *Intellectual Property as a Complex Adaptive System*, in *INTELLECTUAL PROPERTY AS A COMPLEX ADAPTIVE SYSTEM: THE ROLE OF IP IN THE INNOVATION SOCIETY* 2, 3–4 (Anselm Kamperman Sanders & Anke Moerland eds., 2021).

189. *Id.* at 3.

190. *Id.*

FIGURE 1: THE COPYRIGHT SYSTEM AS A COMPLEX ADAPTIVE SYSTEM WITH PRIVATE ORDERING



The key point to draw from Figure 1 is that private ordering is a feature, not a bug, of the current copyright system. The formal law of the Copyright Act is just one component of the complex adaptive system, which is shaped by many different forces, which may push and pull in different directions.

Applying a similar, holistic approach and recognizing that private ordering can alter the contours of IP in practice, the next Part examines how NFTs are being used by creators to create a new form of decentralized intellectual property.

III. NFTS AS DECENTRALIZED INTELLECTUAL PROPERTY

This Part sets forth a new theory of decentralized intellectual property (“De-IP”). De-IP provides an alternative to the copyright system and copyrights regulated by Congress and dominated by industry intermediaries, including major labels, studios, publishers, and auction houses. The primary vehicle operationalizing this alternative is the non-fungible token (“NFT”). This Part situates De-IP in relation to decentralized finance (“DeFi”), a comparable and more recognized, earlier movement to decentralize the financial system using blockchain technology and cryptocurrencies.¹⁹¹ The goal of this Part is both theoretical and descriptive: to elaborate a new theory of De-IP to explain phenomena already occurring, to make sense of NFTs and how they are disrupting creative production and dissemination around the world. Some portions of the discussion offer reasons why De-IP may be preferable as a policy matter—such as empowering individual authors and artists—but this Article is intended as the beginning of a policy debate over De-IP, not its end.

191. See discussion *infra* Section III.B.

A. *NFTs and Web3*

This Section explains the new technology of NFTs and how they are instrumental to the ongoing efforts of developers to build or return to a more decentralized Internet, what is commonly called Web3.

1. *The Non-Fungible Token: Creating Virtual Ownership*

NFTs are virtual tokens (lines of code) created by computer programs called smart contracts that keep track of all transactions related to each token stored on blockchain, which operates as an authenticated, public ledger using peer-to-peer software.¹⁹² The virtual tokens are imaginary. They, in fact, are lines of code used to represent virtually some associated thing, such as artwork or other subject matter.¹⁹³ Each NFT has a unique identifier—a token ID—making it non-fungible or a unique token.¹⁹⁴ By contrast, Bitcoin is fungible within its own class of cryptocurrency, meaning, for example, one Bitcoin stored on blockchain is equivalent to another Bitcoin.¹⁹⁵ As computer programs, NFTs are extremely versatile. NFTs can be programmed to identify virtually anything.¹⁹⁶ Although the most prominent uses reported by the media have involved artwork and visual images, often sold for millions of dollars,¹⁹⁷ NFTs can be programmed to associate with limitless subject matter, ranging from artwork and collectibles to financial instruments and intellectual property rights to virtual real estate and even rights to have someone perform certain conduct, such as getting a tattoo.¹⁹⁸

192. See Adele Ioana, *Where Are NFTs Stored and Are They Safe There?*, NFT EVENING, <https://nftevening.com/where-are-nfts-stored-and-are-they-safe-there/> (Nov. 16, 2022) [<https://perma.cc/E2AC-5WLN>]; Batin Evirgen, *In-Depth Explanation on NFTs*, MEDIUM: LEVEL UP CODING (Apr. 6, 2021), <https://levelup.gitconnected.com/in-depth-explanation-on-nfts-d9960db3df69> [<https://perma.cc/9RYF-72VV>]; *Non-fungible Tokens (NFT)*, ETHEREUM, <https://ethereum.org/en/nft/> (last visited Mar. 3, 2023) [<https://perma.cc/UAH7-CX7Z>].

193. See Evirgen, *supra* note 192.

194. See Ioana, *supra* note 192.

195. See *id.*

196. See *id.*

197. See, e.g., Chloe Weiner, *Beeple JPG File Sells for \$69 Million, Setting Crypto Art Record*, NPR (Mar. 11, 2021, 2:48 PM), <https://www.npr.org/2021/03/11/976141522/beeple-jpg-file-sells-for-69-million-setting-crypto-art-record> [<https://perma.cc/ES3J-J48V>]; Taylor Locke, *'Covid Alien' CryptoPunk NFT Sells for Over \$11.7 Million to Billionaire Buyer in Sotheby's Auction*, CNBC (June 10, 2021, 12:30 PM), <https://www.cnn.com/2021/06/10/covid-alien-cryptopunk-nft-sells-for-11point7-million-in-sothebys-auction.html> [<https://perma.cc/NK6H-H9PQ>].

198. See, e.g., *What Are NFTs? Everything You Should Know About Non-fungible Tokens*, ITERATORS (Dec. 23, 2021), <https://www.iteratorshq.com/blog/what-are-nfts-everything-you-should-know-about-non-fungible-tokens/> [<https://perma.cc/7YVB-97RG>]; Sam Shead, *Stocks and Property Will Be Turned into NFTs, Venture Capitalist Says*, CNBC, <https://www.cnn.com/2022/01/14/stocks-and-property-will-be-turned-into-nfts-vc-says.html> (Jan. 14, 2022, 1:53 AM) [<https://perma.cc/G6YK-FPGF>]; Carly A. Kessler, *NFTs Are Reshaping Artists' IP Rights*, BLOOMBERG L. (Mar. 24, 2021, 3:00 AM), <https://news.bloomberglaw.com/ip-law/nfts-are-reshaping-artists-ip-rights> [<https://perma.cc/TYA5-GVBH>]; Stacy Elliott, *Largest US Patent Holder IBM Taps IPwe to Launch NFT Marketplace*, STREET (Apr. 20, 2021 10:02 AM), <https://www.thestreet.com/crypto/defi/patent-nft-ibm-ipwe> [<https://perma.cc/3H5W-H2BW>]; Debra Kamin, *Investors Snap Up Metaverse Real Estate in a Virtual Land Boom*, N.Y. TIMES (Dec. 3, 2021), <https://www.nytimes.com/2021/11/30/business/metaverse-real-estate.html> [<https://perma.cc/EPL6-BA6T>]; Saniya More, *This Artist Is Tokenizing His Body, Selling Tattoo 'Lots' for Stablecoins*, BLOCK (Sept. 18, 2020, 12:46 PM), <https://www.theblockcrypto.com/post/78148/artist-tokenize-tattoos> [<https://perma.cc/AH8K-9DAG>].

In other words, NFTs can be used to “tokenize” subject matter as far as human imagination runs. Whatever can be owned can be made into a virtual token or NFT. One benefit of doing so is having a permanent public record of it.

2. *NFTs and Web3: The Move to Decentralization*

NFTs are a part of a much larger transformation of the Internet, commonly referred to as Web3.¹⁹⁹ As summarized in Table 1, the Web’s evolution can be categorized into three distinct periods, with increasing levels of empowerment attained by Internet users. Commentators sometimes disagree over when different periods began or ended, so the dates below should be considered more as rough estimations.

TABLE 1: THE DEVELOPMENT OF THE WEB

	Web1	Web2	Web3
Functions Enabled	Read Only (“RO”)	Read Write (“RW”)	Read Write Own Interact (“RWOI”)
Major Elements	Birth of Web and e-commerce, online access to information.	User-generated content shared on social media. Surveillance capitalism: Big Tech companies track users and monetize users by selling targeted ads. Big Tech does not share revenues with average users.	Virtual Renaissance: Art of all kinds sold on marketplaces. Self-sovereignty: people control identity and personal data by use of crypto wallet instead of personal information. Ownership economy: people own NFTs in decentralized ecosystems that reward people.
Centralized v. Decentralized Web	Decentralized but limited interaction.	Centralized by few Big Tech platforms.	Decentralized by blockchain, NFTs, DAOs.

199. See Dan Patterson, *Explaining Web3: From the Blockchain and Crypto to NFTs and the Metaverse*, CBS NEWS (Jan. 3, 2022, 7:45 AM), <https://www.cbsnews.com/news/web3-blockchain-crypto-nft-metaverse-explainer/> [https://perma.cc/ZN8Y-9N5L]; Chris Dixon, *Why Web3 Matters*, FUTURE (Oct. 7, 2021), <https://future.a16z.com/why-web3-matters/> [https://perma.cc/GL7J-253X]; *Web2 vs Web3*, ETHEREUM, <https://ethereum.org/en/developers/docs/web2-vs-web3/> (Sept. 26, 2022) [https://perma.cc/LTR7-CQZG].

Interactivity	Limited	Greater interactivity on social media and platforms.	New interactivity on several dimensions based on NFT ownership.
Major Challenges	Static and limited	Censorship and control by Internet platforms with no input from users. Lack of privacy protections for users and their data.	Environmental, sustainability concerns with energy consumption.

From 1989 to 2005, Web1 offered people an Internet experience encapsulated as “read only” (“RO”).²⁰⁰ Web1 was pretty static, offering people the ability only to read content on websites (unless they created their own websites, which back then was not easy to do).²⁰¹ But, starting around 2004, Web2 developed to provide a Web experience that allowed people greater interactivity—not only to read content but also to write content, a “read-write” (“RW”) capability.²⁰² During this period, an explosion of blogs, social media and networks, video and image sharing sites, and other Internet platforms made “user-generated content” (“UGC”) popular, even to this day.²⁰³ Literally everyone who had Internet access could post their own content, such as a photo, on social media, or a blog post. Writing during this period, Lessig described how the tools of Web2 facilitate a “remix” culture in which people can build on—and remix—artistic creations of others.²⁰⁴ The Creator Economy was born.²⁰⁵

200. See Nupur Choudhury, *World Wide Web and Its Journey from Web 1.0 to Web 4.0*, 5 INT’L J. COMPUT. SCI. & INFO. TECHS. 8096, 8096 (2014), <http://ijcsit.com/docs/Volume%205/vol5issue06/ijcsit20140506265.pdf> [<https://perma.cc/HEP6-N6SQ>].

201. *Id.* There are different meanings for “Web 3.0” versus “Web3.” Tim-Berners Lee described a “semantic Web” or “Web 3.0,” which focuses on “standards set by the World Wide Web Consortium” that will “make Internet data machine-readable.” *Semantic Web*, WIKIPEDIA, https://en.wikipedia.org/wiki/Semantic_Web (last visited Mar. 3, 2023) [<https://perma.cc/G5NL-RTZK>]. By contrast, Web3 was coined by Gavin Wood, co-founder of Ethereum, and refers to “an idea for a new iteration of the World Wide Web which incorporates concepts such as decentralization, blockchain technologies, and token-based economics.” *Web3*, WIKIPEDIA, <https://en.wikipedia.org/wiki/Web3> (last visited Mar. 3, 2023) [<https://perma.cc/MMC5-Z56H>]. There have been other uses of “Web 3.0” or “Web3,” but, for clarity, this Article uses Web3 to refer to Wood’s formulation referring to the decentralization of the Web through blockchain and tokens.

202. See *Web 2.0*, WIKIPEDIA, https://en.wikipedia.org/wiki/Web_2.0 (last visited Mar. 3, 2023) [<https://perma.cc/9486-6ZQC>].

203. See *id.*

204. See LAWRENCE LESSIG, REMIX: MAKING ART AND COMMERCE THRIVE IN THE HYBRID ECONOMY 69–70 (2008).

205. See Kyle Chayka, *What the “Creator Economy” Promises—And What It Actually Does*, NEW YORKER (July 17, 2021), <https://www.newyorker.com/culture/infinite-scroll/what-the-creator-economy-promises-and-what-it-actually-does> [<https://perma.cc/2L6V-N77F>].

Although the growth of UGC in Web2 was widely hailed as fostering creative production and enabling users to create and share their creations,²⁰⁶ eventually the big Internet platforms that fostered UGC (*e.g.*, Facebook, Instagram, Twitter, and YouTube) came under intense scrutiny and criticism toward the end of the decade that started in 2010. One of the chief criticisms was that these Internet platforms have become too big and *too centralized*, and exercised too much control over people online, such as moderating or “censoring” their content and controlling their personal data.²⁰⁷ Harvard Business School professor Shoshana Zuboff wrote a scathing indictment of the business model used by Internet platforms—a *surveillance capitalism* by which the companies tracked their users’ online behavior and sold targeted ads to other companies based on the tracking.²⁰⁸ In other words, the Internet companies monetized their own users. “Big Tech,” once darlings of American innovation, had become a bad name.²⁰⁹ Many even want the U.S. government to break up Big Tech companies, such as Facebook (now Meta), on antitrust grounds.²¹⁰ That effort is still ongoing. The Federal Trade Commission has brought an antitrust lawsuit against Facebook.²¹¹ How this debate ends is unclear. The emergence of generative AI programs, such as ChatGPT, may dramatically transform Big Tech’s focus.²¹²

This critique is not meant to minimize the ways in which social media have facilitated the Creator Economy, with millions of people creating content on social media and many earning significant income in ad revenue sharing with the

206. See Lee, *supra* note 167, at 1499–1503.

207. See, *e.g.*, Tom Chavez, Maritza Johnson & Jesper Andersen, *Toward Data Dignity: How We Lost Our Privacy to Big Tech*, FORTUNE (Jan. 28, 2022, 4:30 AM), <https://fortune.com/2022/01/28/big-tech-data-privacy-ethicaltech/> [https://perma.cc/65Y3-VVYE]; Ahiza García-Hodges, *Big Tech Has Big Power over Online Speech. Should It Be Reined in?*, NBC NEWS (Jan. 21, 2021, 11:00 AM), <https://www.nbcnews.com/tech/tech-news/big-tech-has-big-power-over-online-speech-should-it-n1255164> [https://perma.cc/AH6F-BPYL]; Zoë Corbyn, *Decentralisation: The Next Big Step for the World Wide Web*, GUARDIAN (Sept. 8, 2018, 9:00 AM), <https://www.theguardian.com/technology/2018/sep/08/decentralisation-next-big-step-for-the-world-wide-web-dweb-data-internet-censorship-brewster-kahle> [https://perma.cc/6UBB-BHBR].

208. SHOSHANA ZUBOFF, *THE AGE OF SURVEILLANCE CAPITALISM* 8–12 (2019).

209. See, *e.g.*, Zephyr Teachout, *The Government Needs to Find Big Tech a New Business Model*, ATLANTIC (Feb. 22, 2021), <https://www.theatlantic.com/ideas/archive/2021/02/government-needs-find-big-tech-new-business-model/618099/> [https://perma.cc/F74H-RXGF]; Sally Lee, *Tim Wu on How Big Tech Is Crippling Democracy*, COLUM. MAG. (2019), <https://magazine.columbia.edu/article/how-mega-corporations-are-crippling-democracy> [https://perma.cc/2JF8-WQL4]; Sheelah Kolhatkar, *Lina Khan’s Battle to Rein in Big Tech*, NEW YORKER (Nov. 29, 2021), <https://www.newyorker.com/magazine/2021/12/06/lina-khans-battle-to-rein-in-big-tech> [https://perma.cc/K9T2-CELG].

210. See Matthew Yglesias, *The Push to Break Up Big Tech, Explained*, VOX (May 3, 2019, 8:10 AM), <https://www.vox.com/recode/2019/5/3/18520703/big-tech-break-up-explained> [https://perma.cc/5C4A-ZDTA]. CEO Mark Zuckerberg changed the name of the company to Meta and shifted its focus to building the metaverse. Salvador Rodriguez, *Facebook Changes Company Name to Meta*, CNBC (Oct. 29, 2021, 8:56 PM) <https://www.cnbc.com/2021/10/28/facebook-changes-company-name-to-meta.html> [https://perma.cc/U3GG-VDXG].

211. See Bobby Allyn, *Judge Allows Federal Trade Commission’s Latest Suit Against Facebook to Move Forward*, NPR (Jan. 11, 2022, 5:10 PM), <https://www.npr.org/2022/01/11/1072169787/judge-allows-federal-trade-commissions-latest-suit-against-facebook-to-move-forw> [https://perma.cc/D39S-TV8Z].

212. See Scott Wong, Julie Tsirkin & Kate Santaliz, *Congress Has Had a Hands-off Approach to Big Tech. Will the AI Arms Race be Any Different?*, NBC NEWS (Feb. 14, 2023, 11:26 AM), <https://www.nbcnews.com/politics/congress/congress-hands-approach-big-tech-will-ai-arms-race-different-rcna70389> [perma.cc/8T CJ-Y59X].

Internet platforms.²¹³ However, each centralized platform determines who qualifies for ad revenue sharing.²¹⁴ Not everyone does. And the ads still depend on surveillance capitalism.

The movement to Web3 is a direct response to the centralization of Internet platforms that occurred during Web2. As used in this Article, Web3 refers to the shift of the Web to a more decentralized approach via blockchain and NFTs—that enables Internet users to become owners and to participate in activities not controlled or censored by Big Tech companies or Internet platforms. As Chris Dixon, a general partner at VC firm a16z and leading proponent of Web3, explained: Web3 “fixes the core problem of centralized networks, where the value is accumulated by one company, and the company ends up fighting its own users and partners.”²¹⁵ And the primary vehicle for the decentralization of Web3 is NFTs:

In web3, ownership and control is decentralized. Users and builders can own pieces of internet services by owning tokens, both non-fungible (NFTs) and fungible. . . .

NFTs give users the ability to own objects, which can be art, photos, code, music, text, game objects, credentials, governance rights, access passes, and whatever else people dream up next.²¹⁶

If Web1 was RO and Web2 was RW, Web3 is RWOI, meaning “read-write-own-interact.”²¹⁷ Web3 enables people not only to write or create content online

213. See Werner Geysler, *20 Creator Economy Statistics That Will Blow You Away in 2023*, INFLUENCER MARKETING HUB (Dec. 30, 2022), <https://influencermarketinghub.com/creator-economy-stats/> [perma.cc/ZGN8-FWY2].

214. See, e.g., *YouTube Partner Program Overview & Eligibility*, YOUTUBE HELP, <https://support.google.com/youtube/answer/72851?hl=en> [perma.cc/D82Q-674U].

215. Dixon, *supra* note 199.

216. See *id.*; SHERMIN VOSHMGIR, *TOKEN ECONOMY: HOW THE WEB3 REINVENTS THE INTERNET* 32–33 (2d ed. 2020); Jordan Top & Bilal Mobarik, *Welcome to Web3*, MIRROR.XYZ (Jan. 21, 2022), https://mirror.xyz/jordantop.eth/TH9fK2dpmCkXmCU9nJWkc8QwYe-_EXKEazkjYnTpk70 [https://perma.cc/KV8W-HR8F].

217. It is more common to see Web3 as described as simply RWO or “read-write-own.” See, e.g., James Beck, *What is Web3? Here Are Some Ways to Explain It to a Friend*, CONSENSYS (Jan. 12, 2022), <https://consensus.net/blog/blockchain-explained/what-is-web3-here-are-some-ways-to-explain-it-to-a-friend/> [https://perma.cc/PVH8-J4GH]; Him Gajria, *Web 3.0*, MEDIUM (May 26, 2020), <https://medium.com/variablelabs/web-3-0-e0d817ec05c6> [https://perma.cc/96K5-FVWS]. I believe the omission of “participation” as a key component of Web3 is a mistake. Beyond enabling people to obtain ownership interests, Web3 offers people the chance to *participate* in the development of DAOs, NFT clubs, collaborative projects and experiences, and the like. Ownership itself is often very static. One can own something and hold onto it—or HODL in the vernacular. Web3, however, is anything but static. It seeks to *empower* people by enabling them to *participate* in activities and control their own fate. See, e.g., Larry English, *Want to Improve Your Culture? Look to DAOs, The Web3 Model That Could Disrupt Everything*, FORBES (Jan. 25, 2022, 10:38 AM), <https://www.forbes.com/sites/larryenglish/2022/01/25/want-to-improve-your-culture-look-to-daos-the-web3-model-that-could-disrupt-everything/> [https://perma.cc/8G6R-AHUV].

but to *own* a stake in something valuable in the form of NFTs.²¹⁸ And, once someone owns a stake in the undertaking, that person may also *interact* on many different levels. The interaction can be with dynamic content associated with the NFT, such as a digital artwork that changes over time or that uses AI that responds to your communications; with a bustling community of NFT owners, who engage in discussions about the NFT project on Discord or Twitter; with the creator of the NFT project to provide patronage and potential collaboration; and with the NFT project to develop the business and brand through decentralized collaboration.²¹⁹ Web3 companies view their NFT owners, not as consumers or users, but as co-creators and collaborators.²²⁰

Web3 goes far beyond Web2's user-generated content by providing a new market for NFTs and a new business model by which people can own part of a venture and participate in its decision-making.²²¹ For example, decentralized autonomous organizations ("DAOs") sell NFTs, and NFT owners can participate in the DAO's mission and share in the revenues or benefits the DAO accrues.²²² The Nouns DAO has made millions of dollars selling NFTs under CC0 licenses, meaning the DAO has donated the characters to the public domain.²²³ Builders of Web3 envision a more immersive virtual experience commonly called the metaverse.²²⁴ Big companies from Apple to Walmart, as well as startup companies, are all racing to develop the metaverse.²²⁵ According to its proponents, "The new Web3 wave will change the rules, providing people with control over their creativity. It's a fresh start to build something new, similar to the early days of the internet."²²⁶ And, in the ideal version of Web3, there's no need for centralized Internet platforms.²²⁷ Decentralization reigns.

218. See Top & Mobarik, *supra* note 216 ("What if we could own not only what we produce online, but also a piece of the networks, and have a say in their governance? Packy McCormick summarizes it nicely: 'Web3 is the internet owned by the builders and users, orchestrated with tokens.'").

219. See *id.*

220. See *id.*

221. See *id.*

222. See Taylor Locke, *What Are DAOs? Here's What to Know About the 'Next Big Trend' in Crypto*, CNBC (Oct. 25, 2021, 12:26 PM), <https://www.cnbc.com/2021/10/25/what-are-daos-what-to-know-about-the-next-big-trend-in-crypto.html> [https://perma.cc/L886-EML5].

223. Robert Stevens & Mason Marcobello, *What Are Nouns? The Ethereum NFT DAO Building Open-Source IP*, DECRYPT (Oct. 30, 2022), <https://decrypt.co/resources/what-are-nouns-the-nft-dao-building-open-source-ip> [https://perma.cc/9PX2-BJN9].

224. See Jack Kelly, *The Metaverse Is the Web3 Wave That Democratizes Buying and Building Real Estate, Hosting Fashion Shows and Monetizing Video Gaming*, FORBES (Jan. 23, 2022, 9:38 AM), <https://www.forbes.com.cdn.ampproject.org/c/s/www.forbes.com/sites/jackkelly/2022/01/23/the-metaverse-is-the-web3-wave-that-democratizes-buying-and-building-real-estate-hosting-fashion-shows-and-monetizing-video-gaming/amp/> [https://perma.cc/BR5T-T7US].

225. *Id.*

226. *Id.*

227. See Julia Spivak & Tonya M. Evans, *Introductions: 2019 AELJ Spring Symposium: Digital Art & Blockchain*, 37 CARDOZO ARTS & ENT. L.J. 561, 563 (2019); Daniel McIntosh, *We Need to Talk About Data: How Digital Monopolies Arise and Why They Have Power and Influence*, 23 J. TECH. L. & POL'Y 185, 212–13 (2019); Doug Petkanics, *The Three Traits of Web 3.0 That Fix What Went Wrong with Today's Internet*, COINTELEGRAPH (Nov. 20, 2021), <https://cointelegraph.com/news/the-three-traits-of-web-3-0-that-fix-what-went-wrong-with-today-s-internet> [https://perma.cc/Z2YX-DTZC].

Web3 is still being built.²²⁸ There's no guarantee it will succeed. Tim O'Reilly, who is credited for coining the term "Web 2.0," expressed doubts about whether Web3 will be able to avoid recentralization even if it is successful in returning decentralization to the Web.²²⁹ Indeed, Tim Wu's theory of the "master switch"—by which new information technologies eventually wind up in a highly concentrated market, under the control of "information empires" or what we call today Big Tech—lurks in the background.²³⁰ Time will tell.

B. Comparison with Decentralized Finance

To understand how NFTs are creating a new form of decentralized IP, we must situate their development against the earlier, but ongoing establishment of decentralized finance with the rise of cryptocurrencies.

1. Decentralized Finance

The world is witnessing a profound movement to adopt decentralized finance through blockchain and cryptocurrency.²³¹ Bitcoin is the first and most famous cryptocurrency, but many other cryptocurrencies—called altcoins—have arisen.²³² Supporters of DeFi believe it offers a financial system that is more transparent, trustworthy, and efficient than our current government and banking systems, which can be manipulated—such as through interest rates and printing of money—by a centralized financial institution, such as the Federal Reserve, and lead to meltdowns in the system like the 2008 financial crisis.²³³ Kristin Johnson summarizes the main aspirations of DeFi:

228. See Petkanics, *supra* note 227.

229. See Tim O'Reilly, *Why It's Too Early to Get Excited About Web3*, O'REILLY (Dec. 13, 2021), <https://www.oreilly.com/radar/why-its-too-early-to-get-excited-about-web3/> [<https://perma.cc/3BLT-FYM5>] ("I love the idealism of the Web3 vision, but we've been there before. During my career, we have gone through several cycles of decentralization and recentralization. The personal computer decentralized computing by providing a commodity PC architecture that anyone could build and that no one controlled. But Microsoft figured out how to recentralize the industry around a proprietary operating system. Open source software, the internet, and the World Wide Web broke the stranglehold of proprietary software with free software and open protocols, but within a few decades, Google, Amazon, and others had built huge new monopolies founded on big data.")

230. TIM WU, *THE MASTER SWITCH: THE RISE AND FALL OF INFORMATION* 12–13 (2011).

231. See Melanie Lockert, *DeFi: The Peer-to-Peer Financial System Based Primarily on Ethereum*, BUS. INSIDER (July 14, 2022, 3:33 PM), <https://www.businessinsider.com/what-is-defi> [<https://perma.cc/GCW6-A7AN>]. See generally Fabian Schär, *Decentralized Finance: On Blockchain- and Smart Contract-Based Financial Markets*, 103 FED. RES. BANK OF ST. LOUIS 153 (2021), <https://research.stlouisfed.org/publications/review/2021/02/05/decentralized-finance-on-blockchain-and-smart-contract-based-financial-markets> [<https://perma.cc/F7FH-8FN5>].

232. See generally SATOSHI NAKAMOTO, *BITCOIN: A PEER-TO-PEER ELECTRONIC CASH SYSTEM* (2008), <https://bitcoin.org/bitcoin.pdf> [<https://perma.cc/6XBZ-FKAP>]; David Floyd, *How Bitcoin Works*, INVESTOPEDIA, <https://www.investopedia.com/news/how-bitcoin-works/> (May 11, 2022) [<https://perma.cc/7LHQ-X893>]; Jake Frankenfield, *Altcoin Explained: Pros and Cons, Types, and Future*, INVESTOPEDIA, <https://www.investopedia.com/terms/a/altcoin.asp> (May 16, 2022) [<https://perma.cc/5RT7-YCUD>].

233. See Kristin N. Johnson, *Decentralized Finance: Regulating Cryptocurrency Exchanges*, 62 WM. & MARY L. REV. 1911, 1916–17, 1945–49 (2021); John B. Taylor, *The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong*, (Nat'l Bureau of Econ. Rsch., Working Paper 14631).

In response to concerns, cryptocurrency communities developed the blockchain protocol, a peer-to-peer method of transacting without relying on intermediation. For example, instead of relying on a legacy financial institution to act as an underwriter and orchestrate a public offering of securities, an issuer may directly distribute to investors coins or tokens that represent an equity investment in the issuer's firm using blockchain's permissionless, open-source, distributed ledger. As the Bitcoin white paper and many others explain, eliminating intermediaries in peer-to-peer cash transfers as well as other financial market transactions, such as capital formation and secondary market trading increases transparency, reduces transaction costs, and engenders greater democratic access to markets for all.²³⁴

One example of DeFi is using "asset tokenization," meaning "when a company digitizes rights to assets in order to offer asset-backed tokens on a decentralized platform."²³⁵ Another is the rise of crypto entities and platforms that perform traditional banking services, such as savings accounts and loans, although in cryptocurrencies.²³⁶

Critics, however, contend that DeFi is just as susceptible to its own financial crisis,²³⁷ especially because the top 1% holders—so-called "whales"—hold about one-third of all Bitcoin.²³⁸ Indeed, in 2022, the crash of stablecoin terraUST and its related token LUNA led to a cryptocurrency "contagion," precipitating the bankruptcies of several prominent DeFi companies, including FTX.²³⁹ The latter resulted in the downfall and indictment of FTX co-founder Sam Bankman-Fried for alleged securities fraud.²⁴⁰ Driven by high levels of inflation and other unfavorable macroeconomic conditions, a major economic downturn in the summer of 2022 roiled nearly all financial markets, including stocks, real estate,

234. Johnson, *supra* note 233, at 1948–49.

235. Heather Hughes, *Designing Effective Regulation for Blockchain-Based Markets*, 46 J. CORP. L. 899, 902 (2021).

236. See Ephrat Livni & Eric Lipton, *Crypto Banking and Decentralized Finance, Explained*, N.Y. TIMES (Nov. 1, 2021), <https://www.nytimes.com/2021/09/05/us/politics/cryptocurrency-explainer.html> [<https://perma.cc/P3KZ-KGSS>].

237. See generally LEWIS GUDGEON, DANIEL PEREZ, DOMINIK HARZ, BENJAMIN LIVSHITS & ARTHUR GERVAIS, *THE DECENTRALIZED FINANCIAL CRISIS* (2020), <https://arxiv.org/pdf/2002.08099.pdf> [<https://perma.cc/ULS7-N3S9>]. But see Brian Brooks, *Don't Fear 'DeFi': It Could Be Less Risky Than Traditional Finance*, FORTUNE (Aug. 3, 2021, 11:01 AM), <https://fortune.com/2021/08/03/what-is-defi-risks-crypto-regulation-decentralized-finance/> [<https://perma.cc/9WM6-RBNL>].

238. See Igor Makarov & Antoinette Schoar, *Blockchain Analysis of the Bitcoin Market* 29 (Nat'l Bureau of Econ. Rsch., Working Paper No. 29396, Oct. 2021), https://www.nber.org/system/files/working_papers/w29396/w29396.pdf [<https://perma.cc/Q635-G76C>]; Tom McKay, *Roughly One-third of Bitcoin Is Controlled by a Small Cabal of Whales, According to New Study*, GIZMODO (Oct. 26, 2021), <https://gizmodo.com/roughly-one-third-of-bitcoin-is-controlled-by-a-small-c-1847938047> [<https://perma.cc/759U-MV8X>].

239. See Krisztian Sandor & Ekin Genç, *The Fall of Terra: A Timeline of the Meteoric Rise and Crash of UST and LUNA*, COINDESK (Dec. 22, 2022, 3:07 PM), <https://www.coindesk.com/learn/the-fall-of-terra-a-timeline-of-the-meteoric-rise-and-crash-of-ust-and-luna/> [<https://perma.cc/L5SQ-93QJ>]; Nftjedi, *Graph on Cryptocurrency Contagion from Terra LUNA to FTX*, NOUNFT (Dec. 21, 2022), <https://nounft.com/2022/12/21/graph-on-cryptocurrency-contagion-from-terra-luna-to-ftx/> [<https://perma.cc/MP4D-A58L>].

240. See Press Release, SEC, SEC Charges Samuel Bankman-Fried with Defrauding Investors in Crypto Asset Trading Platform FTX (Dec. 13, 2022), <https://www.sec.gov/news/press-release/2022-219> [<https://perma.cc/TH34-X6MS>].

cryptocurrencies, and NFTs.²⁴¹ It was a “crypto winter” for cryptocurrencies and NFTs, which were hammered.²⁴² But it would be unwise to draw conclusions about cryptocurrencies or NFTs from this downturn—as financial analysts pointed out, the macroeconomic conditions were unusual²⁴³ and a “punishing six months for investors” across the board.²⁴⁴ By 2023, sales volumes for NFTs rebounded from their lows.²⁴⁵

Calls for the U.S. government to regulate cryptocurrencies intensified in 2021.²⁴⁶ President Biden issued an executive action on cryptocurrencies, requiring further study, which some commentators viewed as recognition that cryptocurrencies are “here to stay.”²⁴⁷ In 2022, Congress considered three different bills to regulate cryptocurrencies as commodities under the jurisdiction of Commodity Futures Trading Commission (“CFTC”).²⁴⁸ Some proponents of cryptocurrency prefer some legal regulation of cryptocurrency to provide greater clarity and confidence for investors.²⁴⁹ In 2023, the Securities Exchange Commission

241. Stephanie Landsman, *'Bubble' Hitting 50% of Market, Top Investor Warns as Fed Gets Ready to Meet*, CNBC, <https://www.cnbc.com/2022/05/02/50percent-of-market-is-in-a-bubble-dan-suzuki-warns-as-fed-gets-ready-to-meet.html> (May 2, 2022, 8:37 PM) [<https://perma.cc/ELD4-QYYL>]; Bernhard Warner, *The \$1 Trillion Crypto Collapse Is Crippling Digital Coin Bulls. But the Rest of Us Will Hardly Notice, Says Goldman Sachs*, FORTUNE (May 20, 2022, 3:43 AM), <https://fortune.com/2022/05/20/trillion-crypto-collapse-btc-eth-binance-goldman-sachs/> [<https://perma.cc/JQC3-EQQN>]; Elizabeth Howcroft, *Cryptoverse: NFT Bubble Gets that Shrinking Feeling*, REUTERS (Apr. 13, 2022, 6:55 AM), <https://www.reuters.com/technology/cryptoverse-nft-bubble-gets-that-shrinking-feeling-2022-04-05/> [<https://perma.cc/8JPB-Q563>]; Lance Lambert, *The U.S. Housing Market Downturn Will Be Worse in 2023, Forecasts Goldman Sachs*, FORTUNE (Aug. 31, 2022, 4:10 AM), <https://fortune.com/2022/08/31/housing-market-recession-to-be-even-bigger-in-2023-forecast-goldman-sachs/> [<https://perma.cc/5ZAK-7R4A>].

242. See Lambert, *supra* note 241.

243. Jon Hilsenrath, *If the U.S. Is in a Recession, It's a Very Strange One*, WALL ST. J. (July 4, 2022, 11:21 AM), <https://www.wsj.com/articles/recession-economy-unemployment-jobs-11656947596> [<https://perma.cc/577D-5VVY>]; Ben Casselman, *How This Economic Moment Rewrites the Rules*, N.Y. TIMES (Aug. 6, 2022), <https://www.nytimes.com/2022/08/06/business/economy/economy-jobs-inflation.html> [<https://perma.cc/W3JR-2MX4>].

244. Alex Veiga & Stan Choe, *From the Stock Market to Crypto, a Punishing Six Months for Investors*, PBS (June 30, 2022, 5:25 PM), <https://www.pbs.org/newshour/economy/from-the-stock-market-to-crypto-a-punishing-six-months-for-investors> [<https://perma.cc/F4XD-5GE7>].

245. See Langston Thomas, *NFT Sales Are Up 43%, but Are We Really in for a Bull Run?*, NFTNOW (Jan. 26, 2023), <https://nftnow.com/features/nft-sales-are-up-43-but-are-we-really-in-for-a-bull-run/> [<https://perma.cc/SUN2-H362>].

246. See Eric Lipton, Ephrat Livni & Jeanna Smialek, *Regulators Racing Toward First Major Rules on Cryptocurrency*, N.Y. TIMES (Nov. 1, 2021), <https://www.nytimes.com/2021/09/23/us/politics/cryptocurrency-regulators-rules.html> [<https://perma.cc/T2ZQ-7MFD>].

247. See Daren Fonda, *White House Wants Crypto Rules as a Matter of National Security*, BARRON'S (Jan. 27, 2022, 3:00 PM), <https://www.barrons.com/articles/white-house-executive-action-regulate-cryptos-national-security-51643312454> [<https://perma.cc/YKG4-6XE3>]; Alex Gailey, *Biden's New Executive Order on Crypto Is a Big Step in the Right Direction, Experts Say. Here's What Investors Should Know*, TIME (Mar. 11, 2022), <https://time.com/nextadvisor/investing/cryptocurrency/biden-executive-order-crypto-expert-reaction/> [<https://perma.cc/PV9E-FNPL>].

248. Kevin Helms, *3 Bills Introduced in US to Make CFTC Primary Regulator of Crypto Spot Markets*, BITCOIN (Aug. 7, 2022), <https://news.bitcoin.com/3-bills-introduced-in-us-to-make-cftc-primary-regulator-of-crypto-spot-markets/> [<https://perma.cc/P3WE-KEJW>].

249. Wharton Staff, *Why Regulation Won't Harm Cryptocurrencies*, KNOWLEDGE AT WHARTON (Apr. 27, 2021), <https://knowledge.wharton.upenn.edu/article/why-regulation-wont-harm-cryptocurrencies/> [<https://perma.cc/8NYY-7E7R>].

(“SEC”) increased its investigations of crypto firms and adopted the controversial position, with one commissioner in dissent, that the staking of cryptocurrency (i.e., committing it on an exchange for a period of time in exchange for rewards from the exchange), constituted unregistered securities.²⁵⁰ Likewise, in the enforcement action against Bankman-Fried, the SEC alleged that the token “FTT” used in FTX’s staking or rewards programs for customers constituted unregistered securities.²⁵¹ Although the SEC has not yet taken a formal position on NFTs, its position on other tokens might apply to the practices used by NFT marketplaces in issuing reward tokens, or even potentially the NFTs of projects that are engaged in business ventures.²⁵²

How DeFi plays out—whether it overtakes centralized financial systems or gets regulated by them—is not crucial for our purposes. What is crucial is seeing how blockchain and cryptocurrency offer an alternative to the current, centralized financial system. An alternative that is decentralized, running on blockchain. John O. McGinnis and Kyle Roche aptly describe this decentralization as creating “order without law in currency.”²⁵³

2. *Comparable Features*

De-IP operates in a similar fashion to DeFi. The primary mechanism in both De-IP and DeFi is the same: blockchain technology is utilized to provide an alternative, decentralized way to engage in activities that have traditionally been governed by a highly centralized regulatory system, typically involving the government and dominant intermediaries.²⁵⁴ To put it succinctly: De-IP does to copyright what DeFi does to currency.

Table 2 summarizes the comparable features of DeFi and De-IP. The commonalities shouldn’t be surprising. Blockchain operates as a governance system enabling people to form communities and rules for the community, some of which can be recorded directly on blockchain or “on-chain.”²⁵⁵ Before turning to my theory of De-IP, it is helpful to understand why DeFi and De-IP are occurring.

250. See Andrew Ross Sorkin *et al.*, *The S.E.C. Signals a Crackdown on Another Crypto Practice*, N.Y. TIMES (Feb. 10, 2023), <https://www.nytimes.com/2023/02/10/business/dealbook/sec-kraken-staking.html> [<https://perma.cc/8TL6-XMZF>]; Max Koopsen, *SEC Commissioner Peirce: Kraken Staking Action Not a ‘Fair Way of Regulating,’* DECRYPT (Feb. 10, 2023), <https://decrypt.co/121029/sec-commissioner-peirce-kraken-staking-ban-not-fair-way-regulating> [<https://perma.cc/378A-3Q8S>].

251. See Nftjedi, *In Charging Caroline Ellison + Gary Wang in FTX Scandal, SEC Classifies FTT Token as Securities—Major Development for Cryptocurrencies and NFTs*, NOUNFT (Dec. 22, 2022), <https://nounft.com/2022/12/22/in-charging-caroline-ellison-gary-wang-in-ftx-scandal-sec-classifies-ftt-token-as-securities-major-development-for-cryptocurrencies-and-nfts/> [<https://perma.cc/L9RZ-FMF4>].

252. See Nivesh Rustgi, *NFT Marketplace Tokens Soar in 2023, and Blur’s Recent Airdrop May Extend the Trend*, COINTELEGRAPH (Feb. 14, 2023), <https://cointelegraph.com/news/nft-marketplace-tokens-soar-in-2023-and-blur-s-recent-airdrop-may-extend-the-trend> [perma.cc/76AL-ZZ6B].

253. John O. McGinnis & Kyle Roche, *Bitcoin: Order Without Law in the Digital Age*, 94 IND. L.J. 1497, 1501 (2019) (citing ROBERT C. ELLICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* 124 (1994)).

254. See Top & Mobarik, *supra* note 216.

255. Aron Fischer & María-Cruz Valiente, *Blockchain Governance*, 10 INTERNET POL’Y REV. 2, 5 (2021).

TABLE 2: COMPARABLE FEATURES BETWEEN DeFi AND De-IP

	DeFi	De-IP
Immediate problem solved	Double spending	Digital artworks cannot command value if every digital copy is identical.
Larger problem of centralized system	Manipulation of interest rates and supply of money by centralized banks.	Protection of financial interests of major industry gatekeepers over independent artists.
Decentralized alternative to existing system	Cryptocurrency created on blockchain.	Non-fungible tokens created on blockchain.

First, let us examine the immediate problem that each solves. In 2008, Satoshi Nakamoto, the reputed, pseudonymous inventor of Bitcoin, published a now-famous white paper, “Bitcoin: A Peer-to-Peer Electronic Cash System.”²⁵⁶ Bitcoin was designed to solve the so-called “double-spending problem” in which financial intermediaries or trusted parties (who exact transaction fees) are required to verify the digital transfer of money so as to avoid the same money being spent twice.²⁵⁷ Bitcoin solved this problem by “using a peer-to-peer distributed timestamp server to generate computational proof of the chronological order of transactions.”²⁵⁸ In other words, a single Bitcoin cannot be in two wallets at once. For De-IP, the immediate problem solved was somewhat analogous. Digital artworks were devalued because every digital copy of an artwork is identical and fungible, meaning there is no authentic original like the Mona Lisa painting. Consequently, digital artists struggled to sell their artworks. Why would art collectors pay top dollar for a digital work that could be infinitely copied online? NFTs solve this problem by creating a unique token or virtual form for the artwork on blockchain. Although the problem is somewhat different from double spending, they both rely on a technological *authentication* through blockchain to solve the respective problems.²⁵⁹

Both DeFi and De-IP are meant to address a macro problem: centralized systems—whether in finance or copyright—can be distorted in ways that harm society. For the financial system, Nakamoto criticized the central bank for “debas[ing] the currency,” and banks for lending money “in waves of credit bubbles with barely a fraction in reserve.”²⁶⁰ The debate over the role of the Federal Reserve is contentious—and goes beyond the scope of this Article. But it’s undoubt-

256. NAKAMOTO, *supra* note 232, at 1.

257. *Id.*

258. *Id.*

259. See Top & Mobarik, *supra* note 216.

260. Satoshi Nakamoto, *Bitcoin Open Source Implementation of P2P Currency*, P2P FOUND. (Feb. 11, 2009, 10:27 PM), <http://p2pfoundation.ning.com/forum/topics/bitcoin-open-source> [https://perma.cc/9Z8V-GK75].

edly true that the Fed's actions have an outsized effect on the economy and financial system, as the Fed's current raising of interest rates shows.²⁶¹ Especially during times of crisis, the Fed often tries to walk a tight rope with interest rates, which may have unintended consequences.²⁶² The goal of Bitcoin or cryptocurrency is to create a currency that cannot be manipulated by the Fed or central bank.²⁶³ For the copyright system, De-IP aims for an analogous decentralization. As noted above, legal scholars have long recognized how the copyright system has been tilted to serve the financial interests of the major copyright industries, the distributors, middlemen, and gatekeepers, instead of the interests of individual artists.²⁶⁴ Perhaps that focus makes sense as a matter of macroeconomics. But it provides cold comfort to individual artists in the United States. The goal of De-IP is to create a system of IP protection that directly serves individual artists, not the major industry gatekeepers.

Third, DeFi and De-IP utilize similar means to establish an alternative, decentralized system. DeFi relies on blockchain and cryptocurrencies.²⁶⁵ De-IP relies on blockchain and NFTs, which typically are purchased by using cryptocurrencies.²⁶⁶ Both rely on blockchain technology to create a decentralized system of finance and IP, respectively—which no entity controls.²⁶⁷

C. *The Theory of De-IP: NFTs as an Alternative to the Copyright System*

This Article is the first to elaborate the theory of decentralized intellectual property. To understand how NFTs operate as decentralized intellectual property, this Section identifies various ways in which NFTs have created an alternative system to our traditional copyright system established by the Copyright Act of 1976, as summarized in Table 3 below.²⁶⁸ Although NFTs have existed for only several years, they have already provided an attractive new, decentralized

261. See Jessica Dickler, *The Federal Reserve is Likely to Hike Interest Rates Again. What That Means for You*, CNBC (Jan. 30, 2023, 11:21 AM), <https://www.cnbc.com/2023/01/30/federal-reserve-likely-to-hike-interest-rates-again-how-to-prepare.html> [perma.cc/62NS-4PAG].

262. See, e.g., Allison Schrager, *The Fed's Damage to the Housing Market May Last Years*, BLOOMBERG (Aug. 11, 2022, 5:00 AM), <https://www.bloomberg.com/opinion/articles/2022-08-11/fed-s-damage-to-housing-market-may-last-years?sref=X9N3NABa> [https://perma.cc/FU3Q-7KF4].

263. See Nakamoto, *supra* note 260.

264. See Berne Convention, *supra* note 92, art. 14(2).

265. See generally Nakamoto, *supra* note 260.

266. See generally Gregory J. Chinlund & Kelley S. Gordon, *What Are the Copyright Implications of NFTs?*, REUTERS (Oct. 29, 2021, 10:41 AM), <https://www.reuters.com/legal/transactional/what-are-copyright-implications-nfts-2021-10-29/> [https://perma.cc/Q5AN-BDNL].

267. See Dixon, *supra* note 199; see also *supra* notes 215–20 and accompanying text.

268. This Article focuses on NFTs as an alternative to the copyright system, given the huge popularity of using NFTs with copyrighted artwork and other works of expression. Future research should examine whether and, if so, how NFTs might operate as alternatives to patents or trademarks. Because NFTs are authenticated on blockchain and can be used to indicate the authenticity of the source of the NFTs, they could be effective ways to indicate the source of products, such as something that trademarks typically attempt to serve. See generally Christos Makridis, *NFTs Will Replace Copyrights and Trademarks*, FIN. MAGNATES (Dec. 29, 2021, 4:40 PM), <https://www.financemagnates.com/cryptocurrency/nfts-will-replace-copyrights-and-trademarks/> [https://perma.cc/5FLX-TC7E]. Trademark law's requirement that owners police their marks makes it less feasible for owners to take a permissive approach to unlicensed uses of their trademarks. See *infra* notes 390–91.

system for many creators, especially artists who create natively digital art.²⁶⁹ The changes are ongoing. More changes should be expected. This Section summarizes the biggest changes so far.

TABLE 3: COMPARISON OF U.S. COPYRIGHT SYSTEM UNDER 1976 ACT AND DE-IP USING NFTS

Element	U.S. Copyright System	De-IP via NFTs
Core intellectual property	Copyright	NFT
Subject matter	Limited to “original works of authorship fixed in any tangible medium of expression.”	No limit.
Formalities	None for grant of copyright. Registration required for US works (not foreign works) to file lawsuit.	Smart contract required to create NFT authenticated on blockchain.
Exclusive rights	Section 106 rights to copy, distribute, make derivative works, publicly perform and display.	Rights to own, sell, and transfer NFT on blockchain.
Right to resale royalty for artists	None.	Artists can choose resale royalties for NFTs.
Digital first-sale right for consumers	None.	Legitimate owner of NFT can resell it.
Enforcement	Legal remedies under federal law.	Technological enforcement via authentication on blockchain.
Term	Author’s life plus 70 years for individual authors. For corporations, the shorter of 95 years from publication or 120 years from creation.	Unlimited or indefinite.
Intermediaries and gatekeepers	Copyright industries dominated by major labels, studios, publishers, galleries, Internet platforms.	More decentralized. Some marketplaces exert considerable power.
Treatment of unauthorized remixes and derivative works	Presumptively infringement or “piracy.”	Web3 ethos adopts permissive culture of alternatives, clones, copies, and derivatives of digital artwork for NFTs.
Promotes collaboration	Traditional All Rights Reserved approaches do not. Open-source and Creative Commons licenses do.	Movement to adopt NFT content licenses granting commercial rights to NFT owners and allow decentralized collaboration, including right to make derivative works. Parallel movement to adopt Creative Commons 0 licenses abandoning copyrights and donating artworks to public domain.

269. *See id.*

1. *The NFT as a New Form of IP*

The starting point in understanding how NFTs are developing De-IP is recognizing that an NFT is itself a new form of intellectual property—one that wasn't created by statute or the common law, but instead by computer code and decentralized technology using blockchain.²⁷⁰ The World Intellectual Property Organization (“WIPO”) defines “intellectual property” as protections for “creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce.”²⁷¹ The dictionary definition puts it more succinctly: “property (such as an idea, invention, or process) that derives from the work of the mind or intellect.”²⁷² We typically think that “IP is protected in law by, for example, patents, copyright and trademarks,” but a common link among these IP systems is that they are meant to “enable people to earn recognition or financial benefit from what they invent or create.”²⁷³ In other words, an “IP system aims to foster an environment in which creativity and innovation can flourish.”²⁷⁴ Likewise, “property” is a bundle of exclusive rights to owners who have “rights to exclude, to transfer, and to use or possess.”²⁷⁵ Thus, intellectual property involves (1) exclusive rights for creations of the mind, which may include, at least, the rights to exclude, to transfer, and to use or possess. Ideally, an IP system should (2) enable people to earn recognition or financial benefit from what they create and (3) foster an environment in which creativity and innovation can flourish.

NFTs meet all three requirements of IP. First, NFTs are creations of the mind—they are virtual tokens or representations of some other subject matter, including works of authorship.²⁷⁶ For example, an NFT for a digital artwork is the virtual token or representation of the artwork.²⁷⁷ Just as the artwork is a creation of the mind, the virtual token is, too. Indeed, the virtual token is a figment of the imagination—it exists virtually, through a smart contract recorded on blockchain plus a link to the digital file of the artwork. This complex arrangement can be likened to creating a virtual twin or representation of an artwork. Imagine you painted a landscape on canvas. Now imagine the same landscape you painted exists in a virtual form that can be owned and recorded on blockchain. Both—your landscape on canvas and your landscape in virtual form on blockchain—are creations of your mind. A copyright protects, by law, your landscape fixed in a tangible medium of expression (i.e., the canvas), while an NFT

270. See *supra* notes 192–95 and accompanying text.

271. *What is Intellectual Property?*, WIPO, <https://www.wipo.int/about-ip/en/> (last visited Mar. 3, 2023) [<https://perma.cc/WBW9-PWRS>].

272. *Intellectual Property*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/intellectual%20property> (last visited Mar. 3, 2023) [<https://perma.cc/V96Z-VHLC>].

273. *What is Intellectual Property?*, *supra* note 271.

274. *Id.*

275. Susan Scafidi, *Intellectual Property and Cultural Products*, 81 B.U. L. REV. 793, 796–97 (2001).

276. See *supra* notes 31–34 and accompanying text.

277. *NFT Art Explained: What Is NFT Art?*, MASTERCLASS (Sept. 15, 2022), <https://www.masterclass.com/articles/nft-art> [<https://perma.cc/DCL7-QSZG>].

protects, by technology, the virtual token of the landscape recorded on blockchain. Likewise, owners of NFTs have exclusive rights to exclude, to transfer, and to use or possess the NFTs they own.²⁷⁸ Once NFTs are created for their owners and recorded on blockchain, no one else has rights to the NFTs unless the owners transfer them, which is then recorded on blockchain authenticating the transaction and the new owner's rights to the NFTs.²⁷⁹ The code of blockchain and smart contracts establish the law of exclusive rights for the NFTs.²⁸⁰

Second, NFTs enable creators to earn recognition or financial benefit from what they create. Indeed, for many independent artists, NFTs may do a better job of fulfilling the economic mandate of the Copyright Clause in providing authors with financial rewards commensurate with their creative work. That is especially so for digital artists, whose works were not valued before. Third, NFTs create an IP system by fostering an environment in which creativity and innovation can flourish. Indeed, within a short time, there has been an explosion of creativity in visual works that is nothing short of breathtaking—a Virtual Renaissance.²⁸¹

The main difference between NFTs and traditional IP, such as copyrights, patents, and trademarks, is that traditional IP are created by statutes or, in the case of trademarks, by state common law.²⁸² Some might argue that this distinction is significant. Only a statute or the common law can officially create IP, the argument might run.

I disagree. I see no persuasive reason why this distinction matters. There is widespread acceptance among legal scholars that code is law—the design of technology, through computer code, operates as a form of regulation.²⁸³ What we are now seeing with NFTs is an application of that principle: code can create a new form of IP.²⁸⁴ The exclusive rights to NFTs are created and backed by blockchain technology, not a statute. But the exclusive rights created by blockchain and NFTs are no less effective than ones created by statutes. Indeed, because

278. See Daniel Kuhn, *What You Own When You Own an NFT*, COINDESK, <https://www.coindesk.com/layer2/2022/01/17/what-you-own-when-you-own-an-nft/> (Jan. 18, 2022, 11:04 AM) [https://perma.cc/K35G-7J8A].

279. See generally Chinlund & Gordon, *supra* note 266.

280. See generally Kuhn, *supra* note 278.

281. Adriana Hamacher, *NFTs Started 'a Digital Art Renaissance.' It's Far From Over*, DECRYPT (May 12, 2022), <https://decrypt.co/99301/nfts-started-a-digital-art-renaissance-its-far-from-over> [https://perma.cc/ES8G-PRBJ]; Gabrielle Selz, *Welcome to the NFT Renaissance: How Technology Played as Big a Role in the European Renaissance as It Does in Today's Digital Art Movement*, SUPERRARE MAG. (Feb. 9, 2022), <https://editorial.superrare.com/2022/02/09/welcome-to-the-nft-renaissance-how-technology-played-as-big-a-role-in-the-european-renaissance-as-it-does-in-todays-digital-art-movement/> [https://perma.cc/4PWC-FES6].

282. *Common Law Trademark Rights*, BITLAW, <https://www.bitlaw.com/trademark/common.html> (last visited Mar. 3, 2023) [https://perma.cc/M9VB-2D2U].

283. Olga V. Mack, *'Code Is Law': Should Software Developers Protect Our Freedoms?*, ABOVE THE LAW (Aug. 12, 2019, 12:44 PM), <https://abovethelaw.com/2019/08/code-is-law-should-software-developers-protect-our-freedoms/> [https://perma.cc/BDU6-Z62S].

284. Likewise, cryptocurrencies can create a new form of currency alternative to fiat money. See Nathan Reiff, *Will Cryptocurrency Replace Fiat Currency?*, INVESTOPEDIA, <https://www.investopedia.com/tech/bitcoin-or-altcoin-can-one-them-replace-fiat/> (Apr. 29, 2022) [https://perma.cc/Q2L9-FDQ7].

blockchain technology is resistant to hacking,²⁸⁵ the exclusive rights for NFTs may be even stronger—or more self-enforcing—than statutory rights that require the IP owners to police for infringement (which becomes a whack-a-mole problem on the Internet).²⁸⁶ Indeed, the amount of NFT transactions in 2021—people buying and selling NFTs—provides compelling evidence that they are intellectual property.²⁸⁷ In 2021, sales of NFTs reached approximately \$27 billion.²⁸⁸ By creating a new IP in the form of virtual tokens, NFTs have created an entirely new market and dramatically changed the underlying economics and commercial value of art or works of authorship sold in token form as NFTs.²⁸⁹

The fact that some successful NFT projects have abandoned all copyrights for their artworks should eliminate all doubts about the status of NFTs as IP. Punk 4156 of the Nouns DAO is spearheading a movement to use Creative Commons 0 licenses for NFTs as a part of the Nouns DAO, in which IP rights are donated to the public domain.²⁹⁰ Moonbirds is another blue-chip project that has adopted CC0 licenses and abandoned copyrights altogether.²⁹¹ Despite the complete abandonment of copyrights, the lowest priced NFT for Nouns was over \$120,000 and over \$20,000 for a Moonbirds NFT on September 2, 2022.²⁹² The artist XCOPY has also adopted CC0 licenses for his artworks, yet the NFTs command high values, including selling for millions.²⁹³ How can the NFTs command

285. See *How Safe Is Blockchain? Blockchain Security Guide*, SOFI (Feb. 25, 2021), <https://www.sofi.com/learn/content/blockchain-security/> [<https://perma.cc/M4MJ-NZG9>].

286. See *id.*

287. The High Court of Justice in London preliminarily ruled that “there is at least a realistically arguable case that such tokens [NFTs] are to be treated as property as a matter of English law.” *Osbourne v (1) Persons Unknown*, [2022] EWHC 1021 [13].

288. See Joe Sparrow, *Report: NFT Sales in 2021 Totalled Over \$26.9 Billion Worth of Cryptocurrency*, MUSIC ALLY (Dec. 7, 2021), <https://musically.com/2021/12/07/report-nft-sales-in-2021-totalled-over-26-9-billion/> [<https://perma.cc/XAU3-RUWQ>].

289. See *NFT Art Explained: What Is NFT Art?*, *supra* note 277.

290. See Andrew Hayward, *How Ethereum NFT Project Nouns Is Building Open-source IP*, DECRYPT (Nov. 24, 2021), <https://decrypt.co/86795/how-ethereum-nft-project-nouns-is-building-open-source-ip> [<https://perma.cc/A543-EM2L>] (“What differentiates Nouns from those projects in this endeavor is that its creators lay no claim to the brand or randomly-generated characters seen in the NFTs. The project is governed by a Creative Commons CC0 ‘No Rights Reserved’ license, which means anyone can use the Nouns name and characters to create anything. It’s in the public domain.”); 4156 (@punk4156), TWITTER (Dec. 5, 2021, 9:26 AM), <https://twitter.com/punk4156/status/1467515691452534793> [<https://perma.cc/T9AG-KGHG>] (“i love punks, but the copyright issue kind of broke my heart. i held deep 8 figures of punks and the devs unfollowed me when i suggested it. wouldn’t respond to DMs. i’m going to keep 4156 (probably forever), but will otherwise be focusing my time on nouns, toadz and other CC0[.]”).

291. Murtuza Merchant, *Moonbirds and Oddities Will Transition to a CC0 License: What You Need to Know*, BENZINGA (Aug. 6, 2022, 10:00 AM), <https://www.benzinga.com/markets/cryptocurrency/22/08/28386590/moonbirds-and-oddities-will-transition-to-a-cc0-license> [<https://perma.cc/K8VE-A86E>].

292. *Nouns (NOUN)*, COINGECKO [https://www.coingecko.com/en/nft/nouns#:~:text=Nouns%20\(NOUN\)%20price%20floor%20today,total%20market%20cap%20of%20%2431%2C718%2C071.99](https://www.coingecko.com/en/nft/nouns#:~:text=Nouns%20(NOUN)%20price%20floor%20today,total%20market%20cap%20of%20%2431%2C718%2C071.99) (last visited Mar. 3, 2023) [<https://perma.cc/9VS7-WN9V>] (stating that the floor price is \$121,346.65); *Moonbirds (MOONBIRD)*, COINGECKO, <https://www.coingecko.com/en/nft/moonbirds> (last visited Mar. 3, 2023) [<https://perma.cc/48JD-LPHJ>] (stating that the floor price is \$21,227.78).

293. See Hayward, *supra* note 37.

such high prices if the associated artworks are in the public domain? Very simple: the NFT is *not* in the public domain; it is valuable intellectual property for the NFT owners.

2. *Subject Matter*

Table 3 includes ten other points of comparisons, but the list is not meant to be exhaustive. The following discussion highlights the major difference between the copyright system and the system of De-IP. One caveat is important to note: when an NFT is used for a copyrighted artwork, copyright law still applies to the artwork.²⁹⁴ As mentioned above, the NFT creator should include a content or copyright license setting forth the NFT owner's rights to use the artwork, such as in commercial uses.²⁹⁵ Accordingly, the De-IP and copyright systems are not mutually exclusive. They coexist. Both may protect different aspects of NFTs. As discussed below, De-IP adopts some new approaches, such as resale royalties, that are different from the U.S. copyright system, while nonetheless relying on some aspects of copyright law. NFTs use private ordering to adapt and reconfigure some aspects of copyright law.

The subject matter of copyright consists of “original works of authorship fixed in any tangible medium of expression, now known or later developed.”²⁹⁶ Congress has set forth eight non-exhaustive types of works: “(1) literary works; (2) musical works, including any accompanying words; (3) dramatic works, including any accompanying music; (4) pantomimes and choreographic works; (5) pictorial, graphic, and sculptural works; (6) motion pictures and other audiovisual works; (7) sound recordings; and (8) architectural works.”²⁹⁷ Although copyrightable subject matter is broad, a variety of creations have an uncertain status under copyright or fall outside of its protections, ranging from culinary dishes to fragrances to tactile designs to gardens and landscape designs.²⁹⁸ Tony Reese contends that it would be better for Congress to expressly define what non-traditional subject matter falls within copyright in the next great copyright act.²⁹⁹

By contrast, NFTs have no limit on subject matter. They can encompass not only all copyrightable subject matter but anything that can be owned.³⁰⁰ As computer programs, NFTs can be used to identify everything that can be subject to ownership, whether a thing, a service, an event ticket, an entitlement to a loyalty program, personal records, or a legal or financial interest, including traditional IP rights.³⁰¹ Although the most high-profile uses of NFTs reported in the media have been for artwork or other copyrighted works, including music and

294. See Chinlund & Gordon, *supra* note 266.

295. *Id.*

296. 17 U.S.C. § 102(a).

297. *Id.*

298. See R. Anthony Reese, *Copyrightable Subject Matter in the “Next Great Copyright Act,”* 29 BERKELEY TECH. L.J. 1489, 1500–01 (2014).

299. *Id.* at 1502.

300. See *infra* notes 301–10 and accompanying text.

301. See Rothman, *supra* note 112, at 1630.

movies,³⁰² there is no intrinsic reason that NFTs must be used for artwork. Indeed, NFTs can be used to provide ownership or authentication in abstractions that are not visual, such as financial instruments³⁰³ and even intellectual property rights, including copyrights, patents, and trademarks.³⁰⁴ Official records ranging from birth certificates to licenses to property deeds might, in the future, become digitized, authenticated, and owned in NFTs.³⁰⁵ NFTs can also be used to provide ownership in performative obligations or conduct, such as the right to pick a tattoo someone gets,³⁰⁶ or to provide perks to consumers, such as “play-to-earn” games, “digital twins” of real clothing (a concept called *phygital*), or tickets to an online virtual concert.³⁰⁷ Ticketmaster, for example, is planning to use NFTs for ticketing.³⁰⁸ Consumer loyalty and rewards programs are already beginning to use NFTs instead of membership cards.³⁰⁹ Analysts expect NFTs will become a way to access—a virtual ticket to or a virtual identity in—the immersive world of the metaverse.³¹⁰ For our purposes, how NFTs are used for works of authorship is the main point of comparison.

3. Formalities

The U.S. Copyright Act abandoned the requirement of formalities to obtain copyrights in 1989 to join the Berne Convention.³¹¹ Since the beginning of the U.S. copyright system in 1790, copyright law required authors to register their

302. See Adnan Kayyali, *Most Common Uses for NFTs in Everyday Life*, INSIDE TELECOM (July 1, 2022), <https://insidetelcom.com/most-common-uses-for-nfts/> [https://perma.cc/N7WQ-59R2].

303. See Shead, *supra* note 198.

304. See Kessler, *supra* note 198; Elliott, *supra* note 198; Ed Mantilla, *The Interplay of NFTs in Intellectual Property Law*, JD SUPRA (June 4, 2021), <https://www.jdsupra.com/legalnews/the-interplay-of-nfts-in-intellectual-3787133/> [https://perma.cc/SPG5-YNXU] (“Brand owners may want to consider the use of NFTs for brand authentication and marketing of goods and services. LVMH (the owner of Louis Vuitton, Tiffany, and Dom Perignon) reportedly is using the AURA blockchain to allow consumers to use NFTs to trace the authenticity of their branded luxury goods.”).

305. Corinne Bernstein, *5 Business Use Cases for NFTs*, TECHTARGET (July 27, 2021), <https://www.techtarget.com/whatis/feature/5-business-use-cases-for-nfts> [https://perma.cc/7B8B-EXQP].

306. See More, *supra* note 198.

307. See Mark Sullivan, *5 Surprising Ways NFTs Could Transcend the Hype and Become Seriously Useful*, FAST CO. (Dec. 9, 2021), <https://www.fastcompany.com/90704232/new-uses-for-nfts> [https://perma.cc/M3LW-YH2C].

308. See Elizabeth Napolitano, *Ticketmaster Partners with Blockchain Firm Dapper Labs to Issue NFTs for Live Events*, COINDESK, <https://www.coindesk.com/business/2022/08/31/ticketmaster-partners-with-blockchain-firm-dapper-labs-to-issue-nfts-for-live-events/> (Aug. 31, 2022, 11:45 AM) [https://perma.cc/PT4U-3EAR].

309. Riley de León, *NFTs Are Coming for the Loyalty Perks Programs at Brands Like Budweiser*, CNBC (July 23, 2022, 10:39 AM), <https://www.cnbc.com/2022/07/23/nfts-are-coming-for-loyalty-perks-programs-at-brands-like-budweiser.html> [https://perma.cc/U8LG-28VN].

310. See Georgia Weston, *NFTs and Their Role in the “Metaverse,”* 101 BLOCKCHAINS (Dec. 24, 2021), <https://101blockchains.com/nfts-and-metaverse/> [https://perma.cc/WCT4-9PFM].

311. See Michael W. Carroll, *A Realist Approach to Copyright Law’s Formalities*, 28 BERKELEY TECH. L.J. 1511, 1511–12 (2013).

works and deposit copies of them in the Library of Congress, along with publishing the work with a copyright notice.³¹² The Berne Convention, an international agreement establishing minimum standards for copyright protection, forbids its members from imposing formalities on foreign works as a condition of copyright.³¹³ Berne does not, however, restrict what a country can do with respect to domestic works in the country of origin.³¹⁴ In implementing the Berne Convention, Congress chose to keep registration for U.S. works but to shift it from a precondition of copyright to a precondition of filing a copyright lawsuit.³¹⁵ The Copyright Alternative in Small-Claims Enforcement Act of 2020 (“CASE Act”) does not require registration to file a small claim seeking no more than \$30,000 in the Copyright Claims Board.³¹⁶ Copyright scholars and policy-makers have criticized the lack of formalities in copyright systems around the world because it greatly increases transaction costs in searching for copyright holders to obtain permission to use different works.³¹⁷ The lack of formalities has contributed to the problem of orphan works, which are copyrighted works for which it is practically impossible to find the respective copyright owners to license the works.³¹⁸

By contrast, NFTs have formalities in the form of the smart contract that creates the NFT on blockchain, which serves as a public ledger for all transactions.³¹⁹ Each transaction related to an NFT is recorded on blockchain with a unique alphanumeric identifier called a transaction hash, which is publicly viewable.³²⁰ The record includes the wallet addresses (also unique alphanumeric identifiers) for both the sender and the receiver of the NFT.³²¹ People can use more simple and memorable names that correspond with the alphanumeric identifiers of wallets by registering Ethereum Name Service domains.³²² It’s comparable to the process of using domain names for websites to correspond with the IP address of a website.³²³ Blockchain records of transactions do not contain personal names

312. See Christopher Sprigman, *Reform(aliz)ing Copyright*, 57 STAN. L. REV. 485, 491–92 (2004).

313. See Berne Convention, *supra* note 92, art. 5(2).

314. See *id.*, art. 5(1)–(3).

315. See Sprigman, *supra* note 312, at 494–95.

316. *Copyright Claims Board Frequently Asked Questions*, U.S. COPYRIGHT OFF., <https://ccb.gov/faq/> (last visited Mar. 3, 2023) [<https://perma.cc/U5LN-38RM>].

317. See Sprigman, *supra* note 312, at 502.

318. See Abigail Bunce, Note, *British Invasion: Importing the United Kingdom’s Orphan Works Solution to United States Copyright Law*, 108 NW. U. L. REV. 243, 258–59 (2014).

319. See Alex White-Gomez, *What Are Smart Contracts in Crypto?*, ONE37PM (July 19, 2022, 10:03 AM), <https://www.one37pm.com/nft/tech/what-are-smart-contracts-in-crypto> [<https://perma.cc/M3E7-LUBD>].

320. See *Transaction Hash ID (TXID)—What Is It & How to Find the Transaction ID*, COIN GUIDES (July 17, 2021), <https://coinguides.org/transaction-id-txid-tx-hash/> [<https://perma.cc/AQ4P-FY5N>].

321. See Alex Gomez, *How to Verify NFT Ownership (Use This One Simple Method)*, CYBERSCRILLA, <https://cyberscrilla.com/how-nfts-are-tracked-and-verified/> (Nov. 24, 2022) [<https://perma.cc/W5TK-PTG4>].

322. See *A Guide to ENS Domains + IPFS (Ethereum Name Service)*, FLEEK (Dec. 16, 2020), <https://blog.fleek.co/posts/guide-ens-domains-ipfs-ethereum-name-service> [<https://perma.cc/CR4J-4MZM>].

323. *Id.*

or contact information.³²⁴ Instead, they contain unique alphanumeric identifiers.³²⁵ This approach serves the goal of “self-sovereign identity” in which people can take control over their digital identity and personal data.³²⁶ It is a sharp reaction to and rejection of the surveillance capitalism pervasive on Internet platforms, which monetizes people’s Internet activities by tracking them and storing and utilizing their data.³²⁷ Although blockchain records are publicly viewable, to find a transaction one needs to know the transaction hash to conduct a search of the record.³²⁸ Or, if an NFT is displayed on a marketplace, typically all transactions related to it are provided.³²⁹

Because NFTs do not provide contact information for the present owner of the NFT, a similar problem of “orphan NFTs” could arise in the future. A member of the public might want to invite the owner of the NFT to display the work associated with the NFT in an online museum or gallery but be unable to do so without any contact information for the NFT owner. NFT formalities, as currently constructed, do not solve the problem of orphan NFTs. Yet, it’s not difficult to imagine how public registries can be developed for both NFTs and copyrighted works to facilitate the ability to transact with the respective owners.³³⁰ A public registry could be set up for NFT owners to register their information with a global registry so would-be licensees and business partners can make a request through a secure, privacy-protecting system that does not necessarily even have to reveal the owner’s identity in transmitting the request to the owner. But, until such a registry is created, the formalities of NFTs in terms of the transaction records stored on blockchain do not provide contact information to enable licensing requests.³³¹ Prospective licensees would need to try to contact NFT owners through their social media channels, if available.

324. See *What Is Blockchain and Why Should Records Management Professionals Care?*, IRON MOUNTAIN, <https://www.ironmountain.com/resources/general-articles/w/what-is-blockchain-and-why-should-records-management-professionals-care> (last visited Mar. 3, 2023) [https://perma.cc/VNF2-ZZLJ].

325. See *id.*

326. See *Blockchain Identity Management: The Definitive Guide (2021 Update)*, TYKN (May 19, 2021), <https://web.archive.org/web/20220120162301/https://tykn.tech/identity-management-blockchain/> [https://perma.cc/3FLU-3PXF].

327. See SHOSHANA ZUBOFF, *THE AGE OF SURVEILLANCE CAPITALISM: THE FIGHT FOR A HUMAN FUTURE AT THE NEW FRONTIER OF POWER* 54–55 (2019) (“Right now, . . . the extreme asymmetries of knowledge and power that have accrued to surveillance capitalism abrogate these elemental rights as our lives are unilaterally rendered as data, expropriated, and repurposed in new forms of social control, all of it in the service of others’ interests and in the absence of our awareness or means of combat.”).

328. See *How Can I Look Up a Transaction on the Blockchain?*, BLOCKCHAIN.COM SUPPORT (Dec. 29, 2021, 11:24 AM), <https://web.archive.org/web/20220119160833/https://support.blockchain.com/hc/en-us/articles/211160663-How-can-I-look-up-a-transaction-on-the-blockchain-> [https://perma.cc/R88M-MP9S].

329. See, e.g., *CryptoPunk 5822*, OPENSEA, <https://opensea.io/assets/matic/0x2953399124f0cbb46d2cbacd8a89cf0599974963/32944685941245740787211399706136584223423745296742980107835546608153487474689> (last visited Mar. 3, 2023) [https://perma.cc/Z4KA-8AD8].

330. A Singapore-based company Concensum attempted to establish a “Global Copyright Register” for digital images, but it appears now to be defunct. *Copyright Reinvented. Worldwide.*, CONCENSUM, <https://web.archive.org/web/20200908030257/https://concensum.org/en/e-services> (last visited Mar. 3, 2023) [https://perma.cc/C8L9-4ETE].

331. See *supra* notes 324–29 and accompanying text.

4. *Exclusive Rights, Resale Royalty Rights, and Enforcement*

The Copyright Act lists the exclusive rights of copyright in Section 106.³³² They are the rights to reproduce, to prepare derivative works, to distribute copies, to publicly perform, and to publicly display.³³³ As De-IP, NFTs do not have a formal list of exclusive rights. But the technology of blockchain and the smart contract for the NFT provides the NFT owners the exclusive rights to exclude, to transfer, and to use or possess the NFTs.³³⁴ The crypto wallet address for the owner of the NFT is recorded on blockchain; that public record is practically impossible to change through hacking of blockchain.³³⁵ If the NFTs are used to identify copyrighted works, such as artwork or an image, a content license should delineate what rights the NFT buyer gets to use the copyrighted artwork or image.³³⁶ Typically, NFT content licenses include the right of the owner to publicly display the artwork or image.³³⁷ Sometimes, the content licenses give greater rights, such as commercialization rights, a topic discussed below.

The clearest example of how NFTs operate as De-IP is the adoption of resale royalties for creators of NFTs (also commonly called creator royalties). For over 200 years, the U.S. copyright system failed to recognize any right to resale royalties for artists—meaning that artists had no statutory right to royalties for sales of their works after the first sale.³³⁸ Indeed, Congress has rejected every single bill proposing an amendment to add a right to resale royalties, including four bills since 1978.³³⁹ In 2013, the Copyright Office issued a report supporting Congress’s consideration of recognizing a right to resale royalties or various alternatives, both statutory and voluntary measures.³⁴⁰ The Copyright Office report found the available information “does not support the contention that adoption of a resale royalty right would cause substantial harm to the U.S. art market.”³⁴¹ Although the Copyright Office report stopped short of endorsing one approach,

332. 17 U.S.C. § 106.

333. *Id.*

334. See *supra* notes 302–04 and accompanying text; *What Is an NFT Smart Contract?*, HEDERA, <https://hedera.com/learning/smart-contracts/nft-smart-contract> (last visited Mar. 3, 2023) [<https://perma.cc/B4XC-UNVX>].

335. NFTs are stolen typically through phishing and the use of deception by a thief who gets NFT owners to expose their private keys for their crypto wallet by mistakenly approving a transaction under false pretenses. See Erin Gobler, *How Do People Steal NFTs?*, INV. JUNKIE, <https://investorjunkie.com/nfts/how-do-people-steal-nfts/> (Aug. 15, 2022) [<https://perma.cc/4SPN-9QF8>].

336. See Nftjedi, *NFT Myth Busting: Buying an NFT Is NOT Buying the Art or Content*, NOUNFT (Oct. 20, 2021), <https://nounft.com/2021/10/20/nft-myth-busting-buying-an-nft-is-not-buying-the-art-or-content/> [<https://perma.cc/35NN-5NUV>].

337. *Id.*

338. See Jacqueline Pasharikov, Article, *Edvard Munch’s “The Scream” Screams for Droit de Suite: Why Congress Should Enact a Federal Droit de Suite Statute Governing Artists’ Resale Rights in the United States*, 26 U. FLA. J.L. & PUB. POL’Y 383, 385 (2015).

339. See American Royalties Too Act of 2015, H.R. 1881, 114th Cong. (2015); Equity for Visual Artists Act of 2011, H.R. 3688, 112th Cong. (2011); Visual Artists Rights Act of 1987, H.R. 3221, 100th Cong. (1987); Visual Artists Rights Amendment of 1986, S. 2796, 99th Cong. (1986); Visual Artists’ Residual Rights Act of 1978, H.R. 11403, 95th Cong. (1978).

340. See RESALE ROYALTIES, *supra* note 85, at 65–73.

341. See *id.* at 66.

it “indeed supports consideration of a resale royalty right as one option to address the historic imbalance in the treatment of visual artists.”³⁴² But, Congress failed to act.³⁴³

Approximately eighty countries have recognized a right to resale royalties, and there are efforts within the WIPO for international harmonization in favor of the right.³⁴⁴ As the late Senegalese sculptor Ousmane Sow put it, “[a]rtists do not live on thin air.”³⁴⁵ In 1920, France was the first to recognize a right to resale royalties (called *droit de suite*).³⁴⁶ The law was meant to help starving artists and their heirs who otherwise wouldn’t benefit from a dramatic increase in the value of artwork after it was sold, such as was reportedly the case with the French painter Jean-François Millet.³⁴⁷ The United Kingdom and Australia have more recently recognized the right to resale royalties,³⁴⁸ although the United Kingdom was obligated to do so when it was a part of the European Union, which has a Directive requiring EU members to recognize a limited right to resale royalties for sales by art professionals.³⁴⁹ The UK and Australia are significant because they are common-law countries like the United States, and the origin of the U.S. copyright system was informed by the British approach.³⁵⁰

There is a growing call for the international recognition of a right to resale royalties, in response to the growing digital market.³⁵¹ As then WIPO Director General Francis Gurry stated: “[t]he digital environment and the globalization of markets present both vulnerabilities and opportunities, and it is appropriate that we consider how we might address the gaps that exist in connection with the artist’s resale right.”³⁵² Yet, if history is a guide, any proposal in the U.S. is likely to face intense opposition (although support from artists). The Copyright Office’s 2013 report recounts the opposing factions and arguments—which appear to create a stalemate.³⁵³ In 1977, California became the first and only state to recognize under state law a right to resale royalties for sales of works in the

342. *See id.*

343. *See supra* note 339 and accompanying text.

344. *See Jewell, supra* note 89.

345. *See id.*

346. *See id.*

347. *See* Eliza Hall, Article, *The French Exception: Why the Resale Royalty Works in France and Why It Matters to the U.S.*, 1 J. INT’L MEDIA & ENT. L. 321, 324–29 (2007).

348. *See Artist’s Resale Right*, GOV.UK (May 16, 2014), <https://www.gov.uk/guidance/artists-resale-right> [<https://perma.cc/66HZ-9MD5>]; *Your Australia-UK FTA: Artist Resale Royalties*, AUSTRALIAN GOV’T DEP’T OF FOREIGN AFFS. & TRADE, <https://www.dfat.gov.au/trade/agreements/negotiations/aukfta/stories-from-australian-businesses/your-australia-uk-fta-artist-resale-royalties> (last visited Mar. 3, 2023) [<https://perma.cc/72KZ-KVMX>].

349. Council Directive 2001/84/EC of the European Parliament and of the Council of 27 September 2001 on the Resale Right for the Benefit of the Author of an Original Work of Art, recital 3, 2001 O.J. (L 272) 32–36, http://www.wipo.int/wipolex/en/text.jsp?file_id=180301 [<https://perma.cc/KM45-GCJQ>].

350. *Legal History of Australia and the United Kingdom*, UNIV. OF MELBOURNE, <https://unimelb.libguides.com/legalhistoryresearch> (Dec. 20, 2022, 9:14 AM) [<https://perma.cc/ZKL2-8AZB>].

351. *See Jewell, supra* note 89.

352. *See id.*

353. *See, e.g.,* RESALE ROYALTIES, *supra* note 90, at 26–60.

state.³⁵⁴ However, in 2018, a federal court ruled that the Copyright Act preempted state law (as the exclusive determiner of copyright law in the United States), rendering California's law invalid.³⁵⁵ In short, for over 230 years, there were no resale royalties for artists in the United States—until NFTs changed everything.

Using NFTs, artists now have the option of choosing to require a royalty for every resale of their NFTs.³⁵⁶ Of course, there will be critics of the rise of resale royalties for NFTs, just as there was intense opposition to a statutory right in the United States. Artists, however, love NFT resale royalties.³⁵⁷ It helps them work fulltime as artists, pursuing their creative passion. As photographer Justin Aversano explained, resale royalties are “passive income” to artists, which provides greater “financial stability.”³⁵⁸ Aversano became successful by selling NFTs of his photographs, and he has worked to help other photographers and artists become successful.³⁵⁹

NFTs give the power back to artists, who do not have to accept the unfavorable terms of auction houses or other intermediaries to sell their artworks. As Charlotte Kent summarized:

[T]he important point to hold onto is that the hype and speculation right now are distractions from the potential this technology has to fix the inequity artists experience in the traditional marketplace. Artists have sought a more respectful art industry for decades. Now, the technology is here that can help them push that goal. Previous efforts at equity depended on industry leaders and courts. In this instance, artists' demands are shaping what is possible.³⁶⁰

Aversano and other prominent artists agree: “[a]rtists can take the power back and put their art in a platform that will actually help them be abundant financially.”³⁶¹ Resale royalties are empowering in two related ways: artists can choose whether to require a resale royalty for resales of their NFTs, plus the potential revenue stream from resale royalties diminishes the need for the artists

354. See Katreina Eden, *Fine Artists' Resale Royalty Right Should Be Enacted in the United States*, 18 N.Y. INT'L L. REV. 121, 128–32 (2005).

355. *Close v. Sotheby's, Inc.*, 894 F.3d 1061, 1076 (9th Cir. 2018).

356. See Charlotte Kent, *Artists Have Been Attempting to Secure Royalties on Their Work for More Than a Century. Blockchain Finally Offers Them a Breakthrough*, ARTNET (Apr. 7, 2021), <https://news.artnet.com/opinion/artists-blockchain-resale-royalties-1956903> [<https://perma.cc/KV78-6BL7>].

357. See *NFT Royalties: Why Artists Love Them, and Traders Don't*, CNBC-TV18 (Aug. 17, 2022, 7:55 AM), <https://www.cnbc.com/cryptocurrency/nft-royalties-why-artists-love-them-and-traders-dont-14496762.htm> [<https://perma.cc/SEN5-TS7D>].

358. Taylor Locke, *This 28-year-old Artist Made Over \$130,000 Selling NFTs in Just 5 Months*, CNBC (July 9, 2021, 12:46 PM), <https://www.cnbc.com/2021/07/09/millennial-artist-made-over-130000-selling-nfts-in-about-5-months.html> [<https://perma.cc/ELR8-XGRV>].

359. *Id.*

360. Kent, *supra* note 356.

361. Locke, *supra* note 358; see Comments of Edward Lee and Nelson Rosario to the Non-Fungible Study by the United States Copyright Office and the United States Patent and Trademark Office (USPTO) 2, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4353002 [perma.cc/JZY5-SNT3] [hereinafter Comments of Lee and Rosario] (quoting artist Tyler Hobbs, Claire Silver, and FEWOCiOUS).

to have to rely on a publisher, studio, or other intermediary to become successful—a development discussed below.

Despite the importance of resale royalties to artists, the collection of royalties is uncertain. They are not automatic but, instead, require each marketplace to collect them for transactions on its platform.³⁶² Given the automated nature of blockchain transactions, this lack of automated collection of resale royalties is a major shortcoming. Although NFT developers are working on technological ways to fix this gap, whether they will gain widespread adoption is unclear.³⁶³ Plus, for the existing NFTs, it may be difficult, if not practically impossible, to change the smart contract to a new format. For now, artists may be at the mercy of each marketplace for the collection of the royalty.

Unfortunately, in 2022, several new marketplaces decided against collecting royalties for artists under so-called “Zero Royalties” policies as a way to attract new users and gain marketshare, competing against the then-market leader OpenSea.³⁶⁴ Many artists protested this circumvention of royalties, which led some of the new marketplaces to collect royalties in limited fashion and OpenSea to recommit to collecting full royalties.³⁶⁵ But, in practice, OpenSea collected the lion’s share of royalties for artists, while its sales volume eroded mainly to the upstart Blur, which did not collect royalties as much or at all.³⁶⁶ The collection of resale royalties is contingent on each marketplace.³⁶⁷ How this battle between OpenSea and Blur shakes out remains to be seen, but it has led to not only a dramatic reduction of royalties for NFT creators³⁶⁸ but also to a destructive tit-for-tat, with each marketplace attempting to outmaneuver the other—at the expense of artists.³⁶⁹ This race to the bottom resulted in OpenSea abandoning, in February 2023, its policy of full collection of artist royalties in favor of the minimal amount of 0.5 percent to match Blur’s low rate for prior NFT collections.³⁷⁰

362. See generally Edward Lee, *Decentralized Collaboration Through Private Ordering* (Feb. 2023) (manuscript on file with author).

363. See @MichaelB, *Enabling NFT Royalties with EIP-2981*, HACKERNOON (Jun. 29, 2022), <https://hackernoon.com/enabling-nft-royalties-with-eip-2981> [perma.cc/4J8F-237Z]; *Immutable Expands Enforceable Royalties to Ethereum To Protect \$1.8b of Creator Royalties*, PR NEWswire (Nov. 4, 2022, 8:00 ET), <https://www.prnewswire.com/news-releases/immutable-expands-enforceable-royalties-to-ethereum-to-protect-1-8b-of-creator-royalties-301668879.html> [perma.cc/YP8Q-837V].

364. See Comments of Lee and Rosario, *supra* note 361, at 4–5.

365. *Id.*

366. *Id.*

367. See Langston Thomas, *What NFT Marketplaces Support Creator Royalties? A Guide*, NFTNOW (Feb. 10, 2023), <https://nftnow.com/features/heres-where-the-top-nft-marketplaces-stand-on-creator-royalties/> [perma.cc/ZK7F-FXQH].

368. See @punk9059, TWITTER (Feb. 18, 2023, 6:22 PM), <https://twitter.com/punk9059/status/1627101288868741122> [perma.cc/WT6L-S8BW] (effective royalty collection on Blur near 0); @punk9059, TWITTER (Feb. 18, 2023, 9:49 AM), <https://twitter.com/punk9059/status/1626972175705202688> [perma.cc/U98X-D242].

369. Reethu Ravi, *Battle of the NFT Marketplaces: Blur Tells Users to Block OpenSea!*, NFT EVENING (Feb. 17, 2023), <https://nftevening.com/battle-of-the-nft-marketplaces-blur-tells-users-to-block-opensea/> [perma.cc/G944-CVDN].

370. See Andrew Hayward, *OpenSea Drops Fees, Cuts Creator Royalty Protections as Rival Blur Rises*, DECRYPT (Feb. 17, 2023), <https://decrypt.co/121638/opensea-drops-fees-royalty-protections-blur-rises> [perma.cc/X9D4-GYAK].

(It goes beyond the scope of this Article to address this ongoing controversy. It provides an example of how the unilateral decisions of two centralized NFT platforms can undermine the financial sustainability of artists.)

5. *A Novel Solution to the Digital First-Sale Controversy*

NFTs also offer a novel solution to the digital first-sale controversy. Thus far, U.S. courts have rejected the argument that a digital first-sale right (also called digital exhaustion) exists for owners of lawful digital copies of works, such as music files.³⁷¹ In the Copyright Act, the first-sale doctrine is framed as a limitation to the public distribution right, not the right to copy.³⁷² Emphasizing this distinction, the Second Circuit interpreted the first-sale provision to not permit an unauthorized copy, even if it is merely to effectuate a transfer of the digital file from one person to another person in a subsequent sale.³⁷³ Legal scholars have roundly criticized this narrow approach to the first-sale doctrine as misunderstanding what the doctrine is meant to protect.³⁷⁴

NFTs resolve this controversy by reframing the entire debate. Since NFTs are themselves IP embodied in unique virtual tokens, the ability of a buyer to resell or transfer the NFT becomes the more important issue after the first sale of the NFT. By design, NFTs are made for reselling and transfers that are automatically recorded on blockchain. In other words, NFTs have their own logic or principle of the first-sale doctrine enabling buyers of NFTs to resell and transfer them.

Granted, this approach does not answer whether a digital first-sale doctrine should apply to the digital copies of any artwork associated with an NFT. But, as discussed below, in the NFT market, unauthorized copies have diminished significance. NFT owners have far less reason for concern about unauthorized copies or the digital first-sale doctrine because NFTs potentially have far greater value than mere digital copies. At least for visual art, where authenticity is the prize, copying has low or negligible economic harm to the artists.³⁷⁵ That logic applies as well to unique tokens.³⁷⁶ Another reason why the controversy over the digital first-sale doctrine is less important in the NFT context: NFT owners can elect to receive resale royalties (although the recent controversy between OpenSea and Blur has put them into doubt for many existing NFTs).³⁷⁷ That added source of revenue from NFT resales makes the potential loss of revenue from the resale of digital copies of a work far less significant. NFTs alter the economics of copies and distribution.

371. See *Capitol Records, LLC v. Redigi Inc.*, 910 F.3d 649, 664 (2d Cir. 2018).

372. See 17 U.S.C. § 109(a).

373. See *Capitol Records, LLC*, 910 F.3d at 659.

374. See, e.g., Aaron Perzanowski & Jason Schultz, *Digital Exhaustion*, 58 UCLA L. REV. 889, 912 (2011) (rejecting the “understanding [of] the first sale doctrine as an important but idiosyncratic limit on the distribution right,” and arguing for an exhaustion principle that protects consumers’ rights to use copies they have purchased).

375. See Amy Adler, *Why Art Does Not Need Copyright*, 86 GEO. WASH. L. REV. 313, 330–31 (2018).

376. Cf. *id.* at 332–33 (explaining that there is no market for copies).

377. See *id.* at 338; see also discussion *supra* Section II.A.

6. *NFTs Diminish the Significance of Unauthorized Copies and Derivative Works*

Another way in which NFTs have changed the traditional contours of copyright is to diminish the significance of unauthorized copies and unauthorized derivative works. Paradoxically, copying itself, which is the foundation of the Copyright Act, has become less significant in online activities related to NFTs.³⁷⁸ By creating a new IP in the form of an NFT, whose value derives in its uniqueness,³⁷⁹ NFTs have made unauthorized copies and unauthorized derivative work less significant. In short, the unauthorized copies do not substitute for the authentic NFT.

We can see this phenomenon especially for the most successful NFT collections, such as the CryptoPunks and Bored Ape Yacht Club. Both collections have spawned many other collections that mimic or copy the underlying cartoon characters of the CryptoPunks and Bored Apes—to varying degrees of similarity.³⁸⁰ These collections have been described in different ways, including as clones, copycats, alternatives or alt-versions, expansion versions, flipped or mirrored versions, and derivatives.³⁸¹ The marketplace OpenSea has reportedly removed the flipped or mirrored versions that take the original image and flip the orientation to left-facing.³⁸² But there is no shortage of other derivative Punks and Apes selling on OpenSea. Under our traditional doctrines of copyright law, some of these versions would likely be considered infringing, while other versions might be non-infringing, either as fair uses (including parodies) or merely copying an unprotectable idea.

But what's significant is that neither Larva Labs, the creator of the CryptoPunks, nor Yuga Labs, the creator of the Bored Apes and subsequent owner of

378. See discussion *supra* Subsection III.C.1.

379. See Bryan Wilson, *Blockchain and the Law of the Cat: What CryptoKitties Might Teach*, 88 UMKC L. REV. 365, 390 (2019) (“Cryptokitties can also help with IP rights management, through legal engineering, creativity, and the development of smart contracts to programmatically enforce the rights of the property holder Further, because Cryptokitties exist as non-fungible property, they provide us with a way to understand how to verify authenticity of non-fungible goods and even to divide ownership rights with more granularity and resolution. At a theoretical level, all of these features help expand the efficiency, transparency, and trust with regard to intellectual property and rights management in ways that previously would have been impossible.”).

380. See Eric Paul Rhodes, *A Short History of Alt-punks NFTs*, OUTER REALM (Aug. 13, 2021), <https://www.theouterrealm.io/blog/a-short-history-of-alt-punks-nfts> [<https://perma.cc/UG3C-63RL>] (cataloguing alternatives of CryptoPunks); Max Parasol, *NFT Clone Punks: Right or Wrong?*, COIN TEL. MAG. (Dec. 10, 2021), <https://cointelegraph.com/magazine/2021/12/10/can-someone-explain-to-me-why-nft-clones-are-selling-for-so-much> [<https://perma.cc/8WU4-JXHD>]; Adi Robertson, *Two NFT Copycats Are Fighting Over Which Is the Real Fake Bored Ape Yacht Club*, VERGE (Dec. 30, 2021, 1:29 PM), <https://www.theverge.com/2021/12/30/22860010/bored-ape-yacht-club-payc-phayc-copycat-nft> [<https://perma.cc/YQ6K-CNP6>]; Shlomo Sprung, *The Bored Ape NFT Family Tree*, BOARDROOM, <https://boardroom.tv/bored-ape-yacht-club-family-nft/> (Jan. 24, 2022) [<https://perma.cc/T7SW-KHG3>].

381. See, e.g., Robertson, *supra* note 380.

382. See, e.g., *id.* (“OpenSea has banned the PHAYC and Phunky Ape Yacht Club (or PAYC) collections, both of which are based on the same gimmick: selling NFTs with mirrored but otherwise identical versions of high-priced Bored Ape Yacht Club avatars.”); Virginia Valenzuela, *CryptoPhunks: CryptoPunks Parody or Copycat?*, SUPERRARE MAG. (Aug. 19, 2021), <https://editorial.superrare.com/2021/08/19/cryptophunks-cryptopunks-parody-or-copycat/> [<https://perma.cc/BTP8-NLWQ>].

the IP rights to CryptoPunks, has discouraged the derivative Punks and Apes, respectively.³⁸³ (The CryptoPunks and the Bored Ape licenses allow the NFT owners to create derivative works, although most of the derivative Punks and Apes do not appear to be associated with CryptoPunks and Bored Ape owners.³⁸⁴) Of course, Yuga Labs could later pursue a copyright infringement lawsuit if it wanted. But to do so would likely spark tremendous backlash among some in the Web3 community. Back in July 2021, Larva Labs reportedly sent a DMCA notice to OpenSea alleging that the flipped version “CryptoPhunks” infringed the copyrights to the CryptoPunks characters.³⁸⁵ That DMCA notice sparked intense backlash against Larva Labs for “applying the ‘old-school’ rules of art into this new frontier of NFTs.”³⁸⁶ Indeed, one highly influential and vocal owner of a CryptoPunk who goes by the name Punk 4156 even sold his CryptoPunk—for \$10 million!—in protest of Larva Labs’ approach to copyright, including its failure, at the time, to give full IP rights to NFT owners.³⁸⁷ As Punk 4156 tweeted: “it’s not about copyright vs no copyright, it’s about making the pixels as censorship resistant as the token they’re attached to. if you don’t assign the token and the image the same rights, what’s the point of binding them together eternally on a blockchain?”³⁸⁸ Yuga Labs has filed a lawsuit against a clone version of Bored Apes for alleged trademark infringement, but not copyright infringement.³⁸⁹ Unlike copyright law, trademark law requires a trademark owner “to take reasonable efforts to police infringements of [the] mark” to avoid loss or abandonment of the trademark.³⁹⁰ This difference between copyright and trademark law produces what I call the *copyright-trademark divide* by which a copyright owner cannot be as permissive in allowing unlicensed uses of its trademark without risking its loss.³⁹¹

383. See Robertson, *supra* note 380.

384. See *CryptoPunks Terms para. 2(a)*, CRYPTOPUNKS, <https://licenseterms.cryptopunks.app/> (last visited Mar. 3, 2023) [perma.cc/LWZ6-47NR]; *Terms & Conditions*, *supra* note 41.

385. See Eric Paul Rhodes, *CryptoPunks and Copyrights: What’s All the Fuss About?*, OUTER REALM (July 12, 2021), <https://www.theouterrealm.io/blog/cryptopunks-copyrights> [https://perma.cc/VK34-D3KK]; *CryptoPhunks*, NOT LARVA LABS, <https://notlarvalabs.com/cryptophunks> (last visited Mar. 23 2023) [https://perma.cc/KJ7N-5T3U].

386. Valenzuela, *supra* note 382 (quoting a letter from The Phunks to Larva Labs).

387. See Andrew Hayward, *CryptoPunk Owner Explains Why IP Dispute Led to \$10M Ethereum NFT Sale*, DECRYPT (Dec. 10, 2021), <https://decrypt.co/88041/cryptopunks-ip-complaints-punk4156-10m-ethereum-nft-sale> [https://perma.cc/YSSD-KB7B].

388. 4156 (@punk4156), TWITTER (Dec. 5, 2021, 11:41 AM), <https://twitter.com/punk4156/status/1467549624806354957> [https://perma.cc/TZU6-LQW4].

389. Sander Lutz, *Bored Ape Yacht Club’s Creators Declared War on a Vocal Critic. Could It Backfire?*, DECRYPT (July 3, 2022), <https://decrypt.co/104366/bored-ape-yacht-clubs-creators-declared-war-on-a-vocal-critic-could-it-backfire> [https://perma.cc/4Y4C-973M].

390. *Rockwell Graphic Sys., Inc. v. DEV Indus., Inc.*, 925 F.2d 174, 179 (7th Cir. 1991).

391. See Lee, *supra* note 362, at 27. This divide may result in confusion, if not dissension, among BAYC owners, if they believe, as some do, the Bored Ape license is unclear. See, e.g., @phunk2243, TWITTER (Feb. 15, 2023, 2:31 PM), <https://twitter.com/phunk2243/status/1625955903064375297> [perma.cc/JVT7-RJ72].

This is not to suggest that DMCA claims and IP lawsuits will never be filed for artworks related to NFTs. Indeed, Miramax filed a now-settled copyright lawsuit against Quentin Tarantino for his planned “Pulp Fiction” NFTs,³⁹² while Hermes prevailed at trial in its trademark lawsuit against Mason Rothschild for selling “MetaBirkin” NFTs that copy aspects of the iconic Birkin bag.³⁹³ It’s notable that these two legal controversies involve traditional works (movie and handbag) that were created pre-NFTs. By contrast, the CryptoPunks and Bored Apes were both created as digital art specifically for NFTs.³⁹⁴ Especially for digital art in the Web3/NFT era, one school of thought does not treat unauthorized (digital) copying as infringement or something that creators should worry about.³⁹⁵ Why? Because the NFT is the authentic token for the artwork and has far more value than a mere copy.

The dynamics of copying artworks associated with NFTs should not be surprising. Amy Adler has persuasively argued that, for visual art, “copies play almost no economic role in the art market, and when they do, the role is trivial.”³⁹⁶ Adler contends:

[T]he norm of authenticity, which forms the foundation of the art market, makes copyright superfluous. The market’s insistence on authenticity ensures that even if an artist’s content is stolen, the thief cannot misappropriate the economic value of the work. As a result, copying causes no economic harm to visual artists.³⁹⁷

Although Adler was not speaking about NFTs, her theory fits here as well. Like traditional art, authenticity is one of the most important features of NFTs. Indeed, the creation of a unique token authenticated on blockchain is the *raison d’être* of NFTs. An additional benefit of NFTs is that they provide a way to make digital art—that has no existence in physical form and that can be reproduced infinitely in perfect digital copies—to be embodied in a unique NFT. Indeed, it’s possible that the proliferation of copies of digital artwork can help to build a brand or business around it, thereby increasing the value of the NFT. The copies may become free marketing.

392. See Nftjedi, *Miramax Sues Quentin Tarantino for Alleged Copyright Infringement Based on His Planned Sale of NFTs*, NOUNFT (Nov. 17, 2021), <https://nounft.com/2021/11/17/miramax-sues-quentin-tarantino-for-alleged-copyright-infringement-based-on-his-planned-sale-of-nfts/> [https://perma.cc/X9J5-U69Z]; Adi Robertson, *Quentin Tarantino Settles NFT Lawsuit With Miramax*, VERGE (Sep. 9, 2022, 11:11 AM), <https://www.theverge.com/2022/9/9/23344441/quentin-tarantino-pulp-fiction-nft-miramax-lawsuit-settled> [perma.cc/7QP3-C6HU].

393. See Robert Williams, *Hermès Sues NFT Creator Over ‘MetaBirkin’ Sales*, BUS. OF FASHION (Jan. 17, 2022), <https://www.businessoffashion.com/news/luxury/hermes-sues-nft-creator-over-metabirkin-sales/> [https://perma.cc/A39U-A769]; Cam Thompson, *Hermès Wins Trademark Lawsuit Against MetaBirkins NFTs, Setting Powerful Precedent for NFT Creators*, COINDESK (Feb. 8, 2023, 3:08 PM), <https://www.coindesk.com/web3/2023/02/08/hermes-wins-trademark-lawsuit-against-metabirkins-nfts-setting-powerful-precedent-for-nft-creators/> [https://perma.cc/QG9E-75KU].

394. See Robertson, *supra* note 380.

395. See Valenzuela, *supra* note 382.

396. See Adler, *supra* note 375, at 322–23.

397. See *id.* at 323.

Relatedly, as unauthorized copies and derivative works have diminished in significance in the NFT market, remix culture has grown.³⁹⁸ This growth of a remix culture online should probably not be too surprising, either. The CryptoPunks, Bored Apes, and many of the most popular NFT collections involve cartoons and cartoon characters.³⁹⁹ Although Walt Disney did not encourage remixes of Mickey Mouse, the Japanese culture for *manga* or comics has embraced the ability of people to create remixes of existing comics under a norm of *doujinshi*.⁴⁰⁰ As Lessig explained in his book *Free Culture*:

Doujinshi are also comics, but they are a kind of copycat comic. A rich ethic governs the creation of doujinshi. It is not doujinshi if it is *just* a copy; the artist must make a contribution to the art he copies, by transforming it either subtly or significantly. A doujinshi comic can thus take a mainstream comic and develop it differently—with a different story line. Or the comic can keep the character in character but change its look slightly. There is no formula for what makes the doujinshi sufficiently “different.” But they must be different if they are to be considered true doujinshi.⁴⁰¹

What we are now witnessing with the many derivatives and copycats of CryptoPunks, Bored Apes, and other popular NFT collections is very similar. OpenSea, the largest NFT marketplace, recognizes this development.⁴⁰² It has adopted a policy of filtering against verbatim copies—so called “copymints”—but allowing remixes.⁴⁰³

Lest there be any misunderstanding, my argument is *not* that norms regarding unauthorized copying of content related to NFTs render our Copyright Act obsolete or ineffectual as one student’s provocative note argues.⁴⁰⁴ The settled Miramax-Tarantino lawsuit indicates the relevance of copyright.⁴⁰⁵ On the other hand, a new Web3 ethos of permissiveness in using digital content is developing as a legitimate form of private ordering.

398. See Rhodes, *supra* note 385.

399. See *id.*

400. See LAWRENCE LESSIG, *FREE CULTURE: HOW BIG MEDIA USES TECHNOLOGY AND THE LAW TO LOCK DOWN CULTURE AND CONTROL CREATIVITY* 24–28 (2004).

401. See *id.* at 25–26.

402. OPENSEA, <https://opensea.io> (last visited Mar. 3, 2023) [<https://perma.cc/TJ4C-JPV8>].

403. *What Is OpenSea’s Copymint Policy?*, OPENSEA, <https://support.opensea.io/hc/en-us/articles/8381389579539-What-is-OpenSea-s-copymint-policy-> (last visited Mar. 3, 2023) [<https://perma.cc/DS8T-Q6SQ>].

404. See Nick Vogel, Comment, *The Great Decentralization: How Web 3.0 Will Weaken Copyrights*, 15 J. MARSHALL REV. INTELL. PROP. L. 136, 137 (2015).

405. See Nftjedi, *supra* note 392.

7. *Opening the Gates: Authors Can Bypass Major Labels, Studios, Galleries, and Other Intermediaries*

The changes described above relate to general rights or limitations recognized in the Copyright Act. Another disruption produced by NFTs relates to how the copyright system has been tailored, often in industry-specific provisions, to serve publishers, movie studios, music labels, and other intermediaries. In 2004, Tim Wu highlighted this overlooked aspect of our copyright system.⁴⁰⁶ As Wu explained,

[T]he main challenges for twenty first century copyright are not challenges of authorship policy, but rather new and harder problems for copyright's *communications* policy: copyright's poorly understood role in regulating competition among rival disseminators. Since its inception, copyright has set important baselines upon which publishers and their modern equivalents do business.⁴⁰⁷

Wu catalogues the sections of the Copyright Act that are tailored to certain industries or intermediaries.⁴⁰⁸ Joseph Liu aptly described this development as the ascendance of “regulatory copyright” that serves to regulate specific industries.⁴⁰⁹ In recent work, Peter Lee chronicled how both patents and copyrights have helped to solidify the consolidation and market power of the major copyright industries: film production and distribution, music recording, and book publishing.⁴¹⁰ Over time, this dynamic favors the industry incumbents—the major publishers, studios, and the like.⁴¹¹

NFTs have the potential to disrupt the market dominance of industry gatekeepers and intermediaries—in effect, to open the gates to a wider pool of creators. NFTs can be used as sources of funding or patronage—bypassing the need for a gatekeeper. As Chris Berg explained: “[r]ather than relying on a small community of the rich in, say, Venice, digital artists can immediately reach a global supply of patrons.”⁴¹²

For example, the DJ/musician 3LAU earned \$11.6 million by selling NFTs that gave buyers 50% rights to his streaming royalties for an album.⁴¹³ Not only

406. See Timothy Wu, *Copyright's Communications Policy*, 103 MICH. L. REV. 278, 279 (2004).

407. *Id.*

408. *Id.* at 290 (discussing 17 U.S.C. §§ 111–122, 512, 1008).

409. See Joseph P. Liu, *Regulatory Copyright*, 83 N.C. L. REV. 87, 90–91 (2004).

410. See Peter Lee, *Reconceptualizing the Role of Intellectual Property Rights in Shaping Industry Structure*, 72 VAND. L. REV. 1197, 1236–65 (2019).

411. *Id.* at 1265–66.

412. Chris Berg, *Non-Fungible Tokens and the New Patronage Economy*, COINDESK (Sept. 14, 2021, 7:30 AM), <https://www.coindesk.com/business/2021/03/22/non-fungible-tokens-and-the-new-patronage-economy/> [https://perma.cc/SKY5-RQ7D].

413. See Jason Bracelin, *DJ Justin Blau Made Millions with NFTs. His Next Move Could Disrupt the Music Business*, LAS VEGAS REVIEW-JOURNAL, <https://www.reviewjournal.com/entertainment/music/dj-justin-blau-made-millions-with-nfts-his-next-move-could-disrupt-the-music-business-2490166/> (Dec. 6, 2021, 2:37 PM) [https://perma.cc/57XJ-9JHZ]. Angela Anne Flores aka Luna Aura, who collaborated with 3LAU on one of the songs, sued him alleging that she was entitled to a percentage of the revenue from the NFT sales; 3LAU's manager said the claim was meritless. See Ashley King, *3LAU Faces Lawsuit From Collaborator Over \$11.7 Million*

did this use of NFTs provide a source of capital to fund the album's production and promotion, it also was an innovative way to engage fans. 3LAU is attempting to make this business model easier for other musicians.⁴¹⁴ He co-founded Royal, an NFT platform for musicians that has already secured a \$55 million round of funding, including from Andreessen Horowitz.⁴¹⁵ Royal enables musicians to forego having to sign with a music label or publisher.⁴¹⁶ Musicians partner with their fans, instead. Kathryn Haun, a general partner at Andreessen Horowitz, touted the promise of the platform: “[t]he Royal team has an audacious vision to apply the ethos of web3 to transforming the music industry in a way that empowers artists and their fans.”⁴¹⁷ The influential rapper Nas has joined Royal and is offering NFTs to two of his songs.⁴¹⁸ Royal isn't the only music NFT platform; several others, including One of, Opulous, Throne, RCRDSHP, KLKTN, and AmplifyX, are already offering musicians marketplaces for their music NFTs.⁴¹⁹ Some analysts predict that NFT-based streaming services, such as Audius, which gives control over music rights back to musicians, will soon compete with Spotify, Apple Music, and other traditional streaming services and potentially give musicians a better deal for streaming royalties.⁴²⁰

NFTs are being used in a similar way to finance the productions of movies, including one directed by Martin Scorsese.⁴²¹ Book authors are experimenting with NFTs to enable buyers to collaborate in the production of novels.⁴²² One of the most provocative projects is led by one of the NFTs for the Bored Ape Yacht

NFT Sale, DIGITAL MUSIC NEWS (Nov. 14, 2022), <https://www.digitalmusicnews.com/2022/11/14/3lau-faces-lawsuit-over-nft-royalties/> [<https://perma.cc/5KZR-3CRC>].

414. See Murray Stassen, *Joyner Lucas, Nas Join \$55M Funding Round in 3LAU's Blockchain-based Music Investment Platform Royal*, MUSIC BUS. WORLDWIDE (Nov. 23, 2021), <https://www.musicbusinessworldwide.com/joyner-lucas-nas-and-more-join-55m-series-a-funding-round-in-3laus-music-nft-platform-royal/> [<https://perma.cc/WZ54-MTFU>].

415. See *id.*

416. See *Have Questions? We Got You.*, ROYAL, <https://royal.io/> (last visited Mar. 3, 2023) [<https://perma.cc/MSK4-QSQS>].

417. Stassen, *supra* note 414.

418. See Rosie Perper, *Nas Is Selling Royalty Rights to 2 of His Songs as NFTs*, HYPEBEAST (Jan. 6, 2022), <https://hypebeast.com/2022/1/nas-royal-streaming-royalty-rights-nft> [<https://perma.cc/4U8E-SA6A>].

419. See Cherie Hu, *An Overabundance of Music NFT Platforms – and Scams*, WATER & MUSIC (Oct. 5, 2021), <https://www.waterandmusic.com/an-overabundance-of-music-nft-platforms-and-scams/> [<https://perma.cc/EMD2-3TDH>].

420. See Helen Partz, *NFT Music Platforms to Disrupt Spotify in 2022, Saxo Bank Predicts*, COINTELEGRAPH (Dec. 3, 2021), <https://cointelegraph.com/news/nft-music-platforms-to-disrupt-spotify-in-2022-saxo-bank-predicts> [<https://perma.cc/CG9T-4KQS>].

421. See, e.g., Mark Sweney, *Scorsese Producer to Make First Hollywood Movie Funded by NFTs*, GUARDIAN (Dec. 1, 2021, 1:01 AM), <https://www.theguardian.com/technology/2021/dec/01/scorsese-producer-to-make-first-hollywood-movie-funded-by-nfts> [<https://perma.cc/KJ6U-AUKY>]; Scott Roxborough, *AFM: Why Indie Filmmakers Are Betting on NFTs*, HOLLYWOOD REP. (Nov. 2, 2021, 7:00 AM), <https://www.hollywoodreporter.com/business/business-news/nft-independent-film-afm-2021-1235038434/> [<https://perma.cc/5VG5-WQBG>].

422. See Walker Caplan, *The Rise of the Crypto Writer? On What Literary NFTs Might Mean for the Book World*, LITERARY HUB (June 25, 2021), <https://lithub.com/the-rise-of-the-crypto-writer-on-what-literary-nfts-might-mean-for-the-book-world/> [<https://perma.cc/9A3L-5GA6>].

Club called Jenkins the Valet.⁴²³ The co-owners of Jenkins enlisted best-selling author Neil Strauss to help write a novel involving Bored Apes.⁴²⁴ Bored Ape owners can buy NFTs to vote on the direction of the novel and license their own Bored Apes for stories and share in the royalties.⁴²⁵ Validating the commercial potential of the project, Jenkins is represented by Creative Artists Agency for the development of “books, film, TV, podcasts, and more.”⁴²⁶ Some authors have stuck closer to conventional publishing and sold their e-books as NFTs.⁴²⁷

Of course, the big publishers, studios, and labels can sell their own NFTs, and some already have.⁴²⁸ Indeed, all the Big 3 labels have partnered with music NFT platforms.⁴²⁹ It remains to be seen whether the incumbents eventually lose some of their control over the big-name artists and productions. NFTs have disrupted the content industries—and offered independent artists an alternative that is decentralized, empowering, and potentially more engaging and even collaborative with fans.⁴³⁰

8. *Decentralized Collaboration Licenses: Individual Licenses, Creative Commons 0 Licenses, and “Can’t Be Evil” Licenses*

Another major change that NFTs have effectuated is the use of licenses with NFTs to further decentralized collaboration (“De-Collab”).⁴³¹ In other scholarship, I have elaborated on how NFTs can be used to foster De-Collab.⁴³² The use of De-Collab licenses borrows a page from the playbook of open-source licenses and CC licenses. The use of De-Collab licenses is one of the most innovative developments for cultural production. De-Collab offers a direct alternative

423. See Tom Farren, *Jenkins the Valet Founder Wants to Create a Decentralized Web 3.0 Content Company*, COINTELEGRAPH (Dec. 2, 2021), <https://cointelegraph.com/news/jenkins-the-valet-founder-wants-to-create-a-decentralized-web3-content-company> [https://perma.cc/HV7C-DCEE].

424. *Id.*

425. See *The Writer’s Room: How It Works*, JENKINS YACHT VALET, <https://www.jenkinsthevalet.com/how-it-works> (last visited Mar. 3, 2023) [https://perma.cc/P3AG-7LXL].

426. See *FAQ: Jenkins the Valet Is Signed to CAA? What’s That About?*, JENKINS YACHT VALET, <https://www.jenkinsthevalet.com/faq> (last visited Mar. 3, 2023) [https://perma.cc/NB97-6EPJ].

427. See *NFTs for Indie Authors*, ALL OF INDEP. AUTHORS (Nov. 1, 2021), <https://selfpublishingadvice.org/nfts-for-indie-authors/> [https://perma.cc/23XL-Y2LV].

428. See Lawrence Wintermeyer, *Are Movies and Streaming the Next Frontier for NFTs?*, FORBES (June 1, 2021, 6:58 AM), <https://www.forbes.com/sites/lawrencewintermeyer/2021/06/01/are-movies-and-streaming-the-next-frontier-for-nfts/?sh=7d28546d2b13> [https://perma.cc/SYD3-GUZS].

429. See Stuart Dredge, *Sony Music Joins \$30m Funding for NFT Startup MakersPlace*, MUSICALLY (Aug. 9, 2021), <https://musically.com/2021/08/09/sony-music-nft-startup-makersplace/> [perma.cc/4HP2-FJYT]; *Universal Music Group Partners with Curio to Develop NFT Fan Collections for Its Record Labels and Artists*, UNIVERSAL MUSIC (Feb. 17 2022), <https://www.universalmusic.com/universal-music-group-partners-with-curio-to-develop-nft-fan-collections-for-its-record-labels-and-artists/> [perma.cc/GQ4S-7NGA]; Kate Irwin, *Warner Music Group to Release Polygon Music NFTs Through LGND Platform*, DECRYPT (Dec. 6, 2022), <https://decrypt.co/116533/warner-music-group-polygon-music-nfts-lgnd> [perma.cc/E8XX-GNXQ].

430. Whether this initial decentralization of Web3 can avoid the market consolidation of media industries is an open question. See WU, *supra* note 230, at 12–13.

431. See Edward Lee, *The Bored Ape Business Model: Decentralized Collaboration via Blockchain and NFTs 3* (Nov. 16, 2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3963881 [https://perma.cc/6M6Y-KDWU].

432. See *id.*

to the All Rights Reserved approach and clearance culture.⁴³³ Three different approaches to De-Collab licenses have already developed. Each is discussed in turn.

a. Individual Licenses by NFT Projects

Each NFT project can draft its own license and can tailor it to serve their own goals in any way they want.⁴³⁴ Some of the leading NFT projects have opted to grant unlimited commercial rights to whoever buys their NFTs.⁴³⁵ For example, the Bored Ape Yacht Club, the most successful NFT project, has adopted a decentralized collaboration license that gives Bored Ape NFT owners unlimited commercialization rights, including the right to make derivative works.⁴³⁶ The NFT owners keep all profits they make from their commercial uses of Bored Ape characters. The Bored Ape licenses give the NFT buyers *unlimited* commercialization rights to use their Bored Ape characters, including to make derivative works based on them.⁴³⁷

By offering De-Collab licenses with unlimited commercialization rights to NFT owners, Yuga Labs has adopted a hybrid business model blending both decentralized and centralized collaboration.⁴³⁸ The decentralized collaboration occurs through whatever business and commercial uses the individual Bored Ape owners make. For example, one owner of Bored Apes, Jimmy McNelis, has signed a music deal with Universal Music to create a hip-hop band consisting of his Bored Apes.⁴³⁹ The famed music producer Timbaland, a Bored Ape owner, has teamed with other Bored Ape owners to form another hip-hop band of Bored Apes for the metaverse.⁴⁴⁰ Other Bored Apes have sold Bored Ape products and merchandise, including Bored Ape burgers, wine, coffee, and beer.⁴⁴¹ Snoop Dogg and Eminem, both Bored Ape owners, created a new song and music video for “From The D 2 The LBC” in which their Bored Ape characters are featured. Their official video on YouTube has 72 million views.⁴⁴² De-Collab enables the brand to develop through the individual efforts of NFT owners—without coordination or control by Yuga Labs.

433. See Lee, *supra* note 362, at 13.

434. See Lee, *supra* note 431, at 2–3.

435. See Lee, *supra* note 362, at 13 (finding a majority of the Top 25 NFT projects by sales volume grant commercial licenses to their buyers).

436. See Lee, *supra* note 431, at 3–4.

437. *Id.*

438. *Id.* at 2–4.

439. *Id.* at 4.

440. *Id.*

441. See Wintermeyer, *supra* note 428; Jason Nelson, *Bored Ape Yacht Club-themed Burger Joint Debuts in California*, DECRYPT (Apr. 11, 2022), <https://decrypt.co/97474/bored-ape-yacht-club-themed-burger-joint-debuts-in-california> [<https://perma.cc/YBV9-CVG7>]; Chris Stokel-Walker, *Now the Bored Apes Are Taking Over Your Breakfast Nook*, INPUT (May 9, 2022), <https://www.inverse.com/input/culture/bored-ape-yacht-club-gm-cereal-coffee-consumer-goods> [<https://perma.cc/962A-QJFV>].

442. EminemMusic, *Eminem & Snoop Dogg—From the D 2 the LBC [Official Music Video]*, YOUTUBE (June 23, 2022), <https://www.youtube.com/watch?v=RjrA-slMoZ4> [<https://perma.cc/2KDT-2RDV>].

The centralized collaboration occurs through whatever business and commercial uses that Yuga Labs makes. For example, Yuga has a major partnership with Adidas to use Bored Apes in virtual Adidas products and experiences in the metaverse.⁴⁴³ Yuga has another ambitious partnership with Improbable and Animoca Brands to develop an immersive metaverse world called the Otherside.⁴⁴⁴ By this hybrid business model, the Bored Ape ecosystem and brand are being developed, at once, on many fronts: Yuga Labs, the creator, and potentially the thousands of Bored Ape owners, who have unlimited commercialization rights. This innovative, collaborative business model of the Bored Ape Yacht Club is why some analysts speculate that it may become the “decentralized Disney.”⁴⁴⁵ Because the Bored Ape Yacht Club is the most successful NFT project to date,⁴⁴⁶ its unlimited commercial license appears to have influenced other NFT projects.⁴⁴⁷ Indeed, a forthcoming study found a majority of the Top 25 NFT projects by sales volume have adopted some form of commercial license for their NFT owners.⁴⁴⁸ It’s common to see NFT buyers discussing what IP rights they get (if any) on social media—buyers getting commercial IP rights are often seen as a big selling point.⁴⁴⁹

443. See Ian Servantes, *A Virtual Wave: How Adidas Plans to Rule the Metaverse with Bored Ape Yacht Club and NFTs*, INPUT (Dec. 16, 2021), <https://www.inputmag.com/style/adidas-bored-ape-yacht-club-nft-collection-metaverse-nfts-digital-sneakers-shoes-clothes> [https://perma.cc/J2ZA-SLCH].

444. See *Introduction: What Is Otherside?*, OTHERSIDE, <https://otherside.xyz/litepaper#what-is-otherside> (last visited Mar. 3, 2023) [https://perma.cc/7582-5YPY].

445. See KC Ifeanyi, *The Bored Ape Yacht Club Apes into Hollywood*, FAST CO. (Jan. 18, 2022), <https://www.fastcompany.com/90706534/the-bored-ape-yacht-club-apes-into-hollywood> [https://perma.cc/FH26-LTMX].

446. Yuga Labs has not escaped controversy, however. Two pending lawsuits involving Yuga Labs levied serious charges against the company. First, a potential class-action lawsuit accused Yuga Labs of selling unregistered securities and enlisting famous celebrities to promote the Bored Apes NFTs while failing to disclose their alleged financial relationship with Yuga Labs in receiving the NFTs. See Sander Lutz, *Lawsuit Alleges Yuga Labs Conspired With Celebs Like Justin Bieber to Push Bored Ape NFTs*, DECRYPT (Dec. 9, 2022), <https://decrypt.co/116895/lawsuit-alleges-yuga-labs-conspired-celebs-justin-bieber-bored-ape-nfts> [perma.cc/U53M-HJDD]. Second, in a trademark lawsuit brought by Yuga Labs, the defendants Ryder Ripps and Jeremy Cahen, who sold cloned versions of the entire BAYC collection under the name “RR/BAYC,” accused the BAYC co-founders, Wylie Aronow and Greg Solano, of intentionally using “neo-Nazi dog whistles” and racist imagery in their project. See Blake Brittain, *Artist Fires Back at Bored Ape Lawsuit with Racism Accusations*, REUTERS (Aug. 15, 2022, 5:53 PM), <https://www.reuters.com/legal/litigation/artist-fires-back-bored-ape-lawsuit-with-racism-accusations-2022-08-15/> [perma.cc/EG5V-VK5K]. The co-founders denied the accusation. Wylie Aronow, *Setting the Record Straight*, COINDESK (Feb. 10, 2023, 12:36 AM), <https://www.coindesk.com/sensus-magazine/2023/02/09/setting-the-record-straight/> [https://perma.cc/R3QH-KFYY]; Gordon Goner, *A Letter From the Founders*, MEDIUM (June 24, 2022), https://medium.com/@team_69582/a-letter-from-the-founders-678e5a3431e7 [https://perma.cc/TZH2-9ZY3].

447. See, e.g., Nftjedi, *Dennis Rodman Buys 2 Cryptomories NFTs—So Did I. Here’s Why.*, NOUNFT (Dec. 20, 2021), <https://nounft.com/2021/12/20/dennis-rodman-buys-2-cryptomories-nfts-so-did-i-heres-why/> [https://perma.cc/48CY-ZMVP]; Lee, *supra* note 362, at 13, (majority of Top 25 NFT projects grant commercial licenses).

448. See Comments of Lee and Rosario, *supra* note 361, at 4–5 (citing Lee, *supra* note 362 (pre-publication study based on data obtained from Cryptoslam)).

449. See, e.g., DickDoofus.eth (@Dick_Doofus), TWITTER (Jan. 18, 2022, 9:30 AM), https://twitter.com/Dick_Doofus/status/1483461906857963528 [https://perma.cc/UJ4U-7G77] (“The best strategy decision the #BAYC made in its short history was to give their #NFT owners full IP rights! The value add is a game changer! @BoredApeYC”).

After acquiring the IP rights to the CryptoPunks from Larva Labs, Yuga Labs issued a new license for the CryptoPunks NFT owners.⁴⁵⁰ The CryptoPunks license is even more favorable to owners than the Bored Ape license. Yuga Labs has granted an *exclusive* copyright license to the CryptoPunks owners, which entitles them to file copyright infringement lawsuits to protect their CryptoPunks characters and to register trademarks based on actual use of their CryptoPunks.⁴⁵¹

To appreciate how radical in approach these De-Collab licenses are, just imagine Disney granted commercial rights to monetize Mickey Mouse and every Disney character to whoever bought the respective NFT sold by Disney. It's unthinkable Disney would ever do so.

b. The Creative Commons 0 License

Even more radical is the approach taken by several other successful NFT projects, including the Nouns and Moonbirds projects, and the artist XCOPY, discussed above. They have adopted Creative Commons 0 licenses and completely abandoned the copyrights for their artworks.⁴⁵²

The innovative Nouns DAO was the leader in this CC0 movement. The DAO creates one NFT with a digital character per day.⁴⁵³ The Nouns DAO adopted a CC0 license, donating the copyrights to the public domain—meaning everyone is free to build on the digital characters, even if they haven't purchased a Nouns NFT.⁴⁵⁴ As co-creator Punk 4156 explained: “We wanted Nouns to be as decentralized as possible. You don't need copyright anymore.”⁴⁵⁵ Given the abandonment of copyrights to Nouns characters, other businesses have already sold Nouns merchandise and Noundles NFTs.⁴⁵⁶ Nouns DAO is a pioneer in embracing the RWOI model of Web3 in which everyone gets a chance to read, write, own, and interact with Nouns, even without buying a Nouns NFT.⁴⁵⁷ Andrew Hayward has described this approach as “Open-Source IP.”⁴⁵⁸ I think a more accurate description is that Nouns DAO has adopted Open-Source *non-IP*—or De-IP NO©.

450. Nftjedi, *Why the CryptoPunks 2022 License Is Better for Owners than the Bored Ape license, on Paper, Setting a New Standard for Decentralized Collaboration*, NOUNFT (Aug. 18, 2022), <https://nounft.com/2022/08/18/why-the-cryptopunks-2022-license-is-better-for-owners-than-the-bored-ape-license-on-paper-setting-a-new-standard-for-decentralized-collaboration/> [https://perma.cc/K67A-YGFH].

451. *Id.*

452. See Hayward, *supra* note 290; Eric James Beyer & Jex Exmundo, *Moonbirds Just Made All Their NFTs Public Domain*, NFTNOW (Aug. 4, 2022), <https://nftnow.com/news/moonbirds-just-made-all-their-nfts-public-domain/> [https://perma.cc/BK3Y-TUUG].

453. See Hayward, *supra* note 290.

454. *Id.*

455. *What Are Nouns NFTs, and Are They Going to Hollywood?*, TOKEN DISPATCH (Nov. 25, 2021), <https://www.thetokendispatch.com/p/are-nft-nouns-going-to-hollywood/> [https://perma.cc/ULM5-CQ4Q].

456. *See id.*

457. *See id.*; see also *supra* notes 218–19 and accompanying text.

458. See Hayward, *supra* note 290.

The Moonbirds project's adoption of CC0 licenses was more controversial because it was made as a change—without input from the community of owners—to the original license, which was supposed to be a full commercial license similar to the Bored Ape license.⁴⁵⁹ Some owners were upset by the change in licenses, which they called a “bait and switch.”⁴⁶⁰ Putting aside the controversy over the change, CEO Kevin Rose defended the rationale of adopting CC0: “CC0 empowers *anyone* with the ability to creatively remix work for commercial purposes. It is a promise by the creator of a work that the work itself can become a credibly neutral platform—without restraint or the fear of restriction or creative limitations.”⁴⁶¹

The movement to adopt CC0 licenses is growing, including among the top NFT artists, such as XCOPY.⁴⁶² At first, it may be hard to fathom how abandoning all copyrights can be successful for an NFT project, business, or artist. But, as discussed above, once we recognize that NFTs are valuable IP in themselves, it becomes apparent how NFT projects can still monetize the NFTs. Indeed, it is fitting that NFTs have sparked a renewed debate over and interest in using CC licenses—an approach that Lessig founded to enable remixes—for NFTs.⁴⁶³ For Web3, permissiveness is prized.

c. “Can’t Be Evil” Licenses by a16z

Building on the approach of CC licenses, the VC firm Andreessen Horowitz (a16z), a major investor in Web3 and NFT businesses, has crafted a new set of public licenses specifically for NFTs, including the CC0 license.⁴⁶⁴ The licenses are: (1) a full grant of exclusive commercial rights, (2) a grant of non-exclusive commercial rights, (3) a grant of non-exclusive commercial rights but restriction against use with hate speech with potential termination of license for violations, (4) a license for personal uses only, (5) a license for personal uses only but restriction against hate speech, and (6) the CC0 license and abandonment of copyright.⁴⁶⁵ If these public licenses become popular, they could effectuate a far more permissive and collaborative approach to using copyrighted works.

459. Beyer & Exmundo, *supra* note 452.

460. Ross Wardrop, *Moonbirds Rescind NFT Commercial Rights for CC0. But Is It Legal?*, NFTEVENING (Sept. 20, 2022), <https://nftevening.com/moonbirds-rescind-nft-commercial-rights-for-cc0-but-is-it-legal> [<https://perma.cc/YTL4-8X2X>]; *see, e.g.*, @ShaneCultra, TWITTER (Feb. 15, 2023, 8:50 AM), <https://twitter.com/ShaneCultra/status/1625870203635605504> [perma.cc/28PL-BTDW].

461. *See* @kevinrose, TWITTER (Aug. 4, 2022, 1:39 PM), <https://twitter.com/kevinrose/status/1555262105690943488> [perma.cc/8NFQ-5YE3].

462. Flashrekt & Scott Duke Kominers, *Why NFT Creators Are Going cc0*, A16ZCRYPTO (Aug. 3, 2022), <https://a16zcrypto.com/cc0-nft-creative-commons-zero-license-rights/> [<https://perma.cc/YC57-UMVR>]; *see also* Eric James Beyer, *CC0 and NFTs: Understanding Ownership*, NFTNOW (Aug. 5, 2022), <https://nftnow.com/features/cc0-and-nfts-understanding-ownership/> [perma.cc/9LS4-4CSK].

463. *See* Whitney Kimball, *Wait, Are NFTs the New Creative Commons?*, GIZMODO (Dec. 20, 2021), <https://gizmodo.com/wait-are-nfts-the-new-creative-commons-1848234720> [<https://perma.cc/P7U5-BJUN>].

464. Miles Jennings & Chris Dixon, *The Can't Be Evil NFT Licenses*, A16ZCRYPTO (Aug. 31, 2022), <https://a16zcrypto.com/introducing-nft-licenses/> [<https://perma.cc/5QRF-BLUG>].

465. *Id.*

9. *No Defined Term Limit for NFTs*

Because the Copyright Clause requires copyrights last only for “limited [t]imes,”⁴⁶⁶ the Copyright Act has a finite term for copyright: the life of the author plus 70 years for individual authors.⁴⁶⁷ In the past, Congress has extended the copyright terms to durations that many critics argue are too long, but the Supreme Court recognized that Congress has discretion to set the term under the Copyright Clause.⁴⁶⁸ One lurking issue for NFTs is the lack of a finite term.⁴⁶⁹ They could last forever and whoever owns an NFT can continue to exploit it indefinitely, even past the expiration of copyright for any artwork associated with the NFT. In France, the right to resale royalties under copyright law expires with the copyright term (the life of the author plus seventy years).⁴⁷⁰ Part IV analyzes whether the indefinite term for NFTs raises a problem of copyright preemption.

10. *The Complex Adaptive System of NFTs as De-IP*

The foregoing discussion identifies at least nine ways in which NFTs have created a decentralized IP system through private ordering in a combination of computer programs (code as law) or smart contracts, content licenses, the collection of resale royalties, the artists’ practices, and social norms, including a more permissive Web3 ethos to unauthorized clones, copies, and derivative works.⁴⁷¹

Figure 2 depicts this new system of De-IP. Notice that De-IP does *not* eliminate or replace the copyright system. Instead, De-IP and the copyright system can co-exist and interact—even mutually supporting each other. Just as an investor can own both fiat money and cryptocurrencies—and use both—a creator now can use both De-IP and traditional copyright with NFTs. For example, the popular NBA Top Shot Moments (NFTs) adopt a traditional approach granting a limited license that grants the NFT owners only rights to use the video highlights for personal, noncommercial use.⁴⁷²

466. U.S. CONST. art. I, § 8, cl. 8.

467. 17 U.S.C. § 302(a).

468. *See Eldred v. Ashcroft*, 537 U.S. 186, 206–10 (2003).

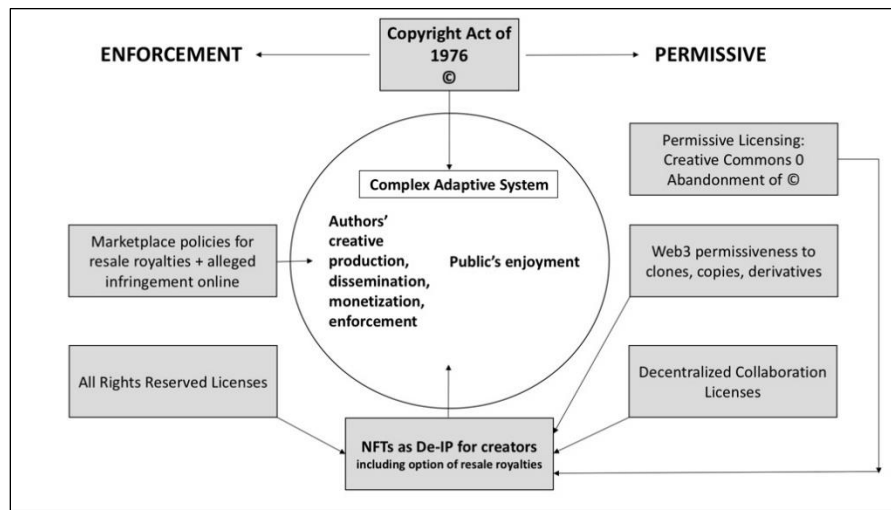
469. *See* discussion *infra* Subsection IV.A.2.b.

470. *See, e.g., Resale Right*, ADAGP, <https://www.adagp.fr/en/adagp-role-and-missions/copyrights-managed-adagp/resale-right> (last visited Mar. 3, 2023) [<https://perma.cc/52WD-8SET>] (discussing France’s right to resale royalties).

471. *See* discussion *supra* Section III.C.

472. *Terms of Use*, NBA TOP SHOT, <https://nbatopshot.com/terms> (Aug. 31, 2022) [<https://perma.cc/Y7R7-JVTN>] (“User License to Art. Subject to your continued compliance with these Terms, we grant you a world-wide, non-exclusive, non-transferable, royalty-free license to use, copy, and display the Art for your Purchased Moments, solely for the following purposes: (a) for your own personal, non-commercial use . . .”).

FIGURE 2: NFTS AS A DE-IP SYSTEM



The new De-IP system has diminished the role of the gatekeepers—the intermediaries of the major copyright industries. A De-IP system greatly reduces the need for gatekeepers. However, centralization may still arise: two marketplaces, operating more like Big Tech platforms, have recently wielded enormous power over the ability of creators to receive royalties by changes to the marketplace’s policies—unfortunately to artists’ detriment. Despite this uncertainty, creators can potentially directly finance their own creative works through the patronage of NFT owners. For simplicity, Figure 2 omits the traditional gatekeepers of the major copyright industries. But, as mentioned above, one shouldn’t expect that these gatekeepers will become extinct.⁴⁷³ Some of the gatekeepers have already forged partnerships to utilize NFTs for their artists.⁴⁷⁴ More generally, we are likely to see a greater mix of pathways to success for artists—including through the major copyright industries or gatekeepers and through more decentralized venues for NFTs. Future research should examine the potential synergies.

IV. RESPONDING TO OBJECTIONS TO DE-IP

De-IP is likely to be controversial and elicit objections from different sectors, including academia. But the same is true with most disruptive developments, especially one precipitated by a new technology. This final Part addresses two major concerns: (1) how to protect the public interest in a De-IP approach, and (2) general skepticism over NFTs. This Part is not intended as a final resolution of the debate over NFTs, much less an attempt to respond to all objections. Instead, the Article is meant as the beginning of the debate.

473. See Lee, *supra* note 5, at 3–4.

474. See *supra* notes 408–420 and accompanying text.

A. *Protecting the Public Interest and Public Scrutiny Over De-IP*

1. *Congressional Oversight and Public Debate*

The first major criticism to my theory of De-IP is the lack of congressional oversight and formal public debate over De-IP in Congress, especially with respect to copyright law, which the Constitution entrusts to Congress's power. A fundamental challenge with any decentralized approach is the potential bypassing of congressional oversight and formal public debate in Congress, at least to some extent. Of course, Congress can always choose to step in—whenever it wants. So, the fear of lack of congressional oversight is more imagined than real. The same issue arises for Bitcoin and other cryptocurrencies, and Congress is seriously considering the possibility of regulating them.⁴⁷⁵ Just as with cryptocurrencies, Congress can consider regulating NFTs. At the request of Senator Thom Tillis and Senator Patrick Leahy, the U.S. Patent and Trademark and the Copyright Office are conducting a joint study on how NFTs affect intellectual property.⁴⁷⁶ The Offices held public roundtables online to gather information from invited experts and stakeholders related to NFTs.⁴⁷⁷ The Offices also accepted written comments from the public.⁴⁷⁸ I participated as a speaker in the copyright roundtable and submitted a written comment to inform the Offices of my theory of De-IP as well as several of the major developments with NFTs discussed above.⁴⁷⁹ This open dialogue with the Offices, at the request of two senators, provides transparency in the decentralized practices taking place. Embracing De-IP does not mean supplanting the centralized copyright system. Both can co-exist—as they do now.

It's also important to recognize that decentralization does not preclude public debate. Indeed, scholars who espouse republican deliberation for democracy, from Frank Michelman to Cass Sunstein, recognize “that the ideal of republican citizenship cannot be realized at the level of mass politics, but instead must emerge at the *decentralized local level*.”⁴⁸⁰ The rise of DAOs offers a promising

475. See Jason Brett, *In 2021, Congress Has Introduced 35 Bills Focused on U.S. Crypto Policy*, FORBES (Dec. 27, 2021, 10:29 PM), <https://www.forbes.com/sites/jasonbrett/2021/12/27/in-2021-congress-has-introduced-35-bills-focused-on-us-crypto-policy/> [<https://perma.cc/TW27-CH7S>].

476. See Gareth Jenkinson, *US Trademark and Copyright Offices to Study IP Impact of NFTs*, COINTELEGRAPH (July 12, 2022), <https://cointelegraph.com/news/u-s-trademark-and-copyright-offices-to-study-ip-impact-of-nfts> [<https://perma.cc/2FRL-MUV3>]; Caroline Rimmer, *Senators Ask USPTO and US Copyright Office to Conduct NFT Study, with a Focus on IP Issues*, JD SUPRA (July 11, 2022), <https://www.jdsupra.com/legalnews/senators-ask-uspto-and-us-copyright-2608333/> [<https://perma.cc/VXX9-4MC5>].

477. See *Joint Study on Intellectual Property Rights and Non-fungible Tokens*, USPTO, <https://www.uspto.gov/ip-policy/joint-study-intellectual-property-rights-and-non-fungible-tokens> (last visited Mar. 3, 2023) [perma.cc/74LQ-QME9].

478. See *Non-Fungible Token Study*, COPYRIGHT.GOV, <https://www.copyright.gov/policy/nft-study/> (last visited Mar. 3, 2023) [perma.cc/B3HB-PTLB].

479. See Comments of Lee and Rosario, *supra* note 361.

480. Richard Thompson Ford, *The Boundaries of Race: Political Geography in Legal Analysis*, 107 HARV. L. REV. 1841, 1890 (1994) (emphasis added); see Frank Michelman, *Law's Republic*, 97 YALE L.J. 1493, 1526–27 (1988) (“[A] political process can validate a societal norm as self-given law only if . . . there exists a set of . . . conditions such [that] a dialogic modulation of one’s understandings is not considered or experienced as

vehicle to facilitate deliberation at a decentralized, local level, albeit online.⁴⁸¹ DAOs are versatile organizations, which can resemble a nonprofit, company, or members' club. The key is that the people in the DAO run it. They donate to the group, receive virtual tokens in exchange, which entitles them to vote on how to govern the DAO and run it, and then the rules voted on can be recorded on block-chain for transparency.⁴⁸²

Another forum for robust discussion of NFTs occurs in podcasts and on social media, including Discord, Twitter, and LinkedIn.⁴⁸³ Everyday, people host Twitter Spaces for wide-ranging discussions about NFTs, including about IP topics and controversies.⁴⁸⁴ I regularly follow and participate in these online discussions with thousands of others, if not more. Indeed, much of my knowledge about NFTs derives from engaging in these decentralized discussions with others on social media. And, remarkably, many NFT enthusiasts vigorously debate copyright issues related to NFTs, including the copyright licenses for NFT projects, the adoption of Creative Commons 0 licenses and abandonment of copyrights, DMCA notices against clones and derivative projects, and artists' resale royalties.⁴⁸⁵ Indeed, in my more than two decades of writing about copyright law, I have not witnessed as much public discussion of copyright issues as I have in the past two years with NFTs. The discussion can be quite contentious, not to mention wrong at times on the formal copyright law, but it's wonderful to see people so passionate about copyright issues for NFTs.

Indeed, there's so much discussion about NFTs that participants on Twitter and LinkedIn colloquially refer to it as "NFT Twitter" and "NFT LinkedIn," respectively. None of this public debate occurred on the floor of Congress. But that

coercive . . ."); Cass R. Sunstein, *Beyond the Republican Revival*, 97 *YALE L.J.* 1539, 1555–56 (1988) ("Republican approaches . . . seek mechanisms . . . for decentralization, local control, and local self-determination.").

481. See Locke, *supra* note 222.

482. See Seth Bannon, *The Tao of "The DAO" or: How the Autonomous Corporation Is Already Here*, *TECHCRUNCH* (May 16, 2016, 9:30 AM), <https://techcrunch.com/2016/05/16/the-tao-of-the-dao-or-how-the-autonomous-corporation-is-already-here/> [<https://perma.cc/TEJ4-866E>].

483. See Andrew Hayward, *Why NFT Creators and Collectors Can't Stop Talking About Artist Royalties*, *DECRYPT* (Aug. 15, 2022), <https://decrypt.co/107482/why-nft-creators-collectors-artist-royalties> [<https://perma.cc/QAR5-N8VD>].

484. Ellyn Kail, *Understanding the Role of Twitter in the NFT Space*, *FEATURE SHOOT* (Jun. 17, 2022), <https://www.featureshoot.com/2022/06/understanding-the-role-of-twitter-in-the-nft-space/> [<https://perma.cc/ZD4T-D44Y>].

485. See, e.g., *id.*; Wardrop, *supra* note 460; Andrew Hayward, *Pepe the Frog Meme NFTs Removed from OpenSea After Copyright Dispute*, *DECRYPT* (Aug. 17, 2021), <https://decrypt.co/78788/pepe-the-frog-meme-nfts-opensea-copyright-dmca> [<https://perma.cc/Y5AN-KGCC>]; 4156 (@punk4156), *TWITTER* (July 31, 2022, 3:09 PM), <https://twitter.com/punk4156/status/1553835304292958209> [<https://perma.cc/N8H6-9NGW>]; *Major NFT Marketplace X2Y2 Changes Royalties Policy, Here's Why It Is Crucial*, *U TODAY* (Aug. 27, 2022, 4:10 PM), <https://u.today/major-nft-marketplace-x2y2-changes-royalties-policy-heres-why-it-is-crucial> [<https://perma.cc/HUX4-LYAV>].

doesn't make the public debate any less meaningful or impactful. It is more empowering.⁴⁸⁶ And it serves democracy by enlisting people to debate how "Progress" is best served under the Constitution.⁴⁸⁷

Our copyright system has always operated against the backdrop of private ordering. And the idea that Congress can fix all the problems and deficiencies of the copyright system is utopian in the twenty-first century. Why has Congress failed to enact a major revision of the Copyright Act of 1976, when so many believe it should, including former Registers of Copyrights? Meanwhile, in a short time—far quicker than Congress, NFTs have responded to perceived gaps and shortcomings in the current copyright system, giving independent artists of all kinds a new way to finance and market their creative works—and earn a living.⁴⁸⁸ Digital art has exploded—with leading art institutions recognizing such work—because NFTs solved a longstanding problem of owning digital art by creating a "one of a kind" for a digital artwork.

De-IP gives power back to individual artists and authors—more in line with the constitutional goal of the Copyright Clause to promote progress by incentivizing authors to create. Artists can finance their creative works through direct sales of NFTs, without the need for industry gatekeepers, and have more options to choose the content license and resale royalties for sales of their NFTs.⁴⁸⁹ NFT creators find resale royalties very attractive. But the rise of NFTs doesn't come at the public's expense. As explained above, an influential set of Web3 norms embraces remix culture and the unlicensed creation of derivative works in ways that are far broader than the current copyright system. Some of the most successful NFT producers have also been very permissive in allowing remixes, alternatives, and derivatives of their copyrighted characters or artwork.⁴⁹⁰

Thus, it would be a mistake to conclude that the NFT community does not engage in public debate over copyright issues or that it has ignored the larger public interest. The main difference with a decentralized approach is that it is decided and operationalized at the local level. In other words, if one expects a *national* codification of rules and practices for NFTs comparable to the provisions and limitations in the Copyright Act, De-IP is not likely to achieve that. Perhaps the exception would be if a content license for NFTs became widely adopted and the market standard. There is some movement in that direction—standard licenses modeled on open-source and Creative Commons licenses—

486. See, e.g., Mark Hunter, *CryptoPunk #4156 Sells for \$10.26 Million After Copyright Dispute*, FULLYCRYPTO (Dec. 10, 2021, 10:40 AM), <https://fullycrypto.com/cryptopunk-4156-sells-for-10-26-million-after-copyright-dispute> [<https://perma.cc/YM6R-9PJ2>].

487. See generally AKHIL REED AMAR, *AMERICA'S UNWRITTEN CONSTITUTION* 479–80 (2012) ("[I]n the written Constitution itself, we can all find a common vocabulary for our common deliberations and a shared national narrative—an epic saga of ordinary and ever more inclusive Americans binding themselves into one people, one posterity.").

488. See *supra* Subsection III.C.5.

489. See *supra* Subsection III.C.7.

490. See *supra* notes 398–430 and accompanying text.

but, given the freedom to contract, NFT creators can decide how to fashion their own licenses.⁴⁹¹

2. Federal Preemption

To the extent NFTs create potential conflicts with the copyright system, the U.S. copyright system already has a fail-safe: federal preemption. Conflicts with the Copyright Act can be invalidated under either Section 301 of the Copyright Act or implied conflicts preemption under the Supremacy Clause.⁴⁹² Below I analyze two related aspects of NFTs, the use of resale royalties and the lack of a finite term for NFTs. I suggest that neither should be considered preempted. My overall point, however, is that our current copyright law already has a way to address potential conflicts.

a. Resale Royalties for NFTs

Resale royalties for NFTs raise the first issue to consider. Congress has considered bills to recognize a right to resale royalties for visual artists six different times but has not enacted such legislation, despite the 2013 recommendation of the Copyright Office.⁴⁹³ Do the voluntary contracts establishing payment of resale royalties in the sales of NFTs used with copyrighted artworks run afoul of statutory or constitutional preemption? Most likely not. For Section 301 preemption, courts have recognized that contracts do not establish rights equivalent to copyright's exclusive rights and, therefore, are not preempted.⁴⁹⁴ For implied preemption, courts examine if "it is impossible for a private party to comply with both state and federal requirements, or [if] state law stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress."⁴⁹⁵ Neither conflict occurs with NFT resale royalties. Copyright law still applies to any copyrighted work associated with an NFT. One can comply with payment of a resale royalty while respecting copyright law. And, as shown above, NFTs promote the constitutional goal of incentivizing individual authors with financial rewards commensurate with their creative work.⁴⁹⁶ The indefinite term for resale royalties presents an additional issue for preemption, which is analyzed in the next section.

491. I have left for discussion elsewhere how NFT projects would be significantly affected if the SEC rules that some NFTs are being used as unregistered securities. See LEE, *supra* note 27. Requiring NFT projects to register as securities would pose a significant barrier to entry, which might chill many creators from launching them.

492. See *In re Jackson*, 972 F.3d 25, 33–34 (2d Cir. 2020).

493. See RESALE ROYALTIES, *supra* note 90, at 66; Mitran, *supra* note 93, at 1354 n.42 (citing bills). At least some of the bills failed "due to vehement opposition to the resale royalty by auction houses and art dealers," who have their own financial interest to protect. *Id.* at 1363.

494. See *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447, 1454 (7th Cir. 1996) (citing cases of sister circuits).

495. *Ryan v. Editions Ltd. W., Inc.*, 786 F.3d 754, 761 (9th Cir. 2015) (quoting *English v. Gen. Elec. Co.*, 496 U.S. 72, 79 (1990) (internal quotation marks and citation omitted)).

496. See RESALE ROYALTIES, *supra* note 90, at 65.

It's noteworthy that the Register of Copyrights' report on resale royalties favorably discussed various voluntary initiatives, including the use of contracts to establish a contractual right to resale royalties.⁴⁹⁷ The Register of Copyrights even noted the House Judiciary Committee's interest in the use of voluntary agreements for intellectual property—"as well as the federal government's role in furthering and recognizing such agreements."⁴⁹⁸ The Register of Copyrights raised the possibility that, instead of enacting a copyright amendment for resale royalties, Congress could just encourage voluntary practices for resale royalties in the art market.⁴⁹⁹ It would be odd indeed to think the Register of Copyrights would recommend that Congress consider an action that conflicted with the objectives of the Copyright Clause or was preempted by the Copyright Act.

b. Indefinite Terms for NFTs

The lack of a limited term for NFTs may present a problem if they are used to effectively extend the term of an expired copyright and deprive the public of use of the work in the public domain. This raises a more complex issue, but one that is unlikely to result in preemption.

First, there should be no preemption based simply on selling an NFT for an associated artwork whose copyright has expired—as long as the public can freely use the artwork in the public domain. In this situation, selling the NFT is analogous to selling a Picasso painting whose copyright has expired.⁵⁰⁰ Selling the Picasso painting is not preempted by copyright law after the copyright expired, even if the Picasso painting commands great value. The same should hold true with the sale of an NFT for an artwork whose copyright expired. The public's enjoyment of the Picasso is not impaired by the sale.

More difficult is the issue raised by the collection of NFT resale royalties after the copyright has expired. In *Kimble v. Marvel Entertainment*, applying *stare decisis* based on its prior precedent, the Supreme Court held the Constitution's requirement of a limited term for patents preempted a license requiring royalties to use a patented invention after its patent expired.⁵⁰¹ However, a typical scenario with NFTs is distinguishable from *Kimble*. A copyrighted work whose term expires would fall into the public domain, even if it is associated with an NFT with an unlimited term.⁵⁰² Once in the public domain, the work is free for everyone to copy and exploit.⁵⁰³ Unlike the situation in *Kimble* in which the patent licensee had to continue to pay royalties to use the invention (a Spider-

497. *See id.* at 70–72.

498. *Id.* at 72.

499. *See id.* at 65, 72.

500. *See Picasso: Works Entering the Public Domain in 2019*, ART STORY, <https://www.theartstory.org/blog/picasso-works-entering-the-public-domain-in-2019/> (last visited Mar. 3, 2023) [<https://perma.cc/WK9C-FAGN>].

501. *Kimble v. Marvel Ent., LLC*, 576 U.S. 446, 465 (2015); *Brulotte v. Thys Co.*, 379 U.S. 29, 32–33 (1964).

502. *See supra* Subsection III.C.8.b.

503. *See supra* notes 167–72 and accompanying text.

Man toy) after the patent expired,⁵⁰⁴ a buyer of an NFT does not have to pay royalties to use the work of authorship after the copyright expired.⁵⁰⁵ The NFT is just the virtual token; it is not the artwork associated with the NFT. Just as any member of the public, the buyer can make unlimited uses of the artwork in the public domain without any payment of royalties. A resale royalty is collected only in the sale of the NFT.⁵⁰⁶ For example, imagine the Picasso estate sold NFTs for Picasso's artworks whose copyrights had expired. As long as the public, including the NFT owners who are subject to the license, can freely exploit the Picasso artworks without any payment, there is no conflict with the limited term of copyright. That's what distinguishes this situation from *Kimble*, where the licensee had to continue to pay royalties simply to use the invention. But, here, the resale royalty for the NFT sale does not diminish the public's enjoyment of the artworks in the public domain.

B. *Skepticism of NFTs*

NFTs have evoked much skepticism. It goes beyond the scope of this Article to address all the various criticisms, but let me address two: the charges that NFTs are scams and that they do not provide meaningful ownership in anything of value.

A common attack on NFTs is that they are scams, shell games, Ponzi schemes, or some other word that denotes fraud or suspicious activity.⁵⁰⁷ To understand this criticism, we must untangle two different charges: first, that NFTs can be used to scam people, and second, that NFTs are inherently scams. The first charge no doubt has some validity. Borrowing Justice Holmes' phrase, "bad men" have created and sold NFTs without the rights to the associated artwork or tricked people to believe a "roadmap" of future development for the NFT ecosystem only to get "rugged" by the NFT creators, who disappear into the night with the money.⁵⁰⁸ Of course, our current copyright, patent, and trademark systems are not immune from scams and predatory tactics and trolling.⁵⁰⁹ No one

504. See *Kimble*, 576 U.S. at 449.

505. See *supra* notes 167–72 and accompanying text.

506. See Kent, *supra* note 356.

507. See Samantha Hisson, *NFT Scams Are Everywhere. Here's How to Avoid Them*, ROLLING STONE (Jan. 24, 2022), <https://www.rollingstone.com/culture/culture-features/nft-crypto-scams-how-to-not-get-scamed-1286614/> [<https://perma.cc/ZXK7-Z7H8>].

508. See *id.*; Tim Copeland, *Supposed 17-year-old Artist Sells \$138,000 Worth of Fake NFTs and Disappears*, BLOCK (Sept. 30, 2021, 11:38 AM), <https://www.theblockcrypto.com/post/119150/supposed-17-year-old-artist-sells-138000-worth-of-fake-nfts-and-disappears> [<https://perma.cc/6WAQ-4B2Q>]; OpenSea (@opensea), TWITTER (Jan. 27, 2022, 5:26 PM), <https://twitter.com/opensea/status/1486843201352716289?s=20&t=H9gU6wR00oLct6ED3RLqQ> [<https://perma.cc/29FB-Q6F6>].

509. See Matthew Sag & Jake Haskell, *Defense Against the Dark Arts of Copyright Trolling*, 103 IOWA L. REV. 571, 571, 576–79 (2018); Stefan Lederer, *The Growing Problem of U.S. Patent Trolls, and What Should Happen Next*, FORBES (July 22, 2021, 7:20 AM), <https://www.forbes.com/sites/forbesbusinesscouncil/2021/07/22/the-growing-problem-of-us-patent-trolls-and-what-should-happen-next/> [<https://perma.cc/PH8W-62HE>]; Beth Kowitz, *China Is Flooding the U.S. with Trademark Applications and No One Is Sure Why*, FORTUNE (July 1, 2021, 8:00 AM), <https://fortune.com/2021/07/01/china-us-trademark-applications-uspto/> [<https://perma.cc/5VKH-ZFZR>]; Lisa Bollinger Gehman, *USPTO Sanctions Chinese Law Firm for Fraud and Terminates More*

seriously contends that such scams and frauds mean we should put an end to all copyrights, patents, and trademarks. Nor should the concern about scams in some NFTs mean that we should put an end to all NFTs. It's a non sequitur. The proper response is not to ban the technology of NFTs, but instead, to prosecute the wrongdoers. The Department of Justice has already begun to do so, indicting several NFT creators for alleged "rug pulls" in launching NFT projects with promises of future perks, only to abscond with the money from the NFT sales.⁵¹⁰

The second charge of scams is even broader and more categorical. It charges that all NFTs are inherently scams or suspect—meaning that it's not just some bad apples among NFTs, but the fruit itself should be forbidden. Related to this charge, I believe, is a notion that ownership in a virtual token is not truly giving NFT buyers anything of real value (*i.e.*, the scarcity or uniqueness is artificially constructed on blockchain).⁵¹¹

What these critics miss, however, is that NFTs have already created a new type of virtual ownership that many businesses and people already value. In a free market, people decide for themselves the price they are willing to buy or sell an item. As Milton Friedman and Rose Friedman explained in their book *Free to Choose*: "Adam Smith's key insight was that both parties to an exchange can benefit and that, *so long as cooperation is strictly voluntary*, no exchange will take place unless both parties do benefit."⁵¹² In other words, we let the market decide whether something has any value—and, if so, what value. Critics might respond that NFTs are different from other consumer items because they are virtual abstractions of something else. That is true to some extent, but we have no shortage of financial contracts and instruments that are abstractions of something else. A stock is an abstract ownership interest in a company.⁵¹³ The whole class of derivatives are abstract ownership interests in various financial assets and arrangements.⁵¹⁴ Given the pervasive trading of abstract ownership interests in the financial markets, it's unclear why NFTs should be viewed as inherently suspect. The fact that \$27 billion worth of NFTs exchanged hands in 2021 alone⁵¹⁵—

than 15,000 US Trademark Applications, JD SUPRA (Dec. 23, 2021), <https://www.jdsupra.com/legalnews/uspto-sanctions-chinese-law-firm-for-5857642/> [<https://perma.cc/K7UH-BJ6X>].

510. See Sander Lutz, *DOJ Files Charges Against Alleged Mutant Ape Planet NFT Rug Pull*, DECRYPT (Jan. 5, 2023), <https://decrypt.co/118530/doj-charges-mutant-ape-planet-nft-rug-pull> [<https://perma.cc/5F38-NFZZ>].

511. See, e.g., Christie Smythe, *The Backlash Against NFTs: Why One Artist Says They're a "Classic Ponzi Scheme"*, BUS. OF BUS. (Dec. 12, 2021, 5:52 PM), <https://www.businessofbusiness.com/articles/the-backlash-against-nfts-one-artist-says-theyre-a-classic-ponzi-scheme-fraud-theft-crypto/> [<https://perma.cc/E83D-PDCZ>] (quoting artist Eriana Ura-Smith: "My initial impression of NFTs were that the idea of creating artificial scarcity for an infinitely replicable product was a fool's errand at best, and an obvious scam at worst. Nothing I have learned about them in my extensive research since has disabused me of that notion.").

512. See MILTON FRIEDMAN & ROSE FRIEDMAN, *FREE TO CHOOSE* 1–2 (1980) (emphasis added).

513. See Adam Hayes, *Stocks: What They Are, Main Types, How They Differ from Bonds*, INVESTOPEDIA, <https://www.investopedia.com/terms/s/stock.asp> (July 6, 2022) [<https://perma.cc/59YK-X4QU>].

514. See Jason Fernando, *Derivatives: Types, Considerations, and Pros and Cons*, INVESTOPEDIA, <https://www.investopedia.com/terms/d/derivative.asp> (July 15, 2022) [<https://perma.cc/Z2AH-8BP7>].

515. Nat Rubio-Licht, *NFT Sales Reached \$27 Billion this Year*, PROTOCOL (Dec. 6, 2021), <https://www.protocol.com/bulletins/nft-sales-2021> [<https://perma.cc/2PVB-XPWD>].

without the sky falling—should allay some of these concerns. Many big businesses, ranging from Adidas to Budweiser to Chipotle to the Gap to Lamborghini to Mattel to McDonald’s to the NBA to Nike to Ralph Lauren to Robert Mondavi to Starbucks to Taco Bell to Walmart to Walt Disney, are selling or developing NFTs.⁵¹⁶ Disney CEO Robert Iger even predicted “an explosion of things being created, traded, collected in NFTs.”⁵¹⁷

This business development reflects the ways in which our lives are becoming more virtual—which will only accelerate with the release of eyewear and headsets for virtual and mixed reality from Apple, Samsung, and other tech companies.⁵¹⁸

The utility and legitimacy of NFTs for artistic works are evident in the acquisitions, exhibitions, and sales of NFTs by leading art institutions around the world, including the Centre Pompidou in Paris, the Museum of Modern Art in New York City, the Los Angeles County Museum of Art, and the State Hermitage Museum in Russia.⁵¹⁹ No one accuses these art institutions of engaging in Ponzi schemes to deceive the public. As the leading art institutions acquire NFTs for their permanent collections, many others will follow suit.

V. CONCLUSION

This Article is the first to elaborate a theory of decentralized intellectual property to explain the phenomenon of NFTs. Like the current movement to adopt decentralized finance, De-IP utilizes blockchain technology to provide an alternative, decentralized way to engage in activities that have traditionally been

516. See Nftjedi, *List of Businesses Adopting or Developing NFTs*, NOUNFT (Feb. 1, 2022), <https://nounft.com/2022/02/01/list-of-businesses-adopting-or-developing-nfts/> [<https://perma.cc/PAH8-2QLU>]; Kate Irwin, *Starbucks Polygon NFTs Are Already Selling for Thousands*, DECRYPT (Feb. 16, 2023), <https://decrypt.co/121552/starbucks-polygon-nfts-already-selling-thousands> [perma.cc/AL4P-2XE6]; *Starbucks Brewing Revolutionary Web3 Experience for its Starbucks Rewards Members*, STARBUCKS (Sept. 12, 2022), <https://stories.starbucks.com/press/2022/starbucks-brewing-revolutionary-web3-experience-for-its-starbucks-rewards-members/> [perma.cc/A6UG-KVKX]; Chris Katje, *NFT Possibilities For Disney Are 'Extraordinary': How Bob Iger's Return Could Propel Web3 Growth*, BENZINGA (Nov. 21, 2022, 11:08 AM), <https://www.benzinga.com/markets/cryptocurrency/22/11/29807443/nft-possibilities-for-disney-are-extraordinary-how-bob-igers-return-could-propel-web3-grow> [perma.cc/9Y5N-PGGF].

517. Stephen Graves, *Former Disney CEO Bob Iger Predicts NFT 'Explosion'*, DECRYPT (Feb. 1, 2022), <https://decrypt.co/91661/former-disney-ceo-bob-iger-predicts-nft-explosion> [perma.cc/63NG-WPLJ].

518. See Scott Stein, *Apple's AR/VR Headset: What to Expect in 2023*, CNET (Jan. 26, 2023, 5:00 AM), <https://www.cnet.com/tech/computing/apple-ar-vr-headset-rumors-m2-2022/> [perma.cc/64BX-QU6V].

519. See Dorian Batycka, *Paris's Centre Pompidou Breaks New Ground by Acquiring 18 NFTs*, ART NEWSPAPER (Feb. 14, 2023), <https://www.theartnewspaper.com/2023/02/14/pariss-centre-pompidou-breaks-new-ground-by-acquiring-18-nfts> [perma.cc/G5C6-NSWR]; Kelly Crow, *\$70 Million in Art at MoMA to Be Sold to Extend Museum's Digital Reach*, WALL ST. J. (Sept. 13, 2022, 9:00 PM), <https://www.wsj.com/articles/70-million-in-art-at-moma-to-be-sold-to-extend-museums-digital-reach-11663117201> [perma.cc/5UQN-CBF9]; Cam Thompson, *NFT Influencer Cozomo de' Medici Donates 22 Digital Artworks to LACMA*, COINDESK (Feb. 13, 2023, 3:37 PM), <https://www.coindesk.com/web3/2023/02/13/nft-influencer-cozomo-de-medici-donates-22-digital-artworks-to-lacma/> [<https://perma.cc/6TQX-KCR9>]; Scott Reyburn, *Museums Are Cashing In on NFTs*, N.Y. TIMES (Mar. 25, 2022), <https://www.nytimes.com/2022/03/25/arts/design/museums-nfts.html> [<https://perma.cc/8Z8U-3M8E>].

governed by a highly centralized regulatory system, typically involving the government and dominant intermediaries. The primary vehicle for De-IP is a new technology called the non-fungible token, which consists of a computer program called a smart-contract that authenticates a virtual token on blockchain and a content license that sets forth the use and ownership rights (if any) that the NFT buyer receives.⁵²⁰ Although critics may object that De-IP does not adequately consider the public interest in how the copyright system should be reformed, both republican theory of deliberation and the ongoing public debate on social media and via decentralized autonomous organizations allay such concerns.⁵²¹ Indeed, a decentralized approach may be not only better for deliberation by people but also more responsive to the needs of individual authors and the public.

520. *See supra* notes 28–34 and accompanying text.

521. *See supra* Part IV.